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Benchmarking presidents' compensations in institutions of higher education relative to sustainability and other institutional practices
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Abstract

Purpose – The purpose of this paper is to investigate the strategic effects of academic institutional factors including environmental, social, and economic sustainability indices on the compensation of the president of an institution of higher education (IHE). The objective is to build relationships among variables to benchmark compensation measures for IHE presidents across US universities to proliferate sustainability initiatives. Some of the variables of the study were environmental sustainability, social sustainability, cost efficiency as a measure of economic sustainability, tenure, institutional control of the university such as public or private fundraising reputation, endowment and professor's salary.

Design/methodology/approach – In total, 236 universities have been included in the study. The data for various dependent variables were studied to see the relationship between the independent and select dependent variables. The OLS regression approach was used to ascertain the relationships between the president's salary, and a selected set of independent variables that includes the measures of sustainability.

Findings – The key findings of this study is that variables such as environmental sustainability, tenure, classification, endowment, and professor salary were significantly and positively associated with the IHE president's salary.

Research limitations/implications – The current study is limited to the IHEs within the USA. Thus, the study cannot be generalized or extrapolated to other countries or contexts or cultures.

Practical implications – The results of the study show that the trustees rarely use proliferation of sustainability as a criterion to compensate IHE presidents. The study concludes with the plea to trustees to benchmark sustainability across IHEs in evaluating and compensating IHE presidents.

Originality/value – This paper extends the compensation study of IHE presidents to include environment, social, and economic dimensions of sustainability. These variables are important in this age where IHEs have been challenged to do more to make our planet sustainable.

Keywords Benchmarking, OLS, Economic sustainability, Social sustainability, Environmental sustainability, Institutions of higher education

Paper type Research paper

1. Introduction

Under the leadership of G.H. Bruntland (1987) and instituted by the United Nations, The World Commission on Environment and Development produced a substantive report that called various national and international entities to expand their path of cooperation to make our planet sustainable. The report was designed to rein in "profligacy" that endangers our planet, as well as our current and future generations. Some of the consequences for such rapid degradation of planets were identified as global warming, acid precipitation, ozone depletion, widespread desertification,

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and species loss. The report was optimistic in that it holds us all accountable: "Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

In order to create a cleaner and a sustainable planet, it has been proposed that our institutions of higher education (IHE) worldwide should take the lead to develop and implement sustainability programs (Geng *et al.*, 2013). An IHE can be thought of as a value chain analogous to supply chain in manufacturing environment. The early development of the value chain concept was proposed by Porter (1985) who used an industrial model (Figure 1). His model divided activities into primary and support activities. Primary activities are directly related to creation, sales, distribution, and maintenance of goods and services. Support activities, as the name suggests, support primary activities.

Hutaibat (2011) adapted Porter's value chain model to the environment of an IHE. He pursued an inductive approach and used resource-based theory to develop a model which he tested empirically in the context of UK and Jordan. His model identifies the stakeholders but stops short of identifying process owners. For this study, we have modified Hutaibat's model slightly (Figure 2) to include process owners that drive the IHE value chain. These process owners are trustees or principals, and president is the agent. It is important to understand the place of process owners, particularly, the place of president as a primary process owner and the chief executive officer (CEO) of an IEH.

Like corporate CEOs, IHE presidents have been scrutinized for their high salaries (Ellis, 2011). In recent times, the Wall Street protests sparked the conversation of widening income gaps between the wealthiest individuals (the 1 percent) and everyone else. Not surprisingly, IHE presidents are earning some of the highest salaries (Hebel, 2011; Sorkina, 2003). Despite the budget cuts at IHE, presidential compensations have continued to increase across the country (Briody, 2012). Today's economic climate, coupled with a high percent of unemployment rate, has forced many jobless people back into school to improve their marketability in the job market. When they enroll in their

