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Estimating the Impact of Capability Factors on College Student Debt Levels Utilizing the Generalized Sustainable Capability Framework

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ESTIMATING THE IMPACT OF CAPABILITY FACTORS ON COLLEGE STUDENT DEBT LEVELS UTILIZING THE GENERALIZED SUSTAINABLE CAPABILITY FRAMEWORK

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The current unprecedented level of college student debt in the United States at over $1.4 trillion (Federal Reserve, 2017) is of major concern for all who desire to improve higher education, income and social inequality, and the general welfare of society. This study's purpose is both theoretical and empirical: first, to develop and propose the Generalized Sustainable Capability Framework (GSCF) as a conceptual model to analyze human development; and second, to test four specific hypotheses. The hypotheses were: 1) Students with lower test scores will incur higher levels of debt; 2) Minority students will incur higher levels of debt; 3) Students with lower family income will incur higher levels of debt; and 4) Students whose parents have lower levels of education will incur higher levels of debt. The population was students who graduated recently from a southern regional university and those who are presently attending the institution. The sample comprised 339 students who graduated in 2016 from the university. Three models were structured to test the hypotheses using hierarchical regression. The dependent variable, student debt amount (SDA) was the same for the three models, and Model 3, with the independent variables age, gender, GPA, race, family income, and mothers' education level, was determined the most appropriate. Only the first hypothesis was statistically supported by the results of the regression. The lack of statistical support may be due to the fact that the graduates of the southern regional

university have lower average debt compared to the national average, possibly due to its offerings of scholarships and grants. This implies that policy supporting student capabilities mitigate the potential negative effects of student debt as the GSCF postulates.

CHAPTER I: INTRODUCTION

The current unprecedented level of college student debt, at over $1.4 trillion (Federal Reserve, 2017), and the accompanying high default rate in the United States is of major concern for all who desire to improve higher education, income and social inequality, and the general welfare of society. A combination of forces converged to create this undesirable climate, and a number of studies have attempted to explain various aspects of this phenomenon. Some studies have examined the rising cost of attending college (Braucher, 2012; Denice, 2015; Popp Braun, 2016); the psychological factors involved with rising student debt (Lim, Heckman, Letkiewicz, & Montalto, 2014; Mueller, 2014); and the level of students' financial literacy (Andruska, Hogarth, Fletcher, Forbes, & Wohlgemuth, 2014; Smith & Barboza, 2014; Xiao, Ahn, Serido, & Shim, 2014). The rising cost and student debt are occurring in an increasingly stratified higher education sector, prompting other studies that have investigated higher education's influence on inequality in society (McGlynn, 2014; Mettler, 2014), as well as those that researched the constrained socio-economic conditions/capabilities of families and students (Nussbaum, 2006; Walker, 2012; Wilson-Strydom, 2015).

While these studies provide many useful insights and information about important aspects of the student debt problem, one area that requires further investigation is how students' 'capability factors' affect the amount they borrow for college. In particular, it is necessary to measure the impact of students' academic performance, socio-economic status, and demographic characteristics (considered 'capability inputs' in the capability approach literature) on the level of student debt they accumulate during college from the perspective of sustainable human development (SHD). The Generalized Sustainable

Capability Framework (GSCF), which combines concepts from the capability approach (CA) and sustainable development (SD), is developed and proposed in this study to evaluate the issues involved with college student debt. Both the CA and SD are two sides of the same SHD coin (Neumayer, 2012).

The capability approach from the SHD literature has provided a powerful framework to guide in the selection and understanding of personal, socio-economic, and demographic variables that comprise capability inputs and that affect debt acquisition decisions of college students. One of the CA's main purpose is to evaluate whether a person is able to live the life they deem most valuable (Robeyns, 2005; Sen, 1999; Wilson-Strydom, 2015). This approach was developed by economist Amartya Sen in the 1980s and has been further developed by philosopher Martha Nussbaum and others. The CA criticizes traditional approaches, such as utilitarianism and the human capital approach, and the Rawlsian theory of Justice as being deficient due to their use of income and primary goods, respectively, to measure well-being (Robeyns, 2005; Sen, 1999). Students borrow to pay for an education that should be providing for a valuable standard of living, but high debt, defaults, and related adverse consequences such as stress, low socio-economic status, institutionalized inequality, and environmental disadvantages may constrain or prevent the achievement of this goal for many students. Likewise, SD provides a generalized, integrated, and inclusive approach that looks dynamically at the interrelationship and impact of social, economic, environmental, and institutional factors on sustainable living (Sachs, 2015).

Statement of the Problem

The large and growing student debt has surpassed both auto loans and credit card debt in the U.S. (Federal Reserve Bank of New York, 2012). This issue requires further study and action at the individual, family, community, institutional, and national levels to mitigate its adverse effects on a significant segment of the student population. Such action may be by way of improved policy guided by research. Applications of the capability approach to higher education in the U.S. have been sparse or non-existent, especially pertaining to college student debt and inequality in higher education. The following are gaps that remain in the literature on inequality in higher education, college student debt, and on the application of the sustainable development and capability approaches to higher education in the U.S.:

1. Much research has been undertaken investigating the rising cost of higher education in the U.S., but none has used the capability approach from sustainable human development to assess American students' debt burden.
2. While there are a number of studies examining student financial literacy and its impact on student debt, these have tended to focus on financial knowledge content and not necessarily on explaining the impact of other important capability factors that affect the level of student debt.
3. The vast majority of capability approach studies applied to the higher education sector are conceptual in nature, reflecting the "relative newness" of the approach compared to more established theories such as the Human Capital model, and empirical studies are mostly qualitative. More quantitative empirical applications of this framework are necessary to complement the qualitative studies and to

advance its usefulness as a tool for analysis when evaluating social justice issues such as inequality in higher education. Such quantitative applications are also more amenable to generalization than the qualitative approaches used thus far.

4. There has been little cooperative work between SD and CA scholars to derive synergies from each field. Both areas basically study the same issues from different lenses but do not appear to communicate and collaborate sufficiently across fields.
5. No study has been done at a regional U.S. university looking at the effects of capability factors on the level of undergraduate student debt. Such a study is necessary to examine how various sub-groups at such an institution fare with debt levels and to better understand the effects of capability factors on their accrued student debt.

Purpose of the Study and Hypotheses

The purpose of this study is both theoretical and empirical: first, to develop and propose the GSCF as a conceptual model for analysis; and second, to test the hypotheses that were developed within this framework. These hypotheses relate the impact of specific capability factors (the independent variables in this study) on the level of debt (another capability factor) incurred by students who graduated in 2016 from a southern regional U.S. university. The independent variables include personal and family characteristics of students, namely age, gender, GPA, race, family income, and parent's education (mothers' education); and the dependent variable is the level of student debt incurred. Hierarchical multiple regression is used to estimate the size and statistical significance of the impact of the independent variables on the amount of student debt

incurred.

The main research question asks: To what extent do capability factors affect the amount of debt that students incur? The central research question leads directly to the general hypothesis being tested: C*ollege students with constrained capability factors have higher debt levels.* The central research question will be answered through the testing of a number of specific hypotheses.

The specific hypotheses, focused on the sample of students from a southern regional U.S. university, are:

Hypothesis 1. Students with lower test scores will incur higher levels of debt.

Hypothesis 2. Minority students will incur higher levels of debt.

Hypothesis 3. Students with lower family income will incur higher levels of debt.

Hypothesis 4. Students whose parents have lower levels of education will incur higher levels of debt.

Significance of the Study

The four main research literatures of interest for this study are those from the areas of college student debt, inequality in higher education, sustainable development, and the capability approach applied to higher education. The four areas overlap where the study looks at the central research question. As noted, the contribution of this dissertation is to develop and propose the GSCF and to fill gaps in the application of the sustainable development and capability approaches to student debt and equity in higher education in the U.S. The GSCF is aimed at providing a more comprehensive and coherent schematic to integrate the many factors that affect the capabilities of individuals. The first audience that the study may benefit is the SHD community, including scholars in the fields of SD

and the CA in which the GSCF applies. The second audience that may benefit from the answers to the four hypotheses is regional universities, including their students, parents, and administration. To the extent that the findings can be generalized, the study sheds light on the challenges of rising student debt and provides insights on improving policy and practice to mitigate the negative effects of the phenomenon.

Definition of Terms

Capability Approach (CA) – An evaluative framework for assessing the extent to which persons are able to live the lives they deem valuable. This approach was developed by economist Amartya Sen in the 1980s and has been further developed by philosopher Martha Nussbaum and others. The CA criticizes traditional approaches, such as utilitarianism and the human capital approach, and the Rawlsian Theory of Justice as being deficient due to their use of income and primary goods, respectively, to measure well-being (Robeyns, 2005; Sen, 1999).

Capability factors – Economic, social, political/institutional, environmental, and psychological variables (goods, services, and mental states) that influence, via a conversion process, the size and quality of the 'capability set' from which a person is able to choose to attain the life he or she deems valuable (definition introduced by this study based on a synthesis of definitions about the concept).

Capability set – Those potential functionings, or beings and doings, from which a person has the real freedom to choose, in his or her own judgment, to lead the life that he or she deems valuable (Robeyns, 2005; Sen, 1999). This set is either enhanced or restrained depending on conversion factors (as per the Robeyns Schematic) or the conversion process (as per the GSCF).

Conversion factors – Personal conversion factors (e.g., metabolism, physical condition, sex, reading skills, intelligence) that influence how a person can convert the characteristics of the commodity into a functioning; social conversion factors (e.g., public policies, social norms, discriminating practices, gender roles, societal hierarchies, power relations); and environmental conversion factors (e.g. climate, geographical location) that play a role in the conversion from characteristics of the good to the individual functioning (Robeyns, 2005).

Conversion Process – A dynamic interaction among capability factors that varies over time and across communities, countries, and regions. These interactions involve both macro and micro forces from the social, economic, environmental, institutional, and psychological realms that produce resultant capabilities that individuals have in their capability sets (definition introduced by this study).

Functionings – The actual beings and doings of individuals based on their choice from their capability sets (potential functionings). These are the actual things/professions that people are, e.g., students and farmers, and what they do, e.g., study academic subjects and grow crops (Robeyns, 2005).

Human Capital Model – The human capital model is a framework that estimates the impact of a person's innate skills and acquired knowledge through years of schooling and other characteristics such as family background on his or her labor market productivity, usually measured by wages. The financial value of educational investments, including loan funds, can be estimated and reported as the investment yield, and this may be either a positive or negative return over the lifetime of the person (Becker, 1994; Oreopoulos & Petronijevic, 2013; Soo, Xu, & Kiss, 2015).

Human Development – A field of study that examines the well-being of persons across various dimensions, including the economic, social, and environmental spheres. Amartya Sen has been a major contributor to the field and, in particular, has developed the capability approach to evaluate human development (Sen, 1999).

Generalized Sustainable Capability Framework (GSCF) – A new conceptual framework developed and proposed in this study that attempts to synchronize and leverage concepts from the sustainable development literature with those from human development, in particular the Robeyns Schematic from the capability approach. The GSCF is represented schematically and dynamically in Figure 2 (introduced in Chapter 2) starting on the left with SD macro and micro factors that interact with each other, then followed by the conversion process, and moves to the right to the CA micro concepts of the capability set and functionings. It then dynamically connects back towards the conversion process via the agency factor. The conversion process in turn affects the capability factors.

Race – American Indian or Alaskan Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, Hispanic, or White.

CHAPTER II: REVIEW OF THE LITERATURE

Introduction

The higher education sector in the U.S. recently has been under scrutiny by the public and other stakeholders due to concerns over mounting student debt and inequality in the stratified higher education sector (Braucher, 2012; McGlynn, 2014; Mettler, 2014; Wilson-Strydom, 2015). Relatively lower levels of public spending compared to total spending have caused the majority of institutions in the sector to increase tuition, making it more challenging for students to access and complete college (Zumeta, Breneman, Callan, & Finney, 2012). Parallel to the fast growth in tuition has been the rapid increase in college student debt, now at over $1.4 trillion dollars, surpassing auto and credit card loans (Federal Reserve, 2017; Federal Reserve Bank of New York, 2012).

Studies have looked at this debt phenomenon in various ways, including utilizing the human capital model, examining psychological factors, and assessing financial literacy. The human capital model is a framework that estimates the financial value of educational investments, including loan funds, and reports whether the investment yields either a positive or negative return over the lifetime of the students (Becker, 1994; Oreopoulos & Petronijevic, 2013; Soo et al., 2015). Other approaches have examined college student debt by looking at how psychological factors affect the decision to incur debt by students (Lim et al., 2014; Mueller, 2014). Some researchers have analyzed the financial literacy of college students and attempted to determine how it affects the amount of debt they accrue (Smith & Barboza, 2014; Xiao et al., 2014) to try to better understand student debt levels.

The rising student debt level is occurring in a higher education sector that is already considered unequal, and the sector is now experiencing increased stratification as evidenced by unequal funding (Newfield, 2010; Zumeta et al., 2012) and the growth in the for-profit subsector that has positioned itself to offer services using non-traditional approaches (Denice, 2015). Many experts in the field have raised red flags to signal what they perceive to be a proliferation of college degrees that are of questionable quality, compounding the inequality challenge (Braucher, 2012; Denice, 2015; McGlynn, 2014; Mettler, 2014; Newfield, 2010; Zumeta et al., 2012). These trends raise serious questions of equity and the erosion of the original intent of higher education to bring opportunities to all persons, regardless of background and level of income.