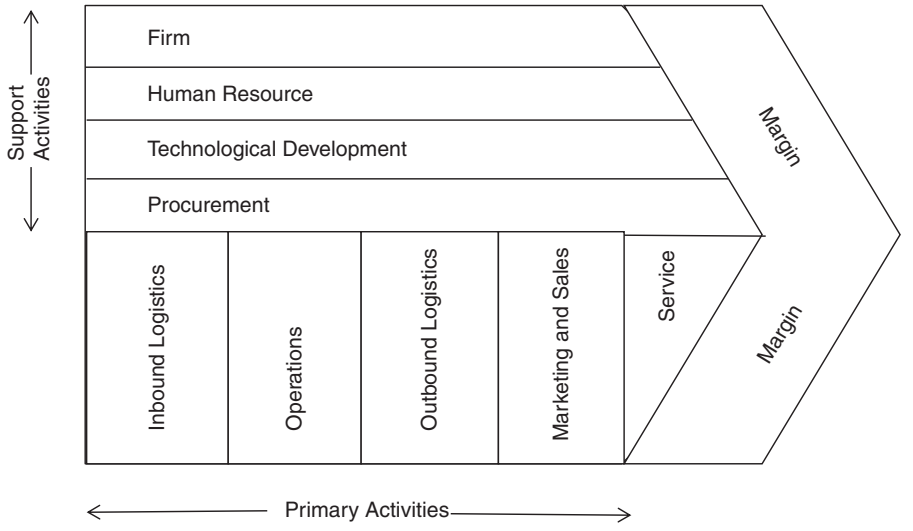

Figure 1.
Value chain model

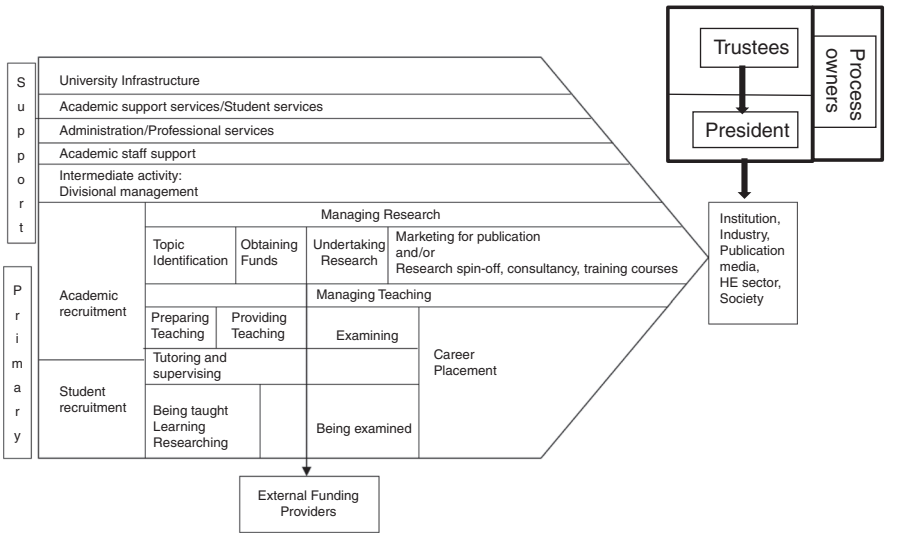

Figure 2.
Modified version of value chain model

chosen classes, they foot a large tuition that increases every year of their schooling, crippling their financial futures more so if the student takes a loan to pay tuition. As student debts continue to increase with concomitant high default rates, people have started to question the rationale for exorbitant compensation earned by university administrators, particularly their presidents/CEOs. In the environment of enhanced accountability, the questions are even proliferating to seek answers to excessive compensation *vis-à-vis* the benefits earned to stakeholders due to such largesse.

Thus, the topic of unabated rise of IHE president's compensation is an important area of study to put our arms around the reasons, rationale, and validity for such payments. Some of these aspects have analogy from the corporate world where active investors attempt to associate CEOs' compensation with environmental, social, and governance metrics. For example, if a university president is paid solely for her/his personality, gravitas, and charisma rather than for her/his performance, the reason for high compensation becomes frivolous. On the contrary, if IHE presidents are successful in increasing endowments for their university, enhancing the sustainability of their campus and/or increasing enrollments, then their compensation should be commensurately increased (Tang *et al.*, 2000).

A survey conducted by *The Chronicle of Higher Education* (Hebel, 2011) found that out of 519 private IHEs surveyed with budgets over $50 million, 36 presidents earned more than $1 million in 2009. The same number was 33 in 2008. Median total compensation was $385,909, which was a 2.2 percent increase from 2008 level (Hebel, 2011). Top executives at for-profit IHEs took more than a million dollars in annual compensation and benefits (Kirkham, 2012) and some of the largest increases in compensation were in public IHEs (Tomsho, 2008). For the same period, median compensation of presidents at public IHEs recorded a 7.6 percent increase.

Surprisingly, there were not a lot of studies conducted about the compensation structure that IHE trustees have developed for their presidents in the USA (Ehrenberg *et al.*, 2001). Thus, researchers are left with the options of applying the compensation models prevalent in corporate sectors to the higher education sector (Cornell, 2004;

Ehrenberg *et al.*, 2001). A few studies (e.g. Ehrenberg *et al.*, 2001; O'Connell, 2005; Pfeffer and Ross, 1988) have focussed on the relative significance of the major attributes of IHE presidents and their related compensation. Some of the previous literature came up with variables that correlated with the IHE president's compensation. This study will use a few of those previously studied metrics, along with less-cited variables, such as environmental, social, and economic sustainability.

The primary objective of this study is to examine the fundamental research question of whether there is a relationship between college presidents' compensation and variables such as environmental sustainability, social sustainability, cost efficiency as a measure of economic sustainability, tenure, institutional control of the university such as public or private, fundraising, reputation, endowment, and professor's salary. Our research focusses on some of the key variables identified in the hypotheses of this study in regard to the contextual domain of IHEs in the USA. The first set of key variables relates to sustainability in environmental, social, and economic dimensions. These are key variables because sustainability policies are being adopted by IHEs in increasing numbers (Tilbury, 2011). Therefore, it is important to examine how these policies dictate increases in the compensation of IHE presidents (Van Weenen, 2002). The intuitive explanation of the above linkage is, for example, if our campuses become more environmentally friendly through more efficient energy usage by university presidents (Ehrenberg *et al.*, 2001), should their pay be supplemented with the cost saving initiatives they put in place? This incentive is very critical in today's environment because reduction of energy consumptions has a direct bearing on global warming and climate change (Wright, 2010).

Other variables of consideration are enrollment, average annual tuition, classification, cost efficiency, tenure, endowments, fundraising, and faculty salaries. The cost of a college education is rising fast due to a few attributing factors such as inflation, increased demand, etc. However, this paper intends to focus on the factors affecting college president's compensation and not its relationship with tuition hikes. Analogous to the boards of public companies arguing to pay high compensation to their CEOs, the board of trustees, or regents make similar arguments in offering competitive salaries to their presidents to attract and retain the best talents available to manage the unique complexities and challenges of their IHEs (Tomsho, 2008).

The goal of this study is to identify the effects of college president's compensation on a set of variables that affect the university operations. The hypotheses in this research address various factors that might justify college president's compensation. This study has a couple of basic features which makes it different and better suited than much of the existing literature for studying the above relationships (Kirwan, 2010; Krizek *et al.*, 2012). The model used is different from other published studies in that it is more comprehensive, includes more variables, and benchmarks "sustainability" as a variable. Some of the different variables that the comprehensive model includes are enrollment, average annual tuition, classification, cost efficiency, tenure, endowment, fundraising, college professors' salaries, and sustainability. Previous studies normally focussed on one to three variables of the set of variables mentioned above. Thus, our study broadens and improves on the weaknesses of other studies. In addition, IHE presidents' compensation is less studied than corporate CEO compensation. Therefore, the research will contribute to this less-studied area.

The remainder of this paper has been organized as follows: the next section presents the literature review, followed by the hypotheses investigated in the research, the research method, analysis of the research results, and the conclusions drawn along with their implications.

2. Literature review

Globally, people are painfully beginning to realize that we are endowed with scarce environmental resources, which are sensitive to actions that we pursue (Fleskens *et al.*, 2014). In 1990, Jean Mayer, the President of Tuft University evinced her passion in stewarding environment preservation on our IHE campuses. She assembled 22 IHE presidents under the aegis of the University Leaders for a Sustainable Future in Talloires, France to discuss environmental sustainability and the roles IHEs must play to make our planet sustainable (Clugston and Calder, 1999). As of May 2012, there were 440 member universities worldwide (Wolfgramm *et al.*, 2015) with the numbers moving up every passing year. The Talloires declaration was a major milestone being the first declaration of its kind that created a sense of urgency in the matter of environmental sustainability in our IHEs. Soon Halifax Action Plan was created in Dalhousie University, Canada in December 1991 to take the Talloires declaration further. Other declarations and action plans analogous to Talloires Declaration and Halifax Action Plan are Swansea Declaration of the Association of Commonwealth Universities in 1993, the Copernicus University Charter for Sustainable Development in 1993, and the Kyoto Declaration of the International Association of Universities in November 1993 (Smith-Sebasto, 1997). The idea of taking leadership in the matter of educating environmental sustainability in IHEs originated at the Association for the Advancement of Sustainability in Higher Education conference in October 2006. Later that year, American College and University Presidents' Climate Commitment was launched after 12 presidents from various colleges and universities across the USA signed a document that committed them to sustainability (Wright, 2010).

Sustainability policies are constantly being adopted by IHEs in increasing numbers (Van Weenen, 2002). For example, IHEs across the USA are pursuing Leadership in Energy and Environmental Design (LEED) certified buildings. LEED is a recognized standard for buildings that meet required standards for water and electric usage (Buddingh, 2011). A few other examples are installing solar panels, recycling wastes, and reducing pollution. Scholars believe sustainable learning should be implemented in all facets of IHE curricula with the objective to expose our students to sustainability in all its manifestations (Chase and Rowland, 2004; Creighton, 2001; Rappaport and Creighton, 2007).

IHEs have begun to include sustainable design for new buildings, environmental audits, sustainable development plans, and adopting policies on conserving our environment (Savanick *et al.*, 2007). Students that are studying sustainability in their classes are going to be the future leaders in the organizations they will work for, and in the communities they will live. Thus, they will influence how sustainability will be achieved in their organizations and communities (Fisher and Bonn, 2011).

While leadership in our IHEs was found to be a significant driver of sustainability on our campuses, the lack of commitments from leaders was found to be one of the main barriers to implementing sustainability (Ralph and Stubbs, 2014). We find there is a shortcoming in the literature to associate IHE president's compensation to sustainability rating of the institution (Ehrenberg *et al.*, 2001). Many colleges and universities are implementing sustainability practices in the post recessionary environment (Haanaes *et al.*, 2011) to reduce their long-term costs and to do "good" to the community. As IHEs are complex organizations by nature due to a diverse group of stakeholders, sustainability predicates extraordinary power of persuasion of the president (Metclaf and Benn, 2013). There were studies (Clugston and Calder, 1999; Orr, 1994) that examined the financial incentives for IHEs to adopt sustainable practices to

reduce environmental impacts (Holmstrom, 1999). In addition, another study has shown that high-sustainable entities financially outperformed their low sustainable counterparts (Eccles *et al.*, 2012).