Analyzing the many factors that affect student debt is complex, and the various approaches used have offered only partial insights into the problem. One newer area of analysis that falls under the broader field of human development (HD) is the capability approach. This framework for analysis was originally developed by Amartya Sen, 1998 Nobel in Economics, to assess justice and equity in societies; and in the broadest sense it looks at factors that enable people to attain the lives they deem valuable (Sen, 1999). These micro-level factors fall under the larger macro pillars promoted by the sustainable development (SD) literature, including economic, social, environmental, and political/institutional, and together offer a comprehensive, systemic view to evaluate questions of justice and quality of life. The capability approach, complemented by a synthesis of concepts from sustainable development, is therefore much better suited to model the varied factors that must be considered to understand student debt in the context of inequality in higher education and to offer potential solutions to address the concerns

raised.

In this chapter the four related literatures of college student debt, inequality in higher education, sustainable development, and the capability approach are reviewed in sequence. For the College Student Debt section, three sub-sections are included: The Human Capital Model, Psychological Studies, and Financial Literacy. The second section entitled Inequality in Higher Education has two sub-sections: The Unequal Funding of Higher Education, and Stratification and Inequality in Higher Education. The third section is called Sustainable Development and the Capability Approach, and it covers three sub-sections: Sustainable Development, Human Development, and The Capability Approach and Higher Education. The fourth section entitled College Student Debt, Inequality in Higher Education, and Sustainable Development and the Capability Model brings together the four literatures, and sets the stage for the last section entitled Theoretical Framework. In this last section the GSCF is developed and proposed as a conceptual framework to analyze college student debt and inequality in higher education generally, and specifically to test the hypotheses on the sample of students from a southern regional U.S. university.

College Student Debt

A recent literature review conducted on student debt showed studies covering a wide range of issues, from trends in student loans to the impact of student debt on college enrollment, career decisions, and personal life decisions (Soo et al., 2015). Other authors have used the human capital model, psychological/self-efficacy/perception studies, and financial literacy to examine the student debt problem (Becker, 1994; Mueller, 2014; Smith & Barboza, 2014).

The Human Capital Model

Formal models of human capital date to the seminal contributions of Jacob Mincer, Theodore Shultz, and Gary Becker during the late 50s and early 60s. For the first time education was viewed as an investment and termed as an intangible asset, similarly to how investment is made in physical capital that are tangible assets (Becker, 1962; Mincer, 1958; Shultz, 1963). These models have become the benchmark for human capital analysis, especially in studies that estimate returns to college education. The human capital model is a framework that estimates the impact of a person's innate skills and acquired knowledge through years of schooling, and other characteristics such as family background on his or her labor market productivity, usually measured by wages. The financial value of educational investments, including loan funds, can be estimated and reported as the investment yield, and this may be either a positive or negative return over the lifetime of the person (Becker, 1994; Oreopoulos & Petronijevic, 2013; Soo et al., 2015).

Becker (1994) compared investment in human capital to investment in physical capital, and estimated that educational investments yield about a 12-13% return, higher than physical capital investments. One of the points that Becker (1994) made was that understanding human capital will be useful for understanding inequality, as people with more education get a higher return than those with less education. If people with lower SES get less education, then they will have a lower return in the labor market than those with higher SES who get more education; parents with higher SES are able to invest more in the education of their children than parents with low SES (Becker, 1994).

The human capital theory has been operationalized utilizing data that has become

nationally available due to more extensive networks and computing capacity. The American Institutes for Research (AIR) has led in promoting the development of data systems at the state level to gather and report on the divergent wages of college graduates according to areas of study and college type (American Institutes for Research, 2012). Schneider (2014), using data from AIR, explained the key issues in this process and the value it brings to families and students deciding on which program to enter, what the likely returns will be, and also what level of debt would be sustainable. He reported that about 24 states have linked graduate specific data (including institution, date of graduation, and program of study) with unemployment insurance data that provide individual salary information for each graduate. About 90% of the civilian workforce is captured by the unemployment insurance data. Since not all graduates remain instate to work, the U.S. Department of Labor's Wage Record Interchange System 2 (WRIS 2) provides about 30 states with a network to exchange such information (United States Department of Labor, 2017). This type of information gathered and made public by states potentially empowers their citizens with the needed data to make substantial decisions on investment in higher education and also allows for more advanced studies to be carried out, including analyzing the returns to a college education (Schneider, 2014).

Psychological Studies

Another approach to studying debt has focused on psychological issues related to the problem. A survey analysis of 174 college students determined that student debt is a leading cause of stress to students (Mueller, 2014); another survey of 4,713 college students found that stress is associated with academic failure and adverse health issues, and African-American and high debt students seek more help relative to other students

(Lim et al., 2014). The study by Lim et al. (2014) used responses from the 2010 Ohio Student Financial Wellness Survey and logistic regression to model the impact of demographic characteristics, financial education, student loans, financial stress, and financial self-efficacy on a student's decision to seek financial help. Financial self-efficacy was found to moderate the relationship between stress and stress-related adaptive behaviors, i.e., affecting the direction and strength of the relationship (Lim et al., 2014).

Bandura (2000) theorized that perceived self-efficacy is concerned with people's beliefs in their capabilities to attain certain results and avoid others by their own actions, and is at the core of human agency and the capability approach (Cauce & Gordon, 2012.). Interventions at improving a student's financial self-efficacy improve their agency to take appropriate actions when they face the stress produced by student debt (Lim et al., 2014). Personal agency has the capacity to influence the social and institutional environment, and it is also influenced by the same environment (Bandura, 1999). Student debt becomes both a psychological and economic obstacle for many who may be unable to deal with the stress of the repayment or its impact on future well-being. From the capability approach literature applied to education, Walker and Unterhalter (2007) stated:

> Agency here is taken to mean that each person is a dignified and responsible human being who shapes her or his own life in the light of goals that matter, rather than simply being shaped or instructed how to think…By embracing agency in and through our education practices, we open the possibility to interrupt a pervasive relationship in education that tends to link learners' origins and outcomes…Our choices are deeply shaped by the structure and opportunities available to us so that a disadvantaged group comes to accept its status within the

hierarchy as correct even when it involves a denial of opportunities. (pp. 5-6)

Financial Literacy Studies

A number of studies have shown that many college students who have accumulated debt either do not know the amount of debt they have or what their debt requires of them after graduation (Andruska et al., 2014; Smith & Barboza, 2014; Xiao et al., 2014). Many students do not know the terms of their student loans and how their debt correlates with the values of their degrees and their future earning potential (Andruska et al., 2014).

Andruska et al. (2014) utilized 486 responses from a survey of college students to carry out logistic regression analysis, and found, among other results, that students whose parents teach them about financial matters exhibited greater knowledge of their loans and debts. Smith and Barboza (2014) used survey data from the responses of 380 college students and probit regression analysis that yielded similar results, including that early financial literacy has a stronger impact on the future behavior of students, reinforcing the results from other related literature that early interventions matter, especially those associated with parents and family.

Xiao et al., (2014) used 1,511 responses of a survey of college students to examine the relationship between early financial literacy and later financial behaviors. They differentiated between objective and subjective knowledge and reported that students with greater subjective knowledge exhibited less risky behavior in the future. They defined objective knowledge as content knowledge demonstrated by a test score, and subjective knowledge as self-assessed understanding of content knowledge. They also found that students with higher GPAs demonstrated less risky behaviors, and males

exhibited riskier financial behaviors compared to females (Xiao et al., 2014).

Inequality in Higher Education

Unequal Funding of Higher Education

The ratio of private tuition to state funding has increased in the past decade as state funding has declined, especially in the aftermath of the Great Recession that started in 2007/08 (Zumeta et al., 2012). Since the mid-1970s, there has been a gradual shift in philosophy away from the public funding of higher education toward more private investment. Zumeta et al. (2012), in their comprehensive book that synthesized numerous data bases and studies, offered a comprehensive assessment of the financing challenges of higher education that included its history, the needs of the nation, and the capacity for the sector to provide the required graduates the economy is forecasted to demand. They noted that there are major shifts taking place in the demographic makeup of the nation, including that the U.S. workforce of 2020 will be much different from that which was the case previously. The proportion of Whites in the workforce will fall to 62.5% from 81.9% in 1980, while Hispanics will rise from 5.7% to 17.4% and African Americans will rise from 10.2% to 13.2%. One part of the challenge of these changes is that both Hispanics and African Americans have relatively low bachelor's degree achievement compared to Whites. In 2008, 33% of Whites ages 25-64 had completed a bachelor's degree, while only 20% of African Americans and 10% of Hispanics in the same age group had done the same.

Zumeta et al. (2012) further argued that, due to globalization, the U.S. has fallen behind a number of countries in measures of educational attainment and economic productivity. This has occurred because a number of other countries engaged in

globalization, such as those from East Asia and Scandinavia, made strong gains in the quality of their education systems to meet the needs of their growing, more technological-based economies. To regain its top position, the U.S. workforce of the future must be even more highly qualified than it is today (Zumeta et al., 2012). For this to occur, the higher education sector, the main contributor to workforce productivity, would need to transform and focus more resources on the lower end of the sector that serves mostly Hispanic and African-American students. However, due to the falling and unequal availability of public funding, "the national and state needs for major improvements in higher education opportunity and attainment will not be met, with serious negative implications for competitiveness in the global economy and for equity in American society" (Zumeta et al., p. 161).

Stratification and Inequality in Higher Education

McGlynn (2014), in a descriptive article, expressed that the higher education sector can be viewed as a microcosm of the inequality of opportunity and outcomes characteristic of the wider U.S. society. Between 1999 and 2009, there was no increase in spending per student at the community college level, remaining at $9,300, while for public research universities it increased by 11% to $16,700, and for private research universities it went up by 31% to $41,000 (McGlynn, 2014). McGlynn also reported that The Century Foundation "… found that wealthy students outnumber poor students at the most selective four-year institutions by a ratio of 14 to 1" (p. 53).

This pattern of inequality also is seen by how much students need to pay with rising tuition and fees in the stratified higher education sector. McGlynn (2014) provided data for the years 2003/04 and 2013/14 that showed average tuition for community

colleges rising by 35% from $2,425 to $3,264, for public four-year colleges rising by 38% from $13,336 to $18,391, and for private non-profit four-year colleges increasing by 25% from $24,071 to $30,094. In both categories of spending per student and tuition paid, students with lower SES who attend mostly community colleges and open access public institutions experience lower investment in their education combined with rising tuition. The steep tuition at private institutions and the more selective public universities is a major barrier to access for families with low SES and in effect perpetuates the inequalities of the larger society.

Newfield (2010) provided an expert analysis via a comprehensive essay of the effects of the way American higher education is funded. He highlighted the inequity of the stratified system, in which elite schools provide higher graduation rates and better outcomes to higher income students, while less selective public colleges have lower graduation rates and serve a relatively larger number of students with low SES. He stated that "the best way to increase American educational attainment is to improve completion rates for low-income and minority students, which requires that we dramatically increase expenditures at the low-spending colleges where most of those students go" (p. 623).

Mettler, in her 2014 book entitled *Degrees of Inequality*, made a strong presentation using many data sources and articles that went beyond what many writers have said about stratification and inequality in the higher education sector. She stated that the way higher education operates today in fact exacerbates inequality. Attending college once helped to improve the opportunities of students but now it "engenders the creation of a something that increasingly resembles a caste system: it takes Americans who grew up in different social strata and it widens the divisions between them and makes them

more rigid" (p. 5). Additionally, she highlighted that the political system has gradually eroded and, in the process, abdicated its duty to ensure that the higher education sector is serving to improve equality and opportunity in the nation. Both political polarization and plutocracy have become the norm in governance, and together have undermined the spirit and purpose of the higher education sector (Mettler, 2014).

Adding to the stratification of the overall sector is the for-profit subsector that has increased its market share in the industry in recent years to about 10% as it positioned itself to meet the growing demand for higher education degrees through convenience and easy enrollment (Denice, 2015). Denice (2015) used the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97) data and regression analysis and found that associate degree graduates from for-profit colleges do not earn more than high school graduates and earn less than associates degree graduates from public, private, and non-profit colleges. While it is still a relatively small part of the overall higher education landscape, it has grown tremendously by enrolling many students with low socio-economic status (SES) through the use of federal Pell Grants, federal loans, and private loans. During the 2000-2010 period, for-profits accounted for about a quarter of Pell Grants and federal loans (Denice, 2015).

Sustainable Development and the Capability Approach

Sustainable Development

To fully understand the context of how the capability approach was developed and how it is applicable to study the issues of inequality and poverty, it is necessary to first briefly review the concept of sustainable development in this section, and human development in the following section. Rapid industrialization, colonialization, and

urbanization across the globe in the first half of the 20th century had both positive and negative effects on people in both poor and rich countries. Positive effects included dramatically increased food production by applying new agriculture techniques using machinery and vastly improved transportation with automobiles, airplanes, and larger, faster ships. Both of these innovations led to greater international trade that led to more industrialization and urbanization, the latter especially due to rural people seeking higher paying work in city factories.

On the negative side, the unregulated expansion of industry created significant pollution and overcrowding as metropolitan areas kept expanding. Both water and air pollution caused serious health issues, particularly for workers and low-income citizens who occupied the slum areas of the cities, and industrialization led to major concern over the sustainable use of resources (Du Pisani, 2006). These problems were especially acute in developing countries in which laborers toiled in inhumane conditions, a reality that has persisted to the present in countries like Bangladesh and Honduras. By the early 1980s the tension grew between those that advocated for progress through growth and those that demanded conservation of the ecology (Du Pisani, 2006). Many citizens of the world began to agitate for a new approach to development, one that would be more just and bring better standards of living to the millions who were suffering.