3. Research hypotheses

In general, sustainability stands on three pillars: environmental, social, and economic. IHE, as a system, needs to employ these three pillars to achieve the results of sustainability. In the simplistic form, Figure 3 represents such a system. A campus should be the example of an ecosystem where environmental sustainability, social sustainability, and economic sustainability coexist. While environmental sustainability ensures green behavior to create a healthy environment, social sustainability acts to hold together the campus as a community by providing volunteer opportunities and encouraging debates and discourses. Economic sustainability assesses the utilization of scarce resources such as finance, human resources, infrastructure to get "more" outputs from "less" inputs. Although IHEs are mostly non-profit organization, the stakeholders and investors would like to see their monies spent wisely so that more scholarships can be awarded to deserving students, and more teaching and research activities can be carried out to meet the societal needs. The onus of making a sustainable campus falls on the president of the IHE.

Environmental sustainability is the most obvious form of sustainability and is the easiest to quantify (Eccles *et al.*, 2012). Some of the tangible aspects of environmental sustainability cover waste management, energy, transport, water, construction and renovation, emissions and discharges, bio-diversity, sustainable procurement, carbon management, and commuting (Ralph and Stubbs, 2014). Other aspects of environmental sustainability involve harnessing renewable and green energy, employing external environmental system such as ISO 14000, and sustainability reporting (Krizek *et al.*, 2012). Sustainability-oriented presidents can provide the leadership to involve and educate their student bodies, faculty, and staff to make green choices.

Communications through electronic boards and kiosks could provide the updated records of the green power created and consumed to reduce carbon foot prints. The bottom line, however, is that the environmental sustainability initiatives on the campus must be initiated by the president's office.

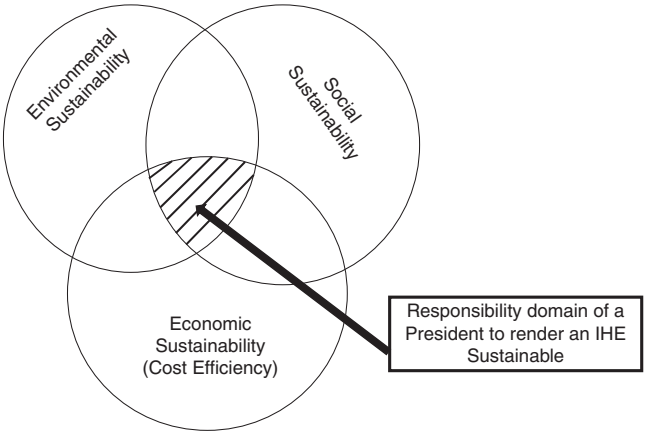

Figure 3.
Three pillars of sustainability

In order to test whether the increasing importance of sustainability has an effect on college president's compensation, the following hypothesis is proposed:

H1. There is a positive relationship between an IHE president's compensation and sustainability rating the IHE receives in environmental dimensions.

Social sustainability, however, is less direct and intangible to define. An inclusive definition of social sustainability was proposed by the Oxford Institute for Sustainable Development (OISD): "how individuals, communities and societies live with each other and set out to achieve the objectives of the development models which they have chosen for themselves, also taking into account the physical boundaries of their places and planet earth as a whole. At a more operational level, social sustainability stems from actions in key thematic areas, encompassing the social realm of individuals and societies which range from capacity building and skills development to environmental and spatial inequalities […]" (Colantonio and Dixon, 2009). An IHE campus is supposed to be a community of students, scholars, teachers, staff, and other stakeholders. Thus, the social sustainability plays an important role in finding the space for each entity within the IHE. The president plays a major role in making sure that the IHE provides the support for cultural and social life, garners respect for each other irrespective of individual, cultural, linguistic, and several other differences pertaining to individual values and beliefs. Since the indicators for social sustainability appear to be softer than environmental sustainability, OISD's social sustainability indicators include how connected residents feel to each other, or the sense of the place in the community; the provision and access to services; green design features; proximity to businesses and employment; cultural activities; and community involvement (Colantonio and Dixon, 2009).

Social reputation is another important aspect of academic institutions, which subsumes its social sustainability aspects (Ralph and Stubbs, 2014). Reputation is an important feature in colleges and it is used to distinguish themselves from other institutions. Will reputation of the college affect the president's salaries? Are Ivy League school presidents paid more simply because of these schools having a high reputation? A lot of literature supports this. It was found that university presidents' compensation is positively correlated with reputation (O'Connell, 2005; Tang *et al.*, 2000). Colleges that have a great reputation are supported by their students and can afford to pay a higher salary to their faculty and to the president. Judge *et al.* (1995) did a study on 1,388 university executives and found the prestige of the college is related to financial success and increased salary of its president in the long run.

In this study, we have used The Princeton Review's The Best 294 Business Schools, definition of university reputation. The Academic Experience Rating of the survey was extracted from the Review (Gilbert, 2012). The next section ("research methodology") explains in further detail how The Princeton Review calculates it.

The preceding discussions lead us to the following hypothesis:

H2. There is a positive relationship between an IHE president's compensation and sustainability rating the IHE receives in social dimensions.

Economic sustainability of a campus manifests in cost efficiency. Often, it is found that smart sustainability initiatives on the campus also make the campus frugal by conserving its scarce resources and bolstering its financial position in the long run. For instance, the use of energy saving devices in dorms, academic buildings, and labs can generate a lot of savings. The use of hybrids and electric vehicles in lieu of gasoline

powered vehicles not only generate savings but also reduces carbon foot prints. Capital investments made to upgrade old antiquated systems such as boilers, chillers, heating, ventilation, and air conditioning systems to smarter energy saving systems might be effective in reducing energy dependence and, consequently, energy-related costs. Installation of renewable energy sources also has multiple economic benefits.

A lot of empirical research has been done on how cost efficiency of a college is linked to its president's compensation (O'Connell, 2005; Sorkina, 2003). A study of 400 colleges from 1992-1993 through 1997-1998, has shown little correlation between the various metrics of performance used and the compensation of the president (Eccles *et al.*, 2012). There has been a weak association between compensation and various institutional performance measures (Ehrenberg *et al.*, 2001). Mark Schneider (2009) pointed out that funding to colleges should be linked to performance measures to induce greater accountability.

Other studies have viewed that the college president has an agency relationship with the university. The agent (president) is expected to carry out the objectives of the trustees (principal). The optimal pay package is supposed to compensate the associated college president at a competitive rate prevailing in the market (Holmstrom and Milgrom, 1994). Some studies use qualitative factors such as experience and degrees attained in the compensation of college presidents (Pfeffer and Ross, 1988). The problems with these factors are their measurement and objectivity.

Our analysis will differ in that it studies the effects of the income of the institution and how they control their expenses to produce their income. This model is much like Holmstrom's and Milgrom's (1994). They viewed a college president as an agent for their principal, i.e., trustees. The agent needs to be efficient in utilizing the scarce resources at its disposal. As a result, the presidents' pay will increase if they are more efficient in controlling costs. An IHE that has low revenues relative to their expenses shows poor management strategies. An IHE that continually has enough revenues to meet its expenses can afford to give its president a high salary like a corporation awards its CEO for superior financial performance (Singer, 2012). Thus, the next hypothesis is:

H3. There is a positive relationship between an IHE president's compensation and the cost efficiency of the IHE which is an indicator of economic sustainability calculated as the ratio of average revenues and average expenses.

Our next variable is tenure. Several studies have used tenure of presidents in their models to predict compensation (Cheng, 2004; Fisher and Govindarajan, 1992; Harris and Helfat, 1997). Pfeffer and Ross (1988), Medoff (1980), and Quinn (1979) claim that tenure of a president is an important indicator for compensation. Tenure is an important indicator to predict president's pay because its impact on compensation is positive and significant (Langbert and Fox, 2011). The longer the tenure, the president develops a set of skills and experience to deal with stakeholders expectations that more or less can only be attained with time in the office as president. This experience is valuable and IHEs are willing to pay a premium for it, thus increasing IHE president's pay. Tenure can be used as a proxy for human capital and tacit knowledge, which is skills, related to performing a particular job in a skillful manner (Sorkina, 2003). Medoff and Abraham (1981) supported that tenure is significant in determining pay because more experienced workers (high tenure) generally receive a higher compensation than those who have less tenure in their positions. In order for an IHE to retain its president, they have to increase their compensation annually to remain competitive (Banker *et al.*, 2009). The upward mobility in salary is common in the rank of presidents as there are universities looking for

presidents that can hit the ground running rather than a new hire that has to learn a lot to become effective in her/his position. Thus our next hypothesis is:

H4. There is a positive relationship between an IHE president's compensation and tenure.

A typical college president makes about 3.7 times as much as the average pay of a typical professor at their respective college (Lewin, 2011). However, this could vary signficantly from college to college. An extreme example is 16.1 times from the president of the University of Maryland (Lewin, 2011). Ehrenberg *et al.* (2001) and O'Connell (2005) both state that faculty salaries have a significant impact on president compensation. These results have been consistent because of an internal salary structure. Banker *et al.* (2009) claim that the salary of a professor does have an impact on how the college president is compensated on the same campus. Reputable academic and research environments and higher salaries are necessary to attract distingushed professors. As a result, more complex universities will need a president with superior traits that will fulfill the academic ambitions of not only distingusihed professors but also the entire professorial ranks. As a result, faculty salaries at an IHE is a strong predictor of the president's salary. Therefore, our next hypothesis is:

H5. There is a positive relationship between an IHE president's compensation and an average professor's compensation at that IHE.