The United Nations in 1984 started worldwide consultations to determine the state of affairs of nations with respect to their development experiences and, by 1987, produced a report entitled “Our Common Future.” The effort was led by the former Prime Minister of Norway, Gro Brundtland, and the report soon became commonly known as the “Brundtland Report.” It was in this report that the definition of sustainable

development was first coined as:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:
>
> - the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
> - the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs. (World Commission on Environment and Development, 1987, p. 41)

There was a dichotomy of interest between the developed and developing countries in the process of putting together the report and between those interested in the environment and the economy (Du Pisani, 2006; Lessmann & Rauschmayer, 2013). Generally speaking, developed countries were mostly interested in reducing pollution, while developing countries pushed for improving human development. In rich countries, the concern with poverty was not a priority, as relatively speaking, their citizens were enjoying much higher standards of living than those in poor countries; their concern was to reduce worldwide pollution to improve the health of their citizens and achieve an even higher quality of life. Poor countries had the overwhelming problems of poverty and were focusing on those policies and plans that would alleviate these pressures. The final definition of sustainable development is, therefore, a compromise of these two priorities and has led to two main branches, one focused on environmental conservation and the other on human development.

In present times, many associate the term sustainable development only with environmental conservation, but the other important dimension of the concept is human development, which may be considered the other side of the same coin (Neumayer, 2010). The clear dangers of climate change and its adverse impact on the future of humanity, and the need to address the issues of massive poverty and inequality globally, are both concerns of highest priority for mankind today (Sachs, 2015). To more clearly understand and address these dangers, the social, economic, environmental, and institutional areas have been identified since the time of the Brundtland Report, Our Common Future, in 1987 as factors of primary concern for sustainable development (World Commission on Environment and Development, 1987).

These four pillars of sustainable development collectively determine the extent of development at the community, national, regional, and international levels, and affect the prospects for future generations to meet their own needs. Initially, only three pillars-the social, economic, and environmental-were considered the main "pillars," but soon institutions became recognized as equally important for the understanding of SD (Buford et al., 2013).

More recently some scholars have advocated to highlight, on an equal footing with the now four pillars, other important factors such as culture and religion (Buford et al., 2013). As Buford et al. (2013) proposed, the "fourth pillar" could encompass culture, religion, and institutions under the one concept of "ethical values." Values were strongly emphasized in the 1980s and 1990s but have been practically eliminated from subsequent international declarations because they are viewed as a subjective paradigm that is difficult to measure. Buford et al. cited Koroneos and Rokos (2012), who suggested that

"the paradigm of sustainable development … has already been co-opted by the neoliberal economic growth agenda [and so no longer emphasizes values], and outline an alternative paradigm of development that is fundamentally rooted in ethics and human well-being" (p. 3039). Any comprehensive definition of SD or of a generalized evaluation approach to assessing welfare must recognize the importance of the economic, social, environmental, and institutional pillars, and some criteria of values is essential to assess well-being and individual freedom.

Each pillar has been the subject of study by scholars endeavoring to understand and explain social, economic, environmental, and institutional factors (Acemoglu & Robinson, 2012; Buford et al., 2013; Sachs, 2015). Sociologists, economists, ecologists, and political scientists, among others, have dedicated massive intellectual effort and resources over many decades to undertake research in these areas. Much of this work has been done independently of each other, denying other fields from advances that could be synergetic. Sustainable development recognizes this deficiency and has promoted an integrated and holistic approach of all these areas to seek better outcomes in terms of reducing hunger, poverty, inequality, political conflicts, and environmental degradation (Sachs, 2015).

To further promote the international importance of sustainable development, the Decade of Education for Sustainable Development (DESD) for the period 2005 to 2014 was launched and supported by the United Nations Education, Scientific, and Cultural Organization (UNESCO) with a focus on transforming higher education around the world through institutional and curricular changes (UNESCO, 2003). This period overlapped with the last 10 years of the Millennium Development Goals (MDGs) that extended from

2000 to 2015, signed by 189 countries, and consisted of eight major goals that countries internationally claimed to seek. The MDGs were to guide countries around the world in reducing poverty, improving education and health, protecting the environment, and improving cooperation; while most goals were not achieved, some progress was made in varying proportions across countries (United Nations, 2015a). The DESD was an effort to promote the meaning and importance of SD and to spread knowledge of the MDGs through higher education institutions, including transforming teacher training at higher education institutions that links to the preschool, primary, and secondary levels of the educational systems in countries around the globe.

The closing of the MDG period saw the opening of the Sustainable Development Goals (SDGs) era, signed by 193 countries, that encompasses 17 goals to be achieved by 2030. These goals include:

1. No Poverty – End poverty in all its forms everywhere.
2. Zero Hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. Good Health and Well-Being – Ensure healthy lives and promote well-being for all at all ages.
4. Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Gender Equality – Achieve gender equality and empower all women and girls.
6. Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all.

7. Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable and clean energy for all.
8. Decent Work and Economic Growth – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Industry, Innovation and Infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
10. Reduced Inequalities – Reduce inequality within and among countries.
11. Sustainable Cities and Communities – Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Responsible Consumption and Production – Ensure sustainable consumption and production patterns.
13. Climate Action – Take urgent action to combat climate change and its impacts
14. Life below Water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Life on Land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16. Peace, Justice and Strong Institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

17. Partnerships for the Goals – Strengthen the means of implementation and revitalize the global partnership for sustainable development. (United Nations, 2015b, p. 14)

Many of these SDGs are relevant to this study, and the diversity of areas they aim to positively affect underlines the holistic approach of sustainable development across the social, economic, environmental, and institutional pillars. Quality Education (goal 4); Reduced Inequalities (goal 10); and Peace, Justice, and Strong Institutions (goal 16) are central to the question of examining the factors that affect college student debt. Students who take on too much debt experience stress as previously noted, and this adversely affects the quality of education they are able to obtain; others may drop out completely and end up defaulting on their loans. Understanding how certain factors affect student debt may lead to improved policy and interventions to reduce inequalities. Stronger institutions, including higher education institutions, may lead to greater social accountability to those most vulnerable and to improved justice for students who are burdened by college student debt. Sustainable development macro factors are important to understand and to be able to see more clearly how human development at the micro level could be better attained and sustained.

Human Development

While SD has focused mostly on the macro sphere, human development (HD) has concentrated more on the micro, individual level. Amartya Sen is known as a major contributor to the fields of development economics and welfare economics, and in particular to human development (Steele, 2001). He explained that for development to be attainable, people must gain the necessary freedoms to live the lives they deem valuable

(Sen, 1999). He created the concept of 'capabilities' to describe the framework for evaluating whether a person is able to achieve certain 'beings and doings,' or also called 'functionings,' in his or her quest to live the life he or she values. A number of other scholars, especially Martha Nussbaum, have contributed to the approach in many areas studied by Sen, including justice, freedoms, equality, agency, education, democracy, and development.

One of the main points of the capability approach (CA) is the rejection of previous approaches that continue to be influential and that assess welfare in terms of the evaluative space of primary goods or utility (Martins, 2007; Robeyns, 2005). Martins (2007) described an evaluative space as "…a variable (such as resources, goods, commodities, liberties, rights, wealth, income or capabilities) in terms of which individual welfare can be assessed" (p. 38). The evaluative space Sen offered is the opportunities and freedoms to do and be what they value ('potential' functionings, or the capability set). He stressed that what people are doing and being ('achieved functionings') is important, but that it is capabilities that provides the best way for understanding and evaluating welfare.

Sen (1999) identified weaknesses in using goods/resources and utility to measure well-being, noting that, in the case of primary goods/resources as promoted by Rawls' Theory of Justice, these are mere means to certain ends and not the end itself of living the life deemed valuable. In the case of utility/income, the evaluative space used by neoclassical economic welfare analysis, people who are measured to have the same income are considered equal. However, different people by virtue of their different circumstances may achieve the same level of income but be otherwise constrained and

not have the same welfare (Martins, 2007). The evaluative space used by the aforementioned Human Capital Model is income as a proxy for utility.

The distinction between 'achieved' and 'potential' functionings is fundamental to the CA. An 'achieved' functioning is only a measure of well-being, but 'potential' functionings are a set of attainable options that represent a person's freedom to choose (Robeyns, 2005; 2011). Allowing for a set of options recognizes that people are diverse, something that other approaches are unable to account for in their frameworks in the way it is considered in the CA. This feature makes it possible to evaluate the freedom to choose over a broad range of options beyond just material (primary goods) or mental states (utility), to include extensive social and economic factors covering areas such as health, education, security, liberties, agricultural expansion, and industrial development (Clark, 2005; Sen, 1989). Robeyns (2005) offered a schematic diagram, presented in detail in the Theoretical Framework section, that references socio-economic factors that must be considered in the understanding of how capabilities are formed and functionings are achieved.

The Capability Approach and Higher Education

Education plays a vital role in the attainment of human development, affecting productivity, distribution of income, the conversion of income and resources into functionings, and the intellectual choice of the life that a person chooses to live (Sen, 1989). The educational experience may or may not enhance a person's ability to achieve functionings, and it may or may not improve the freedoms of students to live the life they deem valuable; thus it is important to examine the various dimensions of education, including within the psychological, family, institutional, social, and economic contexts

(Bates, 2007; Flores-Crespo, 2007; Terzi, 2007; Walker & Unterhalter, 2007; Otto & Ziegler, 2006).

Walker and Unterhalter (2007) stated that "The capability approach, therefore, offers a method to evaluate real educational advantage, and equally to identify disadvantage, marginalization, and exclusion" (p. 5). Sen (1999) made a distinction between 'well-being' and 'advantage,' with the former referring to the actual achievements of a person (functionings), while the latter is about the set of potential achievements (capabilities), i.e., a person's freedom to achieve (Martins, 2007). It is the real educational advantage that the capability approach evaluates, and this reveals a student's real freedoms (or unfreedoms) to achieve his or her educational goals, and also how other capabilities that education enables, both in the present and in the future, are affected (Terzi, 2007). Limited access to capability-enabling education results in diminishing both a person's intrinsic and instrumental educational value. Education is valuable to the person for its own sake, and it is also valuable as a tool to achieve other capabilities, such as securing a good job, being able to purchase a home and to sustain a family, and being able to participate in social and political development. As Terzi (2007) noted, "Since education plays a crucial role in people's well-being, it follows that unequal opportunities or access to education and its fundamental enabling conditions would constitute an unacceptable inequality" (p. 41).

Flores-Crespo (2007), in discussing what Sen (1999) termed as instrumental freedoms or capability enhancers, stated that they "…contribute…directly or indirectly to the overall freedom that people have to live the way they would like to live. He [Sen] identifies five distinct types – political freedoms, economic facilities, social

opportunities, transparency guarantees, and protective security" (p. 50). For this study, college students take on debt as an economic facility to pay for their studies and other related costs to attend university. An important consideration becomes whether these loans create educational freedom or unfreedom for particular students, and whether in turn other capabilities that students seek through higher education, such as social opportunities, political freedoms, and protective security are "enhanced" by the debt they undertake. Flores-Crespo went on to add that "I argue that the impacts of education can be potentially maximized if social opportunities and economic facilities are generated simultaneously and, conversely, a lack of these instrumental freedoms will constrain educational endeavor" (p. 52).

Higher education institutions and governments play an important role in ensuring that students receive equitable educational opportunities and that they are well prepared for both the job market and to be contributors to social development. Students who are at a disadvantage socially, economically, or personally should be identified and supported to overcome their challenges to access and succeed in higher education, and to have expanded capabilities to improve their lives. As Bates (2007) put it, "…there is an intimate relationship between social justice (seen as the equitable promotion of human capabilities) and the administration of institutions. Institutions can be held accountable for their contribution to the development and extension of human capabilities" (p. 145). College student debt is an important factor that institutions should ensure will expand the capabilities of students and not the reverse, as has been reported to be the case with a significant number of college students.

McLean and Walker (2012) looked at re-orienting professional education in South Africa to produce graduates with capabilities that would contribute to reducing poverty and improving the public good. They identified a list of systemic, material, and cultural constraints that limit the education of 'public-good professionals.' These include a fragmented and poorly managed public policy and implementation; lack of staff capacity and skills; material deprivation; family and community breakdown; a culture of entitlement and learned helplessness; crime and violence; brain drain; poor schooling, university access, and entry to professions; burnout; material values in society; inability to communicate well with the poor and vulnerable; and universities turning away from social realities and divisions.

Walker (2012), reflecting mostly on higher education in the United Kingdom and Europe, argued that a university education should be more than human capital formation for a competitive economy, but should also through curriculum reform, produce graduates who will create flourishing lives in the broader context of human development. She highlighted the modern challenges being faced today, including "…tremendous global inequalities, environmental sustainability, cultural and political conflict, and differences in the modern world" (p. 448). Her premise was that curricula need to change to reflect different values, as espoused by the capability approach, to ensure that graduates enter the world inspired to make a positive difference by embracing the principles of empowerment and participation, equity, sustainability, belonging, and human security.

Wilson-Strydom (2015) made the case for the applicability of the capability approach as a tool of analysis to study justice and equity issues in access to higher

education. She conceded that utilizing social justice frameworks in the field of higher education is a complex task and proceeded to use three eminent contributors in the field of social justice to build her position that the capability approach has the potential to productively contribute to the study and understanding of justice and inequality in the higher education sector. The method is a conceptual analysis approach, whereby she explained the contributions of John Rawls, Iris Marion Young, and Nancy Fraser to the field of social justice. She used the higher education experience in South Africa to apply their ideas and, in the process, compared how social injustice is addressed using each framework.