An important source of revenues for IHEs to carry out their teacing, research, and service activities at a high trajectory, besides tuition revenues, are their endowments. This extra funding is important to support academic excellence. A high level of endowments brings a strong leverage to an institution in terms of providing student scholarships to attract a diverse student body, set up distinguished chair positions to carry out research and creative activities at a high level, build world class laboratories, auditoria, and amenities to support academic mission of the institution as well as a resource for the community to carry out its outreach mission (Lerner *et al.*, 2008). Endowments usually are set up by wealthy philantropists that are strong supporters of education that would like to leave a long-term legacy to support the institutions of their choosing. When the trustees look for a president, every thing being equal, they beacon flash on a president who is charismatic and can serve as a public face of the IHE to draw out philanthropists. A charismatic president is responsible for attaining more funding for their respective institutions (Banker *et al.*, 2009). Holmstrom and Milgrom's (1994) model used the perspective of the relationship between a principal and an agent in their study. The principal (trustees) monitors the agent (president) by using certain measures of performance. One of the metrics Holmstrom and Milgrom (1994) proposed in measuring president's incentive structure is endowment revenues the president has helped flourish. Their model shows that as endowment increases, college president's compensation increase because they are providing their institution with more funds for projects to achieve a higher level of excellence. Thus, a president's ability to attract endowments is very important. Typically more prestigious universities can attain more endowments. There is a lot of literature support that endowments are positively associated with college presidents' compensation (Ehrenberg *et al.*, 2001; O'Connell, 2005; Tang *et al.*, 2000; Banker *et al.*, 2009). The above explanation leads us to the following hypothesis:

H6. There is a positive relationship between an IHE president's compensation and its endowments.

In addition to endowments, a president's ability to raise funds is another aspect the trustees look at while hiring presidents. It is another source of income to fund the instituion's projects. Fundraising mainly comes from alumni, supporters, and friends of the institution in the form of donations. It has become traditional practice to raise funds through multi-year capital campaigns, such as a current campaign goal of $6.5 billion for the University of Southern California and Harvard University, $4 billion for Cornell University, the University of Chicago, and the University of North Carolina Chapel Hill, and $3.75 billion for Northwestern University (Grenzebach Glier and Associates, 2015). There are a few international universities that have set their eyes high on campaigns such as the Federal University of Technology, Nigeria for $5 billion, Oxford University of UK for $3 billion, Cambridge University of UK for $2 billion, and the University of Queensland of Australia for $1.5 billion (Grenzebach Glier and Associates, 2015). Due to the leadership of presidents, some of the target capital campaign amounts are frequently exceeded. For example, Columbia University's target of $4 billion in prior instance yielded $6.1 billion, Stanford University's $4.3 billion resulted in $6.2 billion, University of Pennsylvania's target of $4 billion resulted in $4.3 billion, Yale University's target of $3 billion resulted in $3.8 billion, and the State University of New York system matched exactly its campaign target of $3 billion (Grenzebach Glier and Associates, 2015). Thus, it is not out of place to see Columbia's president, and U.Penn's president as the highest and the second highest paid university presidents respectively in the USA (Kambhampati, 2015). For fundraising to be successful, presidents must attain more revenues then the costs to hold the events that raise such funds (Banker *et al.*, 2009). Fundraising is a very stressful, but an important task for IHE presidents. As a result, they are compensated for the stress and acumen of fundraising they bring to their positions (Cook, 1997). Ehrenberg *et al.* (2001), concluded that a college president's salary is increased with improvements in fundraising success, typically when the target capital campaign is exceeded. June and Ashburn (2007) reported that a "proven fund raiser" is one of several qualifications of offering a president a higher compensation. However, college presidents ranked fundraising as the number one area they were least prepared for when they took their new role, even though they spend 50 percent of their time on institutional advancement which includes fundraising to a large extent (Jackson, 2012). Since a large portion of the college president's time is tied up with fundraising, if they are successful in gaining large amount of funds, their pay significantly increases to incentivize their current success and retain them so that they are not lured away by other universities or foundations. Hence, our next hypothesis is:

H7. There is a positive relationship between an IHE president's compensation and his/her fundraising track record.

In regards to annual tuition, there is a big gap between a public and private institution's tuition due to state appropriations allocated to public universities. Tuition increases at private universities in constant dollar value rises at much faster rate than public universities (Kronholz, 2004). Does this tuition differential give rise to a compensation differential to IHE presidents from the two classifications of academic institutions in general?

The classification differences between private and public entities have always been an important studied area, especially in businesses that are profit oriented and those driven by not-for-profit goals. Gyourko and Tracy (1986) found that differentials in pay were higher in the public sector as opposed to the private sector. They claimed that public institutions have less risk for failure because they are publicly funded. Quinn (1979) and Tansel (2005) confirm public employees get paid more than their private counterparts

when benefits are factored in. They also stated that the public sector uses the private sector as a proxy to gauge salaries (Quinn, 1979). In addition, tuitions in public universities are more attractive to students, especially if they are in state (Zammuto, 1984). On the contrary, Miller (1996) contends that administrative occupations, such as presidents, in private colleges and universities are paid higher than public academic entities due to strong accountability measures instituted by the trustees. As tuition revenues mostly fund private universities, and their tuition charges are significantly higher than their public counterpart, they are prone to be at risk in a time of financial downturn. Further, private institutions depend on their substantial endowments to augment their budget. The recessionary forces may create havoc on such institutions. For example, Harvard University and many Liberal Arts Colleges, such as Vassar, that have substantial endowments saw a big dip in their endowment income during the past recession (Farkas, 2011). Harvard lost $8 billion on its $36 billion endowment (Epstein, 2011). In order to hold the rudder steady to navigate these difficult and risky times, private institutions are known to hire prestige academics that are known to be business savvy as well. For these reasons, private college presidents are compensated more (Pfeffer and Ross, 1988). Survey data gathered from *The Chronicle* shows that presidents at private colleges on an average make more than their counterparts at public universities. Median total compensation was $385,909, which was up 2.2 percent in 2011 (Lewin, 2011). This will be our dummy variable. Thus, we propose the following hypothesis:

H8. President's compensation in a private IHE is higher than its public counterpart.

4. Research methods

Samples and data collection

The sample for this study was obtained from executive compensation by *The Chronicle of Higher Education*. The data used to measure sustainability was based off of the Pacific Sustainability Index (PSI) by Roberts Environmental Center, Claremont McKenna College, Claremont, CA. The PSI scores reflect a university's environmental and socioeconomic performance as stated in their voluntary environmental or social sustainability reports. Environmental and socioeconomic data are analyzed and scored separately. The variables recorded by the PSI score are in the dimension of intent, reporting, performance, and overall environmental and social activism. The PSI performance is used as one of the major benchmarking sustainability index on how an IHE has performed against prior years, and against its competitors (Lee and Pati, 2012).

President's compensation, institutional operating revenues and expenses, and other variables were derived from *The Chronicle* and College Sustainability Report Card. Also, we gathered other variables of study, such as endowment, fundraising, graduation rate, president's tenure, and average professor salary from *The Chronicles of Higher Education*. Other variables such as institutional classifications (private vs public) were obtained from The Princeton Review's The Best 294 Business Schools.

Description and measurement of variables

To explore the effect of sustainability performance in representative colleges/universities on the president's compensation, the following proxies were used for the president's compensation:

Base pay and bonus = Ln (salary bonuses paid to the president).

Total compensation = Ln (sum of base salary and bonus pay and deferred compensation).

All other independent variables and control variables were selected and operationalized as follows:

Environmental sustainability PSI score: assessed by accountability, management, vision and policy, resource utilization, and emissions data.

Social sustainability PSI score: assessed by accountability, management, vision, and policy, management and labor issues.

For this study, two sustainability scores were employed in a separate manner: overall environmental and social PSI scores were measured by weighted score of intent, reporting, and performance: intent reflects vision, policies, and management strategies with respect to environmental and social attributes; reporting reflects the integrity in presentation of data on environmental and social reports; and performance measures the performance of the reported environmental and social performance indicators. The scores are percentages of the total points possible in the PSI (http://roberts-environmental-center.cmc.edu/wp-content/uploads/2014/02/TopUniversities2012.pdf):

Executive's tenure = number of days that president has served as president.
Endowment assets ($) = Ln (amount of institutional endowment assets).
Fundraising ($) = Ln (amount of presidential fundraising) by Sustainability Report Card.
Cost efficiency = institutional revenues/institutional operating expenses.
Graduation rate = rate of graduation.
Professor's average salary = Ln (professor average salary).
Institution type (dummy) = public (1) and private (0).

5. Statistical analysis

To explore the effect of sustainability on executive's compensation in leading IEHs, OLS multiple regression analysis was employed. Table I shows the descriptive statistics and inter-correlations for all variables used. The mean total compensation of the college presidents in our sample was $517,883 (std. dev. of $378,176), which is a fairly large mean salary compared to the $140,944 (std. dev. of $42,940) average salary of the rank of professor. This is about 3.37 times difference, which was close to the 3.7 times shown in the previous literature such as in Lewin (2011). The average tenure of the presidents in our study was 2,000 days or about five and a half years. Mean cost efficiency was 0.70, which insinuates that a majority of the colleges in the sample are not cost efficient. A value of 1 or more is considered cost efficient, while less than 1 is not. This is surprising considering the high salary of college presidents. Most dollar-based variables (e.g. base salary and bonus, total compensation, endowment, fundraising, and average professor's salary) were taken as natural log value.

As shown in Table I, both environmental and social PSI are statistically significant (at least at 5 percent level) in terms of total compensation, but they are not significant in base salary and bonus. Furthermore, environmental PSI is negatively correlated with total compensation, whereas social sustainability is positively related to college president's compensation. Other variables such as president's tenure, cost efficiency, professors' average salary, fundraising, and endowment are also highly significant ($p < 0.001$) and positively correlated with both base salary and bonus and total compensation. In particular, presidents' tenure and professors' average salaries are highly and positively related to college presidents' compensation.