Wilson-Strydom (2015) summarized her results by saying that "It has been argued that although the work of Rawls, Young, and Fraser offer important insights, that each is limited in specific ways" (p. 153). Rawls' approach highlighted unfair advantage and the importance of focusing on those with most need, but his recommendation does not guarantee improvements within the university setting due to inbuilt constraints. While the works of both Young and Fraser focus on social and institutional structures, they do not take full account of students' agency and their abilities to influence change that would benefit them (Wilson-Strydom, 2015). Student agency is best articulated utilizing the capability approach that looks at conversion factors (those that aid in the expansion of the capability set) necessary to move from a place of injustice to one of achieving aspirations and dreams, and a life that one values.

Human agency is another important feature of the capability approach and impacts on the effectiveness of capability factors and conversion factors. Conversion factors comprise personal conversion factors (e.g., metabolism, physical condition, sex,

reading skills, intelligence) that influence how a person can convert the characteristics of the commodity into a functioning; social conversion factors (e.g., public policies, social norms, discriminating practices, gender roles, societal hierarchies, power relations); and environmental conversion factors (e.g., climate, geographical location) play a role in the conversion from characteristics of the good to the individual functioning (Robeyns, 2005).

From social cognitive theory, perceived self-efficacy is defined as being concerned with people's beliefs in their capabilities to attain certain results and avoid others by their own actions-central to human agency (Bandura, 2000). To be able to influence the capability set of potential functionings (e.g., agitating for positive changes in student debt policy at colleges), it is necessary for persons to exercise their human agency to affect change (Otto & Ziegler, 2006). There may be constraints, especially psychological, on people's abilities to develop human agency, particularly based on their family and social background, such that external adverse social norms become internal individual barriers (Pick & Hietanen, 2015). Being able or unable to exercise human agency matters for students who are under stress from the burdens of debt, and from those conditions that they may have inherited from their family and social settings.

College Student Debt, Inequality in Higher Education, and Sustainable Development and the Capability Approach

The literature reviewed has revealed wide gaps, particularly in the lack of application of the capability approach to higher education and college student debt issues in the U.S. When the capability approach has been used in higher education many times it is as a conceptual guide, sometimes complemented with qualitative methods (mostly

interviews) in countries outside of the U.S., namely South Africa and in the European Union (McLean & Walker, 2012; Walker, 2012; Wilson-Strydom, 2015). These studies have been focused on other areas of higher education, examining how students' capabilities are affected in areas such as agency, curriculum, and professional development.

The analytical tools used by various scholars of the CA rarely have included explicit frameworks to evaluate well-being and justice that, on the one hand incorporate the complexities presented by the many linkages among social, economic, environmental, and institutional factors (as articulated by the sustainable development approach), and on the other hand examine how these factors affect the capability set that a person is able to draw from to live the life they deem valuable (as presented by the capability approach). One such schematic, that gave partial recognition for the impact of some macro factors, was presented by Robeyns (2005), and it will be discussed further in the next section as a prelude to the introduction of the Generalized Sustainable Capability Framework (GSCF). This study, then, explores the frontiers of research utilizing the macro (and micro) ideas from sustainable development (SD) and the micro focus of the capability approach in the important areas of college student debt and inequality in higher education in the U.S.

Theoretical Framework

The theoretical framework for this study includes both the capability approach and concepts from the field of sustainable development. The purpose of the Generalized Sustainable Capability Framework (GSCF) that is developed and proposed in this section is to provide a comprehensive, dynamic, schematic mechanism to further aid in assessing

the impact of factors that affect a person's capability to select and achieve the life they deem valuable; this framework is partially applied to college student debt in the U.S. From the SD and CA literature, included are the macro and micro social, economic, environmental, and institutional factors, and the micro psychological variables that combine to determine the 'capability set' that constitutes their 'potential functionings,' 'advantages,' and 'freedoms' as described by Sen (1999), Robeyns (2005), and other capability scholars. This capability set may be either expanded or constrained by the presence or absence of various capability inputs and conversion factors as described by Robeyns (2005), or by various capability factors and a conversion process as presented by the GSCF. A person will then be able to achieve certain "functionings" depending on the real capability set available to them.

The Ingrid Robeyns Schematic

Robeyns (2005) presented a schematic (Figure 1) that depicts the direction of impact of various socio-economic and psychological variables on a person's capability set or potential functionings, and ultimately on their achieved functionings. She named her schematic "A stylised non-dynamic representation of a person's capability set and her social and personal context" (p. 98). Robeyns groups factors under 'social contexts,' 'means to achieve,' 'goods and services,' 'individual conversion factors,' 'preference formation mechanisms and social influences on decision making,' and 'personal history and psychology.'

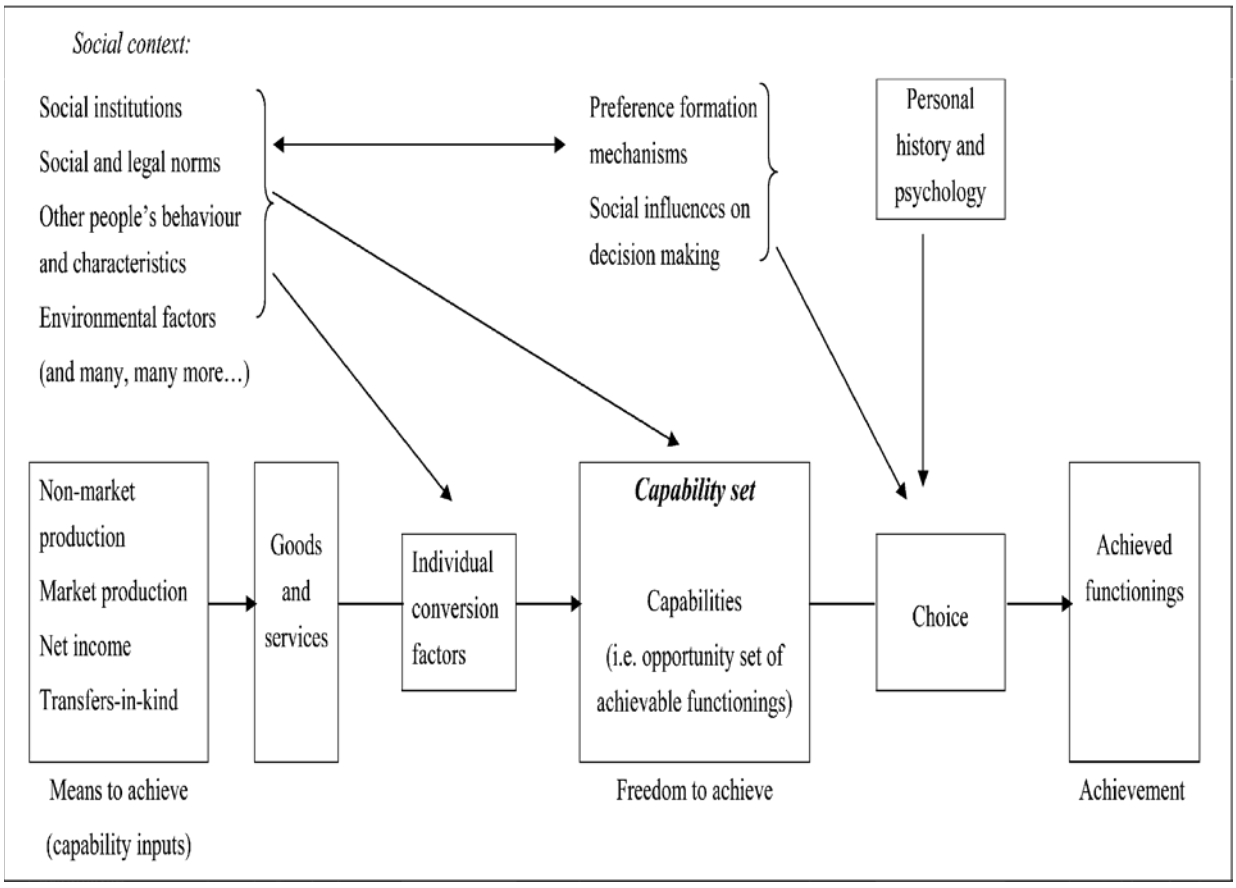

Figure 1. The Ingrid Robeyns Capability Approach Schematic, showing her *Stylised non-dynamic representation of a person's capability set and her social and personal context.* Adapted with permission from "The Capability Approach: A theoretical survey" by Ingrid Robeyns, 2005, *Journal of Human Development. 6*(1), 93-112, p. 98.

Robeyns (2005) described the distinction between means and functionings, i.e., between what may exist for a person to utilize or benefit from (means), and what she or he actually is able to utilize and actually benefit from (functionings). As the figure shows, goods and services that are produced from market production, or non-market production (possibly government production or other means that do not use the market), including net income (from wages and profits) and transfer-in-kind (government transfers), are the capability inputs that a person has at her/his disposal. But it is not automatic that the

person will be able to benefit from these goods and services. There are conversion factors that will influence how these goods and services enter into the person's capability set and become real choices that the person is able to make as he/she chooses the life deemed valuable. Robyns (2005) described conversion factors as follows:

> The relation between a good and the functionings to achieve certain beings and doings is influenced by three groups of conversion factors. First, personal conversion factors (e.g. metabolism, physical condition, sex, reading skills, intelligence) influence how a person can convert the characteristics of the commodity into a functioning. If a person is disabled, or in a bad physical condition, or has never learned to cycle, then the bicycle will be of limited help to enable the functioning of mobility. Second, social conversion factors (e.g. public policies, social norms, discriminating practises, gender roles, societal hierarchies, power relations) and, third, environmental conversion factors (e.g. climate, geographical location) play a role in the conversion from characteristics of the good to the individual functioning. If there are no paved roads or if a government or the dominant societal culture imposes a social or legal norm that women are not allowed to cycle without being accompanied by a male family member, then it becomes much more difficult or even impossible to use the good to enable the functioning. Hence, knowing the goods a person owns or can use is not sufficient to know which functionings he/she can achieve; therefore, we need to know much more about the person and the circumstances in which he/she is living. The capability approach thus takes account of human diversity in two ways: by its focus on the plurality of functionings and capabilities as the evaluative space,

> and by the explicit focus on personal and socio-environmental conversion factors of commodities into functionings, and on the whole social and institutional context that affects the conversion factors and also the capability set directly. (p. 99)

The Robeyns schematic captures a great portion of the complexity in understanding and assessing a person's capability set and his or her achieved functionings. She made it clear that, while goods and services are important inputs, they are not the only ones to consider. Other inputs, such as social institutions and environmental factors, and "many, many more…" (Robeyns, 2005, p. 98) must also be considered, as these affect the conversion factors and the capability set. Once the inputs that affect the potential functioning/capability set are accounted for, there remains to be considered what may affect the individual's choice from the capability set. Robeyns (2005) listed social influences, preference formation mechanisms, personal history, and psychology as directly influencing the choice an individual makes. Two persons with the exact capability sets may choose different options and follow different paths, depending on these additional influences.

The Generalized Sustainable Capability Framework (GSCF)

Since the early development of the CA by Amartya Sen in the 1980s, the ideas he presented have been explored, extended, and applied by many scholars and practitioners across various fields from political philosophy to economic development. This is testament to the power of the approach to address, in a focused manner, the well-being and freedom of individuals, by making the potential functionings/capability set and the advantages and disadvantages persons have the central concern of analysis and

evaluation. As Robeyns (2005) and many others have argued, to be able to properly use the CA, it is vital to realize that many factors are important. These factors include the economic, social, environmental, and institutional forces that influence the determination of the capability set a person has advantage to choose from, and the ultimate choice they make to lead the lives they deem valuable. These very factors are the main pillars of the SD framework and, surprisingly, the two fields of SD and the CA have had little overlap, when in fact they are studying the same phenomena, just from different lenses (Neumayer, 2012).

Neumayer (2012) stated that "…human development and sustainable development, or sustainability for short, have long been separate. This is surprising. On a fundamental level, human development is what sustainability proponents want to sustain, and without sustainability human development is not true human development" (p. 561). It is not that Sen and other capability scholars have not acknowledged the importance of SD, or that some scholars of SD have not likewise acknowledged the CA, but instead that little has been done to seek synergies by bringing together both fields that are clearly complementary. Anand and Sen (1994) eloquently argued for the recognition of the idea of universalism-a concept that underlies both the CA and SD-that respects all people in all forms, including unborn future generations. Anand and Sen stated:

> Universalism in acknowledging the life claims of everyone is the common thread that binds the demands of human development today with the exigencies of environmental preservation for the future. Perhaps the strongest argument in favour of giving priority to the protection of the environment is the ethical need for guaranteeing that future generations would continue to enjoy similar

> opportunities of leading worthwhile lives that are enjoyed by generations that precede them. But this goal of sustainability-increasingly recognized to be legitimate-would make little sense if the present life opportunities that are to be "sustained" in the future were miserable and indigent. (p. 3)

As the Brundlandt Report, Our Common Future, definition of SD made clear, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987). It stresses two important underlying principles of the definition, "needs" and "limitations." It is, therefore, a definition that simultaneously addresses the needs of people who may be miserable and indigent or otherwise disadvantaged (central to the CA) and the limitations of the environment that must be protected from depletion, thereby affecting the living conditions of both present and future generations.

The Generalized Sustainable Capability Framework (GSCF) proposed in this study is intended to address the gap between the CA and SD, and in the process aims at providing analytical and evaluative synergies that will aid in the difficult challenge of understanding and applying concepts from both areas. Figure 2 builds upon the Robeyns schematic flow chart idea that shows the impact of factors moving from left to right. It offers a different arrangement of factors and includes more explicitly those factors that affect the capability set and ultimately a person's functionings. The factors on the left are labeled "Capability Factors" and come directly from the SD literature. Various arrows show the intricate interrelationship that these factors have with each other. The next section, moving right in the schematic, identifies the "Conversion Process," identified as

a “process” to highlight the non-static nature of the influences of capability factors on the capability set, including the reality that it is not only the individual who “filters” the influence of capability factors, but it could be at the family, community, or higher level of aggregation. The next section of the schematic moving to the right is the capability set, and then functionings, both areas that have been extensively covered by Robeyns, Sen, Nussbaum, and other scholars. Each of these sections of the schematic will be covered in turn below.

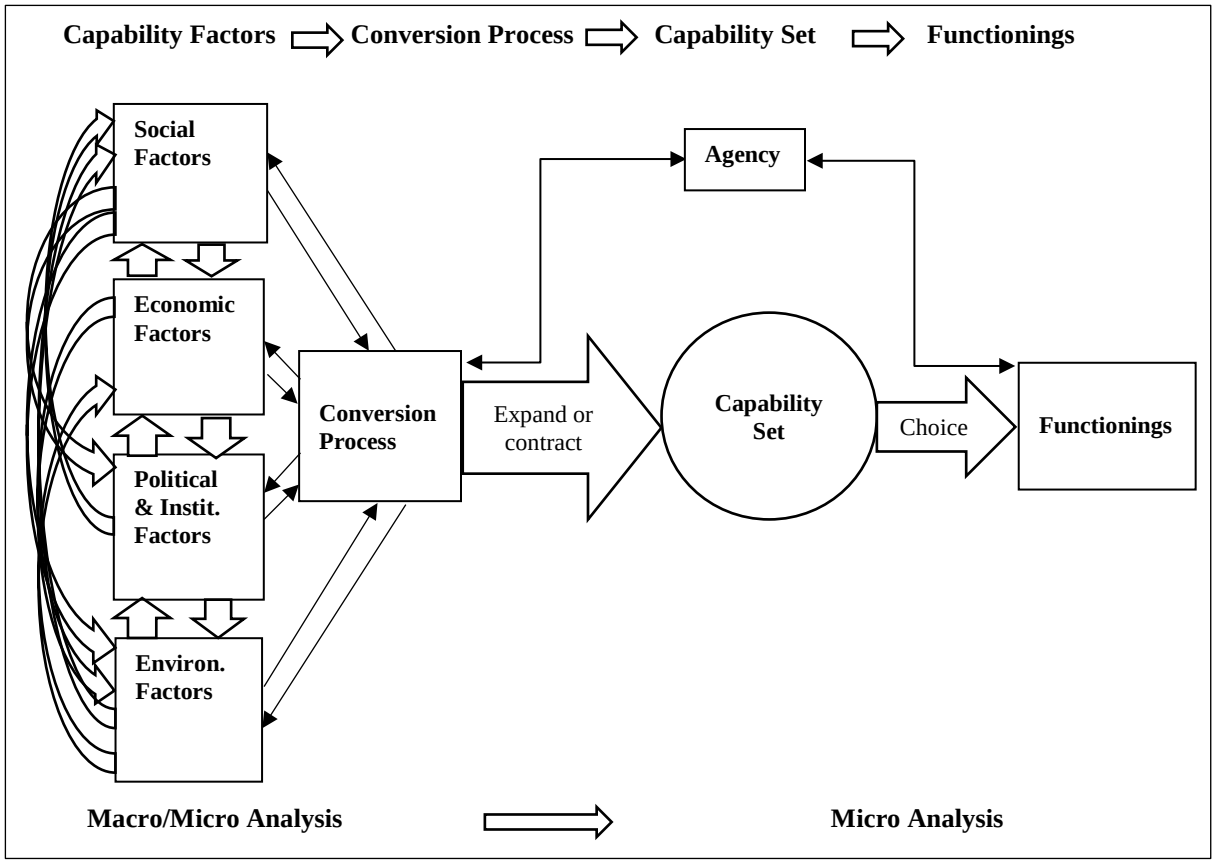

Figure 2. The Generalized Sustainable Capability Framework.

Capability Factors. Capability factors are so termed in the GSCF to highlight the point that ultimately the SD pillars are to be viewed as the main forces, along with agency, that increase or reduce via the conversion process the capability set of people. Capabilities and the well-being of individuals is also the central focus of the GSCF in the Senian tradition. The SD approach has emphasized the social, economic, environmental, and institutional areas as foundational to understanding SD. As noted, many in the SD community have accepted that institutions deserve independent and equal consideration as the original social, economic, and environmental areas. Other literature in the field has developed under the specialized area now commonly known as ‘sustainability’ that

concentrates, in a specialized manner, on the impact of development on the environment; these arguments are not central to the GSCF and are not included, thus the word 'general' is used in GSCF. In the discussions that look generally at the four pillars, the main themes of dynamic inter-dependence and a holistic approach are emphasized as necessary to properly study SD. Each of the four pillars interacts and affects each other in a dynamic manner. This is one of the main contributions that the GSCF proposes to make to the CA literature.

First, the social pillar is affected by the economic, the environmental, and the institutional pillars. The development of social capital, namely the growth in cohesiveness of the society in terms of levels of trust, cooperation, and safety, is dependent on equity in the economic system, the abundance or lack thereof of the environment, and on the strength of institutions. In an economic system where inequality is significant, such as in many countries in Latin America and Africa, people will develop a mistrust for each other, cooperation becomes difficult, and safety is compromised, resulting in deformed social capital. With respect to the environment, in societies where natural resources have been depleted, such as Haiti due to deforestation, people scramble for survival and it is difficult to develop a spirit of cooperation, trust, and safety, leading to constrained social capital development. In a society where institutions are weak, for example where the police institution is corrupt and suppresses people, the levels of safety, trust, and cooperation are compromised and, thus, social capital development is stymied.

Second, the economy is directly affected by social, environmental, and institutional factors. In places where there is social unrest, for example due to gangs such

as in El Salvador, it becomes very difficult to invest and produce goods and services. In such a country, private owners of businesses are targeted for kidnapping and ransom. If the environment has not been protected resulting in water and air pollution, the workforce may become less productive due to illness and disease, causing negative effects on the production of goods and services and lower or negative economic growth. Institutions also have a significantly strong impact on the productivity and efficiency of the economy. Where there is widespread corruption, for example, even well intended macroeconomic and microeconomic policies aimed at improving economic performance will not have the desired effect. This has been seen in numerous cases with interventions from international institutions such as the World Bank and the International Monetary Fund not getting the expected results. Corruption scholar Rose-Ackerman (2006) noted:

> Under this view, which has theoretical as well as empirical support, the prescriptions of economists who urge countries to get their macroeconomic incentives right will not work unless the state has institutions capable of putting such policies into effect. Even if there is also a feedback mechanism from low growth to high corruption and from high growth to low corruption, the growth process cannot begin unless reasonably well-functioning institutions are in place. (p. xxiii)

Third, the environment is affected by social, economic, and institutional factors. When there is social strife in a country or region, people have other higher priorities than to protect the environment, such as surviving war and hunger. Bombs and other weapons have a devastating effect on the environment, and hunger leads to the cutting of forests and jungles for planting, wood for housing and fuel, and plants for food and medicine,

leading to deforestation and soil degradation. Unregulated growth of economies has led to air, water, and land pollution due to factories dumping their waste unto waterways and open land and releasing their toxic smoke into the air. Many Asian cities have high air and water pollution levels, and cities in Latin America such as Mexico City and Sao Paolo have struggled to lower their pollution levels to make it healthier for their citizens. When institutions do not have the will or the authority to regulate environmental degradation, the result is continued pollution and adverse effects on the environment. Global climate change is a current example where many countries, including developed countries such as the U.S., pass laws that protect industrial levels of pollution or have no laws to protect the environment. As Sachs (2015) revealed, "In the United States, the wealthy Koch brothers, who own a major U.S. oil company among other interest, have financed an aggressive campaign against climate change science and against measures to convert to low-carbon energy" (p. 396).

Fourth, institutions permeate the social, economic, and environmental factors, and likewise are affected by each. The definition of institutions used in this study is from Douglass North who stated that "Institutions are the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights)" (North, 1991, p. 97). Societies that have low social capital have great difficulty developing effective institutions such as political and legal systems, since the levels of trust, cooperation, and safety are low and create a climate conducive to fraudulent activities such as vote-buying and paying judges for desired outcomes. When economies are struggling and unemployment is high, one result

is that government revenue is constrained, leading to low or no public investment in critical institutions such as the police and judiciary. Informal institutions, such as the family, are adversely affected when the environment is degraded, for example when agricultural production can no longer be sustained due to soil erosion or water pollution, causing family members to leave for employment in cities and changing the structure that may have once supported a certain way of living. When institutions develop and become more inclusive, the positive effects on many areas such as the economy and education improve considerably (Acemoglu & Robinson, 2012).

The conversion process and agency. The previous section on capability factors provided a view of the dynamism of the factors that affect the conversion process and the capability set of a person. The GSCF aims to also bring this sense of dynamism to the analysis and evaluation of a person's well-being and freedom to choose what to do and be. The context in which a person lives requires careful review, and the GSCF provides a way to incorporate and account for the many influences that affect the "size" of a person's capability set. The GSCF proposes a purposeful, systematic review of the social, economic, environmental, and institutional factors both as they affect each other and as they affect the conversion process, and vice versa. In effect, the conversion process is an active, continuous interaction of these four factors that ultimately either builds or constrains a person's capability set. It may be that some factors at particular points in time are positively affecting the capability set, when at the same time others are adversely restricting the capability set. A factor may at one point in time positively affect the capability set, then changes at another point in time to negatively reduce a person's potential functionings.

Another important dimension that is considered by the GSCF is human agency. Bandura (2000), as previously noted, theorized that perceived self-efficacy, a closely related psychological concept, is concerned with people's beliefs in their capabilities to attain certain results and avoid others by their own actions. Personal agency is able to affect the social and institutional environment, and it is also influenced by the same institutional and social environment (Bandura, 1999). Walker and Unterhalter (2007) stated that "Agency here is taken to mean that each person is a dignified and responsible human being who shapes her or his own life in the light of goals that matter, rather than simply being shaped or instructed how to think" (pp. 5-6). Sen (1999) emphasized that "[People] need not be seen primarily as passive recipients of the benefits of cunning development programs. There is indeed a strong rationale for recognizing the positive role of free and sustainable agency – and even of constructive impatience" (p. 11).

It is also necessary for people to have the opportunities to shape their destiny and help each other (Sen, 1999). The role of agency is important to the long run outcome of a society in terms of the overall improvement in the well-being of citizens. The conversion process may provide the capability (opportunity) to exhibit agency, or it may diminish this capability by making people have low self-efficacy, believing that they are not able to change their condition. Agency also may be applied to improving the conversion process as when a person decides to stand up for a just cause and attempts, either individually or in concert with others, to effect positive change in either of the four capability factors or a combination of them. Likewise, an oppressive government or social structure may severely punish or suppress the demonstration of human agency with the purpose of instructing them how to think and act. Revolutions fought for freedom

have been demonstrations of people's agency to unshackle themselves from oppression and unfreedoms.

The GSCF illustrates the direction of impact and dynamic nature of agency, showing connections in both directions between functionings and the conversion process, and in turn between the conversion process and capability factors. A person who has developed "strong" agency due to its availability in his or her capability set, is then able to, for example, enter the political fray to influence positive political change. In certain countries that person may confront a worsening ruling class and may end up becoming a political prisoner or being exiled to another country. On the other hand, the person may become successful in elections and influence social, economic, and environmental development.

The capability set and functionings. The actual capability set a person has is the result of a dynamic conversion process of social, economic, environmental, and institutional factors, herein defined as capability factors. Moving from the capability set to actual choice of functionings involves personal psychology as presented by the Robeyns Schematic (Robeyns, 2005), to which human agency is highly related. The GSCF captures a circular relationship that involves a person's functionings to include some degree of agency. If the capability set consists of capabilities that reinforce human agency, such as real political freedom or a strong sense of cooperation with and concern for fellow citizens, persons will be able to choose functionings that include a desire to positively influence themselves and others by advocating for change through voice and action. In more free and developed societies the social, economic, environmental, and institutional factors interact dynamically in a synergistic manner and the conversion

process leads to improved and increased capability sets for people in those societies compared to less free and developed ones.

Applications of the GSCF to College Student Debt. College student debt in the United States presents an ideal setting to apply the GSCF, even if partially, to better understand the many factors that affect the level of debt that students incur. The GSCF is able to link the varied literature on the topic of college student debt, including the studies related to the human capital model, psychological studies, and financial literacy. The GSCF also is suited to incorporate and assess the context of students in a stratified and unequal higher education sector and to relate the likely effects on students' capability sets.

The human capital model is inadequate from the CA perspective because it measures a person's well-being in utility and income terms. The GSCF starts by analyzing the four capability factors and immediately recognizes that utility and income are but one factor, usually a part of the economic pillar, among others that must be considered. A student who completes higher education with high college debt may earn a "good" salary but be burdened with repayment obligations that make the student unable to live the life they deem valuable; she or he may be unable to purchase a car or a house or help other family members in need. Psychological and literacy studies have pointed to stress from debt and the need for early positive family interventions. The GSCF incorporates psychological effects through the choice mechanism people use to decide on functionings, and it includes the social capability factor that includes family effects as an important determinant of the capability set. If a student is experiencing stress due to high debt, they will be unable to adequately utilize the capabilities available in their capability

sets. Likewise, students whose parents had lower education levels may not have been able to assist with early education on financial issues, thus negating the child's abilities to deal with financial matters in the future.

The GSCF is able to capture under one umbrella all the otherwise unlinked literature on college student debt. It is likewise able to explain the impact of the inequality context of higher education. The capability set of a student will be either constrained or expanded depending on where in the strata they belong. Students who are in the upper levels attending universities that are highly resourced, namely the private non-profits that enjoy large endowments and have a high student demand, likely will belong to a wealthy family or, if not, have access to generous scholarships that makes the need for loans minimal. In such a case, the student has a large capability set from which to choose functionings, and some of the capabilities are enabling of future capabilities, such as being able to have a high paying job with security and benefits. On the other hand, a student at the lower levels of the stratified higher education sector may be attending a community college that is poorly resourced, or attending a for-profit that requires high debt to attend. Such a student is likely to come from a low-income family and may be from a community with stressful social conditions and, as the literature has indicated, is more likely to be a minority. This student has a constrained capability set and, based on personal experience, may have low self-efficacy and agency to change her or his social, economic, institutional, and/or environmental conditions (Pick & Hietanen, 2015); therefore, he or she may have a lower chance of being able to live the life they deem valuable.

Summary

The GSCF, like the CA, is not a theory that allows for prediction. Generalized by sustainable development factors and the concept of sustainability of the four pillars, the GSCF allows for a broad, inclusive, and "dynamic" framework to better understand the well-being and freedoms of people. Related to each of the social, economic, environmental, and institutional factors are accompanying fields of study that provide hypotheses, theories, and laws, such as in the fields of sociology, social work, economics, ecology, and political science, that may be applied and tested using macro or/and micro empirical data. In the case of this study, hypotheses have been formulated that are informed by the GSCF in an attempt to better understand in particular the level of debt that students accrue as they attend a southern regional U.S. university. This empirical testing, even with a relatively small sample of the entire higher education sector in the U.S., is aimed at applying the GSCF to a pressing issue that is affecting millions of students and their families and is a matter of national concern.

In the context of this study, it is necessary to look at the capability factors that can affect the capability set that college students face. A student's age, gender, GPA, race, family income, and parental education (mothers' education) are all capability factors that affect another important capability factor, college student debt. As the GSCF demonstrates, capability factors dynamically affect each other and are a part of the conversion process that in turn affects a person's capability set. A larger capability set will allow students to have greater freedoms to choose a more stress-free path in the acquisition of their higher education degrees. On the other hand, a constrained capability set, caused for example by either inadequate prior education, restricted family income,

institutionalized racism, gender bias, high student debt, high stress levels, or low self-efficacy/agency, leads to a student having limited freedoms to complete college and/or achieve functionings such as performing well as a university student, getting a good job after graduation, affording to buy a house, being able to help others and contribute to social development, and living the life they deem valuable.

The main hypothesis for this study was developed within the SD and CA frameworks, and more specifically the Generalized Sustainable Capability Framework, complemented by research from the related areas of inequality in higher education and college student debt. It states that *College students with constrained capability factors have higher debt levels.* The GSCF is applied conceptually to better understand the overall picture of all the considerations that impact a student's welfare and freedom, from the capability factors to the conversion process to the capability set to the choice of functionings, and looping back via human agency to the conversion process and the capability factors (Figure 2). In this study, the GSCF also is partially applied empirically using the left portion of the schematic that examines the intricate and dynamic relationships among capability factors as they interact with each other.

The four hypotheses developed include variables that were chosen from among the capability factors, namely age, gender, GPA, race, family income, parental education (mothers' education), and student debt. These can be linked directly to the social and economic pillars. This study does not include other variables that would link directly to the environmental and institutional pillars, and these are left for future research. Additionally, the empirical portion of this study does not delve into the right side of the GSCF to look at how the conversion process affects the capability set and how choices

are then made by individuals to choose functionings. Finally, the empirical portion of this study does not examine the human agency aspect of the framework that links back to the conversion process and the capability factors. While all these areas may be empirically testable, conducting tests across all these areas is not feasible for one study and they provide ample opportunity for further extension in future research.

CHAPTER III: METHODOLOGY

Purpose of the Empirical Study

The purpose of this correlational study was to test four hypotheses developed from the Generalized Sustainable Capability Framework (GSCF) that relate the impact of capability factors on the level of debt incurred for students who graduated in 2016 from a southern regional U.S. university. The independent variables (capability factors) included personal and family characteristics of students, namely age, gender, GPA, race, family income, and parent's education (mothers' education); the dependent variable (also a capability factor) was the level of student debt incurred. Hierarchical multiple regression produced the size, direction, and statistical significance of the impact of the independent variables on the amount of student debt incurred.

Research Question and Hypotheses

The main research question asked: To what extent do capability factors affect the amount of debt that southern regional university students incur? The central research question led directly to the general hypothesis being tested: *Southern regional U.S. college students with constrained capability factors have higher debt levels.* The central research question will be answered through the testing of a number of specific hypotheses.

The specific hypotheses were:

Hypothesis 1. Students with lower test scores will incur higher levels of debt.

Hypothesis 2. Minority students will incur higher levels of debt.

Hypothesis 3. Students with lower family income will incur higher levels of debt.

Hypothesis 4. Students whose parents have lower levels of education will incur higher levels of debt.

Population and Sample

The students sampled were from a southern regional public four-year college that is a member of the American Association of State Colleges and Universities (AASCU). Due to the diversity of the institutions that comprise the AASCU, the sample would not easily generalize to the population of all AASCU university students. Therefore, the population for this study was students who have graduated recently from the southern regional university and those who are presently attending. The sample comprised students who graduated in 2016 from the southern regional U.S. university. The Office of Institutional Research at the southern regional U.S. university provided data on various characteristics of the sample, including their accumulated level of student debt, age, gender, GPA, race, family income, and parents' education (mothers' education). The study also received Institutional Review Board approval via the Office of Research Integrity from the southern regional university.

While the population of the southern regional university is not representative of the entire stratified higher educational system, it lies at an interesting place in the hierarchy because it straddles the lower end that consists of community colleges and the upper-middle level that consists of public intensive research universities. The university is a regional four-year public university that caters primarily to students from the state where it resides and nearby states in the south and mid-west United States. Of the total undergraduate student body attending the university in 2015, 79% originated in state, 15% from out of state, and 6% international. Of the entire higher education population in

the U.S. in 2009, four-year public universities (both AASCU members, and land grant and flagship universities) comprised about 40% of the total. That total also included two-year colleges, private for-profit, and private non-profit institutions (Zumeta et al., 2012). The American Association of State Colleges and Universities represents public four-year comprehensive institutions that are not flagship public universities, totaling about 3.6 million students or about 25% of all students attending four-year colleges and universities in the U.S. (AASCU, 2016). In Kentucky, for example, those institutions include Western Kentucky University, Eastern Kentucky University, Northern Kentucky University, Murray State University, Morehead State University, Kentucky State University, and Kentucky Council on Postsecondary Education (AASCU, 2017).

Research Design

The research design used in this study was a correlational design comprising the utilization of hierarchical multiple regression analysis to test the four hypotheses. It required that the dependent variable was continuous, while the independent variables were categorical (dummy) or continuous. This statistical method was used to estimate the individual impacts of selected capability variables on the amount of debt students accrue at a southern regional U.S. university. This method allowed the researcher to select the order in which variables were entered into the model (Field, 2014). The four hypotheses were based on the ideas of the GSCF and are testable using hierarchical multiple regression analysis, the results of which showed the size and direction of impact of the independent variables (capability factors) on the dependent variable (also a capability factor). The variables chosen in this study were based on availability and relevance to the GSCF. Other important variables for future studies would include factors such as self-

efficacy and agency.

Variables used in the Predictive Models

Dependent Variable

The amount of student debt the sample students incurred was the dependent variable in the analysis. Student debt amount (SDA) means the accumulated debt accrued by sample students that included both subsidized and unsubsidized loans obtained by applying through the Free Application for Federal Student Aid (FAFSA). In terms of the GSCF, student debt is a capability factor that is important in understanding a student's capability set. Student debt is a capability factor that itself is affected by other capability factors that were included in this study based on their relevance and availability in quantitative data form.

It is important to note again that this empirical analysis tested only one portion of the GSCF (Figure 2). It is only partially tested the left side of the GSCF, namely the way selected capability factors affected each other as they entered the conversion process. Before any factor actually affects the capability set, there are many other factors that interact with it in a dynamic manner that will determine if the factor enters the capability set as an "enhancer" or a "reducer." Understanding the left-hand side of the GSCF is vital to conceptualizing how these factors will actually affect the capability set of persons depending on their socio-economic backgrounds and other capability factors.

On the right-hand side of the GSCF (not tested in this study), as factors enter the capability set, they become potential functionings from which a person may choose. Student debt can be instrumental in expanding a person's capability set if it allows the person to gain greater freedoms to live the life he or she deems valuable. Alternatively, it

can be detrimental if it reduces a person's freedom. Testing this right-hand side portion of the GSCF is left for future research as discussed in Chapter V.

Independent Variables

Age (Age), gender (Gen), GPA, race (R), family income (FI) and parental education (PE) (mothers' education) were the independent variables in this study. Age and gender were not included in the hypotheses tested in this empirical study and were included because they were important variables available in quantitative form and could be controlled in the regression. There may be age and gender biases that constrain older students and females, negatively affecting their capability sets. A study with a focus on age and gender could benefit from additional qualitative analysis in future research and would benefit from strong evidence, especially of gender discrimination, that has severely restricted the capability sets of women and girls in many parts of world, including developed countries (Nussbaum, 2011). The rights of women have been more firmly secured in developed countries such as the U.S. compared to developing countries such as sub-Saharan Africa or parts of Asia and the Middle East. There remain areas of unfreedoms in developed countries, such as in unequal pay for equal work and the glass ceiling, that are important but not directly related to college student debt.

Grade Point Average (GPA) is the cumulative grade point average that the sample students ended with upon completion of their programs. This variable is an important personal characteristics of students and its impact on student debt was estimated in the three hierarchical regressions listed below. GPA is another important GSCF capability factor that is a representation of a student's academic achievement during college and a proxy for academic student agency and innate ability. It was expected that this variable

would be inversely related to the dependent variable. GPA could have been used as a traditional control variable in this study, but its importance to human agency required attention beyond that of a control variable, even though it was not the central focus of the empirical study.

Race (R) was the next independent variable. The race of the student was reported as either American Indian or Alaskan Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, Hispanic, or White. The expectation from the literature is that students who are non-white or Asian have constrained capabilities and acquire more debt. As in the case of GPA, race could have been used as a traditional control variable in this study, but its importance to justice and inequality in the SD and CA literatures required attention beyond that of a control variable, even though it was not the central focus of the empirical study. As further described in the results section, the race variable was included as a two-category dummy variable (0 = Asian or White, 1 = all other races) due to similarities in Asians and Whites in terms of SES.

The next independent variable was family income. Family income (FI) is the adjusted gross income reported by parents of the students on the FAFSA forms, and was available as a continuous variable, as opposed to most studies in which it is modeled as a categorical variable. This is an important factor that affects a student's capability set. The literature has indicated that families with higher incomes provide economic inputs and, thus, larger capability sets for students, and it was expected that this variable would be inversely related to the dependent variable. This variable was of central concern to this study, given that the dependent variable, student debt accumulated, is also an economic variable with which it should have a strong correlational relationship, ceteris paribus (all

other things equal).

The final independent variable was parents' education, specifically the mother's education level. Parent's education (PE) is also reported on the FAFSA forms as a bachelor's degree or higher, high school, or below high school. This is an important variable that the literature indicated has a clear impact on student's capabilities and agency. Students who have parents with lower levels of education are expected to accrue higher levels of debt. The literature on financial literacy and the psychology of student debt showed that students with higher parental education are able to make better decisions regarding their financial management and experience lower levels of debt and stress related to debt. The mothers' education variable was included as a two-category dummy variable (0 = high school and below, 1 = college and beyond). While the data originally were available in four categories, the 'high school' and 'middle school or junior high' categories were combined given that the latter had only six sample members (see descriptive statistics in the next chapter). The 'other unknown' category was removed since it did not provide any valuable data.

Statistical Analysis

The equations tested, based on a continuous dependent variable, were as follows:

Model 1 (Controls plus GPA, Race, and Family Income)

$$SDA_i = a_0 + b_1(Age_i) + b_2(Gen_i) + b_3(GPA_i) + b_4(R_i) + b_5(FI_i) + \varepsilon_i$$

Where SDA_i = Student debt amount (accumulated)

a_0 = Constant term

Age_i = Age of the student

Gen_i = Gender of the student

GPA_i = Grade point average (cumulative)

R_i = Race of student

FI_i = Family income (adjusted)

ε_i = Error term

Model 2 (Controls plus GPA, Race, and Parental Education)

$$SDA_i = a_0 + b_1(Age_i) + b_2(Gen_i) + b_3(GPA_i) + b_4(R_i) + b_6(PE_i) + \varepsilon_i$$

Where PE_i = Parent's education (Mothers' Education Level)

Model 3 (Controls plus GPA, Race, Family Income and Parental Education)

$$SDA_i = a_0 + b_1(Age_i) + b_2(Gen_i) + b_3(GPA_i) + b_4(R_i) + b_5(FI_i) + b_6(PE_i) + \varepsilon_i$$

This hierarchical regression system was tested using IBM-SPSS. The coefficients (b_i) were estimated to determine the impact their corresponding independent variable had on the dependent variable. The size, direction, and statistical significance indicated whether the hypotheses were supported, as discussed in the next chapter on Results. R-squares and F-tests measured how much each model accounted for the variation in the dependent variable, and t-tests determined if the coefficients were statistically significant. Additionally, further tests were done to check the assumptions of ordinary least squares including linearity, independent errors/no autocorrelation, no multicollinearity among independent variables, homoscedasticity or equal variance of residuals, and normally distributed residuals. The three models were designed to determine the particular effects of Family Income and Parental Education (mothers' education), individually and in combination, controlling for the other variables.

CHAPTER IV: RESULTS

Descriptive Statistics

Descriptive statistics for the variables included in this empirical study are presented in Tables 1-6. The sample used in this study came from a southern regional university in the U.S. that was comprised of the 2016 graduating class of undergraduates. Of the 757 graduating students, 339 (45%) had assumed debt through the FAFSA process. For the age, gender, GPA, race, and parents' education (mothers' education level) variables, the sample consisted of 339 students. Only in the case of family income was there a difference, with 309 students reporting a positive family income and also assuming a college loan.

In Table 1, the average accumulated loan balances for two age categories of students are compared. All students who assumed loans in the sample were above 18 years old. Of the total of 339 students, the majority (336) fell in the age category of 18-24 with an average accumulated loan balance of $21,347, a little lower than the overall average accumulated loan balance of $21,453. A small number of students, only three, were 25 years old or above, and they had an average accumulated loan balance of $33,313. In the regressions, the age variable was included as a continuous variable and categorized here for descriptive purposes only.

Table 1

Descriptive Statistics for the Age Variable

Age	*M*	*n*	*SD*	*Mdn*
18-24	21347	336	10646	22647
25 and Above	33313	3	10162	30678
Total	21453	339	10687	22745

The gender profile is shown in Table 2 where, of the total students, 111 (32.7%) were male and 228 (67.3%) were female. Males had an average accumulated loan balance of $22,079, and females had a lower average accumulated loan balance of $21,148. Females had a mean accumulated loan balance below the total mean accumulated loan average of $21,453, while the average accumulated loan balance of males was above the total mean accumulated loan average. In the regressions, the gender variable was included as a two-category variable (0 = male, 1 = female).

Table 2

Descriptive Statistics for the Gender Variable

Gender	*M*	*N*	*SD*	*Mdn*
Female	21148	228	10514	22372
Male	22079	111	11057	23012
Total	21453	339	10687	22745

Table 3 shows that all graduating students who assumed college debt in the sample earned a cumulative GPA above 2.0. Those with a GPA between 2.001 and 3.0 had a mean accumulated loan balance of $25,452, while those with GPAs above 3.001

had a lower average accumulated loan balance of $20,662. The majority of students in the sample (283) had GPAs in the 3.001 to 4.0 bracket. In the regressions, the GPA variable was included as a continuous variable and categorized here for descriptive purposes only.

Table 3

Descriptive Statistics for the GPA Variable

GPA	*M*	*n*	*SD*	*Mdn*
2.001-3.0	25452	56	11288	25734
3.001-4.0	20662	283	10404	21773
Total	21453	339	10687	22745

For the race variable, Asian students had an average accumulated loan balance of $5,791, White students had an average accumulated balance of $20,964, African Americans had an average accumulated balance of $28,290, while the weighted average of all others combined was $23,099. In the regressions, the race variable was included as a two-category dummy variable (0 = Asian or White, 1 = all other races) and categorized here in detail for descriptive purposes only.

Table 4

Descriptive Statistics for the Race Variable

Race	*M*	*n*	*SD*	*Mdn*
American Indian or Alaskan Native	5693	1	.	5693
American Indian or Alaskan Native, Black or African American, Hispanic, Native Hawaiian or Other Pacific Islander, White	21276	1	.	21276
American Indian or Alaskan Native, White	32033	5	19185	31724
Asian	5791	1	.	5791
Asian, White	25732	1	.	25732
Black or African American	28290	19	10502	26724
Black or African American, White	12119	1	.	12119
Hispanic, Native Hawaiian or Other Pacific Islander, White	37632	1	.	37632
Hispanic, White	25039	5	7371	26724
Native Hawaiian or Other Pacific Islander	5001	1	.	5001
Native Hawaiian or Other Pacific Islander, White	13360	1	.	13360
Non-reported	17692	2	7524	17693
Non-reported, White	21803	2	12550	21804
White	20954	298	10365	22139
Total	21453	339	10687	22745

The categories of family income and the related mean accumulated loan balances are shown in Table 5. As income increased up to $100,000, the average accumulated loan balances also increased, from $20,983 to $23,350. Beyond a family income of $100,000, the mean accumulated balance fell to $21,543, but was still above the two first categories

of family income. The total number of students who registered a positive (non-zero) family income and had a positive loan balance was 309. In the regressions, the family income variable was included as a continuous variable and categorized here for descriptive purposes only.

Table 5

Descriptive Statistics for the Family Income Variable

Family Income	*M*	*n*	*SD*	*Mdn*
0-25000	20983	29	10507	24744
25001-50000	21271	53	11747	23013
50001-100000	23350	109	12320	22745
100001 and above	21548	118	7868	23011
Total	22083	309	10535	23009

The four categories of mothers' educational level are shown in Table 6. After discounting the Other Unknown category that did not provide any useful information on educational level, the mean accumulated loan balances fell for every higher level of mothers' educational level, from $23,366 for Middle School or Junior High to $21,255 for College or Beyond. In the regressions, the mothers' education variable was included as a two-category dummy variable (0 = high school and below, 1 = college and beyond) and categorized in detail here for descriptive purposes only. The 'high school' and 'middle school or junior high' categories were combined given that the latter had only six sample members.

Table 6

Descriptive Statistics for the Mothers' Education Level Variable

Mothers' education level	*M*	*n*	*SD*	*Mdn*
College or Beyond	21255	188	10274	22711
High School	23069	116	10942	24511
Middle School or Junior High	23366	6	13211	22269
Other Unknown	15880	29	10340	12372
Total	21453	339	10687	22745

Hierarchical Regression Analysis

The main assumptions of multiple linear regression include additivity and linearity, independent errors/no autocorrelation, no multicollinearity among independent variables, homoscedasticity or equal variance of residuals, and normally distributed residuals. These assumptions were all examined to ensure reliable results for the three models tested. The first variable examined, before running regressions, was the dependent variable, student debt amount (SDA) and designated as Student_Debt_Amt in SPSS. The histogram for this variable revealed potential outliers that could have adversely affected the estimations of the regressions. To further examine the outliers, the box-plot for this variable was used to clearly identify the outliers that it excluded from its normal range. For the purposes of this study, only the top three extreme outliers were removed, resulting in a more normally distributed variable. A variable adjusted for influential outliers allows for better estimates of the coefficients of the independent variables as estimated by ordinary least squares regression (Field, 2014).

In addition to checking and correcting for normality, the Models results showed that autocorrelation was not a problem (Durbin Watson was near to 2 for the three models), and there was no indication of multicollinearity among the variables (Variance Inflation Factors were all close to 1). To check for additivity and linearity, and homoscedasticity, the scatterplots of the standardized predicted values versus the standardized residuals (zpred vs. zresid) were produced and showed no discernable heteroscedasticity or non-linearity.

In Model 1, the variables included age, gender, GPA, race, and family income (FI) to determine the extent to which they affected student debt amount, SDA. The hypotheses testable in this model included those related to GPA, race, and family income. These were as follows:

Hypothesis 1. Students with lower test scores will incur higher levels of debt.

Hypothesis 2. Minority students will incur higher levels of debt.

Hypothesis 3. Students with lower family income will incur higher levels of debt.

Model 1 (Controls plus GPA, Race, and Family Income)

$$SDA_i = a_0 + b_1(Age_i) + b_2(Gen_i) + b_3(GPA_i) + b_4(R_i) + b_5(FI_i) + \varepsilon_i$$

Where SDA_i = Student debt amount accumulated

a_0 = Constant term

Age_i = Age of the student

Gen_i = Gender of the student

GPA_i = Grade point average (cumulative)

R_i = Race of student

FI_i = Family income (adjusted)

ε_i = Error term

Model 1 explained 8.6% of the variation in the dependent variable and indicated overall that its contribution to the variance in the dependent variable was 5.343 times higher compared to that of the error's contribution (R^2 = .086, $F(5, 285) = 5.343$, $p <$ .000). For each independent variable, as shown in Table 7, two were statistically significant at the .05 level and the other three were insignificant. Age (b_1 = -2728, b^*_1 = -.138, $p < .05$) and GPA (b_3 = -6168, b^*_3 = -.229, $p < .05$) were significant at the .05 level while Gender (b_2 = 799, b^*_2 = .036, $p > .05$); Race (b_4 = 4160, b^*_4 = .097, $p > .05$); and Family Income (b_5 = 0.02, b^*_5 = .084, $p > .05$) were insignificant. Both GPA and race had the expected signs and standardized coefficients, but Family Income did not have the hypothesized inverse relationship.

Table 7

Model 1 with Independent Variables Age, Gender, GPA, Race, and Family Income

Constant and Independent Variables	Unstandardized Coefficients		Standardized Coefficients		
	b_i	*SE*	b_i*	*t*	*p*
Constant	102945	26458		3.891	.000
Age	-2728	1129	-.138	-2.416	.016
Gender	799	1311	.036	.610	.543
GPA	-6168	1617	-.229	-3.813	.000
Race	4160	2531	.097	1.643	.101
Family Income	0.02	0.01	.084	1.460	.145

In Model 2, the variables included age, gender, GPA, race, and parent's education (PE) (mothers' education) to determine the extent to which they affected student debt

amount, SDA. The hypotheses testable in this model included those related to GPA, race, and parent's education (mothers' education). These were as follows:

Hypothesis 1. Students with lower test scores will incur higher levels of debt.

Hypothesis 2. Minority students will incur higher levels of debt.

Hypothesis 4. Students whose parents have lower levels of education will incur higher levels of debt.

Model 2 (Controls plus GPA, Race, and Mothers' Education)

$SDA_i = a_0 + b_1(Age_i) + b_2(Gen_i) + b_3(GPA_i) + b_4(R_i) + b_6(PE_i) + \varepsilon_i$

Where PE_i = Parent's education (Mothers' Education Level)

Model 2 explained 5.6% of the variation in the dependent variable and indicated overall that its contribution to the variance in the dependent variable was 3.406 times higher compared to that of the error's contribution (R^2 = .056, $F(5, 287) = 3.406$, p = .005). When compared to Model 1, Model 2 demonstrated less predictive power and model strength. For each independent variable, as shown in Table 8, only one was statistically significant at the .05 level and the other four were insignificant. GPA (b_3 = -5730, b^*_3 = -.209, $p < .05$) was significant at the .05 level, while Age (b_1 = -805, b^*_1 = -.050, $p > .05$), Gender (b_2 = 242, b^*_2 = .011, $p > .05$), Race (b_4 = 3112, b^*_4 = .068, $p > .05$), and Mothers' Education Level (b_6 = -1054, b^*_6 = -.049, $p > .05$) were insignificant.

All three variables of interest based on the hypotheses being tested, GPA, Race and Mothers' Education Level, had the expected signs. For GPA it was expected that, as student's grades increased, their accumulated loan balances would fall. In the case of Race, students who are minorities were expected to incur higher college debt. For

mothers' education level, it was expected that the more education parents (in this study the mothers) attain, the lower would be students' accumulated loan balances.

Table 8

Model 2 with Independent Variables Age, Gender, GPA, Race, and Mothers' Education

Constant and Independent Variables	Unstandardized Coefficients		Standardized Coefficients		
	b_i	*SE*	b_i*	*t*	*p*
Constant	60180	22306.181		2.698	.007
Age	-805	932.567	-.050	-.863	.389
Gender	242	1341.874	.011	.180	.857
GPA	-5730	1660.839	-.209	-3.450	.001
Race	3112	2666.932	.068	1.167	.244
Mothers' Ed. Level	-1054	1231.802	-.049	-.856	.393

In Model 3, the variables included age, gender, GPA, race, family income (FI) and parent's education (PE) (mothers' education) to determine the extent to which they affected student debt amount, SDA. The hypotheses testable in this model included those related to GPA, race, family income and parental education (PE) (mothers' education). These were as follows:

Hypothesis 1. Students with lower test scores will incur higher levels of debt.

Hypothesis 2. Minority students will incur higher levels of debt.

Hypothesis 3. Students with lower family income will incur higher levels of debt.

Hypothesis 4. Students whose parents have lower levels of education will incur higher levels of debt.

Model 3 (Controls plus GPA, Race, Family Income, and Mothers' Education)

$$SDA_i = a_0 + b_1(Age_i) + b_2(Gen_i) + b_3(GPA_i) + b_4(R_i) + b_5(FI_i) + b_6(PE_i) + \varepsilon_i$$

Model 3 explained 8.5% of the variation in the dependent variable and indicated overall that its contribution to the variance in the dependent variable was 4.236 times higher compared to that of the error's contribution (R^2 = .085, $F(6, 274) = 4.236$, $p <$ .000). When compared to Model 2, Model 3 demonstrated more predictive power and model strength, and when compared to Model 1, it showed just slightly lower predictive power and model strength. For each independent variable, as shown in Table 9, two were statistically significant at the .05 level and the other four were insignificant. Age (b_1 = -3102, b^*_1 = -.157, $p < .05$) and GPA (b_3 = -5579, b^*_3 = -.203, $p < .05$) were significant at the .05 level, while Gender (b_2 = 83, b^*_2 = -.004, $p > .05$), Race (b_4 = 3811, b^*_4 = .082, $p > .05$), Family Income (b_5 = 0.02, b^*_5 = .105, $p > .05$), and Mothers' Education Level (b_6 = -1943, b^*_6 = -.091, $p > .05$) were insignificant.

Three of the four variables of interest based on the hypotheses being tested, GPA, race, and mothers' education level, had the expected signs. The sign or size of the unstandardized and standardized coefficient for family income did not accord with expectations.

Table 9

Model 3 with Independent Variables Age, Gender, GPA, Race, Family Income and Mothers' Education Level

Constant and Independent Variables	Unstandardized Coefficients		Standardized Coefficients		
	b_i	*SE*	b_i*	*T*	*p*
Constant	110758	26967.839		4.107	.000
Age	-3102	1150.755	-.157	-2.695	.007
Gender	83	1354.434	.004	.062	.951
GPA	-5579	1679.515	-.203	-3.322	.001
Race	3811	2734.668	.082	1.393	.165
Family Income	.020	.012	.105	1.681	.094
Mothers' Ed. Level	-1943	1321.861	-.091	-1.470	.143

CHAPTER V: DISCUSSION

Summary of the Study

The hypotheses tested in this study were based on the Generalized Sustainable Capability Framework (GSCF) developed and proposed herein as an analytical synergy of sustainable development and the capability approach concepts. While both fields have made significant contributions to understanding and evaluating human well-being and development, there have been few attempts to combine applicable ideas to advance the aims of these closely related areas of scholarship. The GSCF was applied to the important issue of college student debt in the U.S. that has become a matter of significant concern to students, parents, and society at large due to the evidence of the adverse consequences of a rapidly increasing total amount that is now above $1.4 trillion (Federal Reserve, 2017).

To gain a comprehensive understanding of the issues involved with college student debt and to the development of the GSCF proposed in this study, four broad areas of literature were reviewed, including college student debt, inequality in higher education, sustainable development, and the capability approach applied to higher education. The higher education sector has become increasingly stratified and, in effect, this trend has exacerbated concerns about inequality in society (McGlynn, 2014; Mettler, 2014), a topic closely related to research in the capability approach field on constrained socio-economic conditions/capabilities of families and students (Nussbaum, 2006; Sen, 1999; Robeyns, 2005; Walker, 2012; Walker & Unterhalter, 2007; Wilson-Strydom, 2015).

The rising cost of attending college (Braucher, 2012; Denice, 2015; Popp Braun, 2016) and the human capital approach that examines the returns to educational investments (Becker, 1962; Mincer, 1958; Oreopoulos & Petronijevic, 2013; Shultz, 1963; Soo et al., 2015) provided the financial and economic perspective. The psychological factors involved with rising student debt (Lim et al., 2014; Mueller, 2014) and the level of students' financial literacy (Andruska et al., 2014; Smith & Barboza, 2014; Xiao et al., 2014) also were discussed.

Considerable gaps were found in the literature in terms of limited or no studies done applying the concepts of sustainable development and the capabilities approach to college student debt in the U.S. Another gap identified was the lack of integration of ideas from the SD and CA literatures that individually study the same issues of sustaining human development. The GSCF was developed as a synergy of these two closely related approaches to add to the theory and practical evaluation capacity of human development and quality of life problems facing humanity around the world.

Findings and Interpretation

Three models were structured to test the four hypotheses presented in this study. The dependent variable, student debt amount, SDA, was the same for the three models. In Model 1, the independent variables were age, gender, GPA, race, and family income. In Model 2, the independent variables were age, gender, GPA, race, and mothers' education level. In Model 3, the independent variables were age, gender, GPA, race, family income, and mothers' education level.

The results of Models 1 and 3 are similar, and therefore for the purpose of this study Model 3 is considered the most appropriate, as it provides estimates for all

independent variables, while Model 1 does not include mothers' education level. Model 2 excludes family income and is inferior to both Models 1 and 3 in terms of predictive power (R-square) and model strength (F statistic). Therefore, although family income was not statistically significant, when included along with mothers' education level, the model (Model 3) provides a more complete estimation of all independent variables without any appreciable loss of predictive power or model strength compared to Model 1.

The main hypotheses tested in this study were the following:

Hypothesis 1. Students with lower test scores will incur higher levels of debt.

Hypothesis 2. Minority students will incur higher levels of debt.

Hypothesis 3. Students with lower family income will incur higher levels of debt.

Hypothesis 4. Students whose parents have lower levels of education will incur higher levels of debt.

In analyzing the results of the three models, after ensuring that the assumptions of multiple linear regression were met, the sign or direction of the coefficients and their statistical significance were used to decide if the hypotheses were supported. Of the four hypotheses, none were statistically supported, except for Hypothesis 1. In terms of the sign/direction of the unstandardized and standardized coefficients, only the third hypothesis that students with lower family income would incur higher levels of debt did not have the expected sign. Models 1 and 3 both included family income and showed no effect of family income on student debt amount.

In each model, students with higher GPAs took on less debt, an indication that persons with stronger education capabilities, as the literature suggests, may be able to use their agency to make good choices that influence their life course in a positive way

(Walker & Unterhalter, 2007). Equally plausible is that the university under study offers greater scholarships to stronger students so their unmet need is less. Either way, students with higher GPAs find themselves able to graduate from college with less debt than students with lower GPAs. As Mueller (2014) and Lim et al. (2014) indicated, there is evidence that students who accrue less debt also experience lower levels of stress and better health, and so it follows that students with higher GPAs will have capability sets that may consist of less stress and better health.

When looking at only the descriptive statistics, minority students also accrued higher debt compared to White and Asian students, consistent with the predictions of the GSCF. Studies have shown that minority students have backgrounds that generally hinder their abilities to meet college expenses and may have suffered from racial discrimination that adversely affected their self-efficacy and financial management skills. African-American and minority students seek more help to deal with debt-related stress (Lim et al., 2014).

With respect to parent's education level, in particular to mothers' education levels, the descriptive statistics show that students from mothers with lower educational levels had higher debt levels. This is consistent with the literature that links students from households with higher parental education to higher financial literacy and ability to manage debt, and reduced reliance on college debt (Andruska et al., 2014; Smith & Barboza, 2014).

As noted, the relationships between minority students and debt, between family income and debt, and between parental education and debt, were not statistically significant. In other words, the model results are not in keeping with the literature on

college student debt, and the predictions of the GSCF. One explanation may be that the college under study provides institutional scholarships and supports that reduce the effect of these typical relationships. The descriptive statistics also show that the average student debt for the sample of students from the 2016 graduating class was $21,453, considerably less than the national average of $37,172, and only 45% of students in the sample held debt, which also is much lower than the national average of 70% (Powell, 2016). This suggests that the southern regional college studied here is offering grants and scholarships such that students are graduating with a lower average debt than the national average and graduating a lower percentage of students with debt.

Limitations of the Study

This study reveals that it is difficult to empirically test the complex GSCF and that there are a number of limitations to consider. First, the relatively small sample of students (339) may be generalizable to the student population at the specific southern regional U.S. university, but not necessarily to other regional four-year public institutions or to the wider higher education sector. A larger, more diverse sample comprising more students from the southern regional university and from other institutions from various levels of the stratified higher education sector would improve the generalizability of results to the wider sector. It would be useful to have samples from populations with larger percentages of minority students to further examine the impact of race on college student debt.

Second, this study used only regression analysis, a non-experimental method, to test the interrelationships among a limited number of capability factors. Notwithstanding the encouraging initial results when looking at only the descriptive statistics, it would be

important to also utilize other methods such as structural equation modeling, surveys, and interviews. In the case of structural equation modeling, the impact of independent variables on each other would be better accounted for than in multiple regression, and would provide a more optimal model for analyzing the interactions of capability factors.

Third, the GSCF is a new addition to the SD and CA literature and still requires further development to more fully explain the various linkages on both sides of the framework. This study tested only the left-hand side of the framework that is amenable to quantitative methods. The right-hand side of the GSCF delves into issues of choice and agency that may be more amenable to qualitative methods that seek in-depth understandings of a person's psychological characteristics related to decisions on functionings and actions to change their circumstances. Further elaboration of the GSCF would allow for testing a wider range of variables related to capability factors, the conversion process, the capability set, the choice of functionings, and human agency.

Implications for Practice

Further testing with a larger, more diverse sample could potentially provide more robust results that could be considered by higher education policymakers, administrators, and students/families who are attending and planning to attend regional universities. Both the theoretical and limited empirical contributions herein may be able to guide the development of capability-enhancing interventions to mitigate the negative effects of college debt due to constraining capability factors and to further augment the impact of positive capability factors. The southern regional university in this study provides a model of graduating students with relatively low average debt and a lower percentage of students with debt than the national average. This may be due to its offerings of

scholarships and grants that should be sustained to ensure the continued enhancement of students' capabilities.

The Office of Institutional Research at the southern regional university studied could extend the sample to additional years of graduates, perhaps for the last five years, to investigate whether the pattern of results holds from this study. They could also explore other variables such as the effects of grants and scholarships on the models used herein. It may be due to the institution's offerings of grants and scholarship that the average amount of debt that students incur is below the national average. Expanding the years of graduates would also increase the sample size and add to the generalizability of the findings.

Additionally, the institution studied could use the results of this investigation in its marketing efforts to students to increase its enrollment by emphasizing the lower level of debt of its graduates compared to the national level. Students and parents are seeking cost effective ways of attending and completing college, and such information makes the institution relatively more attractive. With this same information, the institution may be able to attract additional public and private funding as it positions itself as effectively promoting the interest of students and parents.

Recommendations for Future Research and Theory

As previously mentioned, the GSCF, like the CA, is not a theory that allows for prediction. It is generalized by sustainable development factors and the concept of sustainability of the four pillars. It allows for a broad, inclusive, and "dynamic" framework to better evaluate people's well-being and freedoms. The social, economic, environmental, and institutional factors have accompanying fields of study that have

developed various hypotheses, theories, and laws, for example in the fields of sociology, social work, economics, ecology, and political science, that may be applied and tested using macro or/and micro empirical data. The hypotheses in this study were formulated based on the GSCF to better understand in particular the level of college student debt accrued as they attend the southern regional U.S. university.

The Generalized Sustainable Capability Framework adds to the evaluative tools for scholars and practitioners of both the SD and CA areas. It is a novel framework, in that it combines explicitly the dynamism and sustainability dimensions offered by SD with the powerful evaluative focus on individual freedom and capabilities provided by the CA. It builds upon the Robeyns Schematic that brings to light, albeit in a static manner, the important factors that must be considered in the conversion of inputs to the capability set of a person.

The GSCF is able to contextualize and bring together literature on the topic of college student debt, including the studies related to the human capital model, psychological studies, and financial literacy. The human capital model measures a person's well-being in utility and income terms and, by itself, is inadequate from the CA perspective. However, the human capital model provides important information about the means of developing capabilities and freedoms. When looked at from the broader view of the GSCF, the human capital model can be useful as one of a number of tools and, in its case, examine economic capability factors that are an important part of the GSCF. Psychological and literacy studies point to adverse health issues and stress from debt and on the need for early positive family interventions. The GSCF incorporates psychological factors through the choice mechanism persons use to select functionings and also

encompasses social family capability factors.

There is further work to be done to develop and test the GSCF, especially in terms of the dynamic aspects and synergies it seeks to offer. Extensions of this study and other studies using the GSCF will advance the applicability and effectiveness of the framework. As it pertains to the regional southern university from which the sample of students was drawn for this study, and potentially for similar institutions, structural equation modeling and a survey study would bring greater focus to the issues raised. Additional inferences could be drawn about the variables used in this study, and other variables could be investigated that look at the right-hand side of the GSCF, namely the capability set, functionings, and human agency. Qualitative methods, such as interviews, would also add new insight and information, especially about the psychological dimensions of decision making of individuals regarding their well-being and quality of life.

Conclusion

The growing college student debt in the United States is a matter of national concern that has become a primary area of analysis across various fields of inquiry. This study has examined this issue utilizing the Generalized Sustainable Capability Framework, GSCF, developed to evaluate sustainable human development problems such as college student debt, inequality in higher education, and quality of life. The GSCF is an evaluative tool that integrates concepts from the sustainable development and capability approach fields, emphasizing the dynamic, comprehensive view from sustainable development and the importance of making individual freedom and

capabilities (as opposed to the narrower concepts of utility and income) the evaluative space of utmost concern.

Social, economic, environmental, and institutional factors comprise the sustainable development pillars that dynamically interact in the real world across space and time, affecting the freedoms people have to lead the lives they deem valuable. It is necessary to assess all these multiple influences, as they impact each other and ultimately individuals, to fully understand what comprises the potential set of opportunities (the capability set) a person is able to choose from to attain the quality of life they desire. In the specific case of college student debt, students face varying degrees of social, economic, environmental, and institutional influences that in combination may either expand or contract their opportunities. In the final analysis, college debt may either expand or contract a student's opportunities, and depending on other influences, the student may or may not be able to attain the life they deem valuable.

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APPENDIX: IRB Approval Letter

INSTITUTIONAL REVIEW BOARD
OFFICE OF RESEARCH INTEGRITY

DATE:	June 20, 2017
TO:	Louis Zabaneh
FROM:	Western Kentucky University (WKU) IRB
PROJECT TITLE:	[1087412-1] ESTIMATING THE IMPACT OF CAPABILITY FACTORS ON COLLEGE STUDENT DEBT LEVELS UTILIZING THE GENERALIZED SUSTAINABLE CAPABILITY FRAMEWORK
REFERENCE #:	IRB 17-481
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	June 20, 2017
REVIEW TYPE:	Exempt from Full Board Review

Thank you for your submission of New Project materials for this project. The Western Kentucky University (WKU) IRB has APPROVED your submission regarding data analysis. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Exempt from Full Board Review based on the applicable federal regulation.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please use the appropriate reporting forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project has been determined to be a Minimal Risk project.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Paul Mooney at (270) 745-2129 or irb@wku.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Western Kentucky University (WKU) IRB's records.