Table II shows the results of OLS multiple regression analysis with respect to two different scales of compensation. In fact, correlation analysis may not be enough to

Table I.
Descriptive statistics and correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Salary and bonus (Ln)	13.07	0.46										
2. Total compensation (Ln)	13.16	0.50	0.837***									
3. Executive's tenure (days)	2,003	2,216	0.289***	0.297***								
4. Sustainability:environmental	24.88	11.37	−0.085	−0.132*	0.070							
5. Sustainability: social	21.85	11.67	−0.009	0.124*	0.023	0.696***						
6. Cost efficiency: revenue/cost	0.70	0.58	0.342***	0.324***	0.640***	0.114	0.005					
7. Graduation rate (%)	72.51	47.50	0.074	0.063	0.118****	0.029	0.012	0.280***				
8. Endowment (Ln)	6.14	1.26	0.102***	0.368***	−0.106	−0.002	0.106	−0.017	0.158*			
9. Fundraising (Ln)	3.59	1.23	0.133*	0.323***	−0.232***	0.202**	0.109	−0.256***	0.096	0.697***		
10. Professor average salary (Ln)	11.88	1.83	0.528***	0.433***	0.022	0.086	0.074	0.121*	0.136*	−0.099	0.607***	
11. Institution type: private vs public	0.37	0.48	−0.347***	−0.349***	−0.642***	−0.048	0.033	−0.866***	−0.269***	0.028	0.287***	0.287***

Notes: $n = 236$. Executive pay: base salary and bonus = $435,000 (SD $335,000); total compensation = $517,883 (SD $378,176); professor's average salary = $140,944 (SD = $42,940). *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; ***$p < 0.10$

Table II.
OLS multiple regression analysis

Variables	Base pay and bonus				Total compensation				
	Coefficients				Coefficients				
	B	SE	Standard β	Partial *R*	*B*	SE	Standard β	Partial *R*	VIF
(Constant)	1.317	(1.97)			3.482	(2.11)			
Sustainability: environmental	−0.013	(0.00)	−0.190**	−0.172	−0.015	(0.01)	−0.216**	−0.188	2.055
Sustainability: social	0.006	(0.00)	0.088	0.082	0.011	(0.01)	0.160*	0.141	2.003
Cost efficiency: revenue/expenses	0.130	(0.06)	0.088*	0.056	0.138	(0.05)	0.096**	0.008	4.349
Executive's tenure	0.002	(0.00)	0.125*	0.122	0.002	(0.00)	0.156*	0.145	1.816
Professor average salary (Ln)	0.983	(0.17)	0.389***	0.354	0.794	(0.19)	0.306***	0.274	1.856
Endowment (Ln)	0.000	(0.03)	0.001	0.001	0.015	(0.05)	0.153*	0.066	2.010
Fundraising (Ln)	0.088	(0.03)	0.214**	0.171	0.080	(0.04)	0.190*	0.146	2.660
Graduation rate	−0.001	(0.00)	−0.101	−0.124	−0.001	(0.00)	−0.101	−0.120	1.134
Institution type[a]: public vs private	−0.241	(0.10)	−0.252*	−0.157	−0.276	(0.11)	−0.281*	−0.167	4.377
Adjusted R^2	0.3505				0.4071				
F-ratio	18.902***				19.4359***				

Notes: $n = 236$. VIF, variance inflationary factor. [a]Institution type (dummy): public (1) vs private (0). *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

investigate the significant determinants of president's compensation. Therefore, a multiple regression analysis was additionally used to further explore the major determinants of presidents' compensation with respect to base presidents' salary and bonus and total compensation. In order to explore the significant explanatory factors including sustainability scores for IHE presidents' compensation, we also conducted an extended statistical test to cover a possible existence of multi-collinearity. None of our variables surpassed a variance inflation factor (VIF) of five (highest VIF is 4.377 in institutional classification: public vs private), which shows that our data does not exhibit multi-collinearity. Although fundraising and endowments are similar in nature, there is no evidence of multi-collinearity to hold our statistics to suspect.

As presented in Table II, our regression models, with respect to two different compensation scales (base salary and bonus and total compensation), are highly significant at the 0.001 level, and college presidents' compensation explains on the average 35.05 and 40.71 percent of the variance in sustainability indices and all other key institutional factors. Social sustainability is most likely to be significant determinants for presidents' pay with respect to both base salary and bonus and total pay. As such, environmental sustainability is uniformly associated with both presidents' base salary and bonus, and total compensation, while social sustainability is significant for total compensation only. In addition, IHE presidents' tenure, institutional cost efficiency (revenues/expenses) as a measure of economic sustainability, faculty average salary, and fundraising are statistically significant for both base salary and bonus, and total compensation. As expected, president's average remuneration in private institutions is significantly higher than their public counterpart.

6. Major findings and discussions

To summarize, our model points out that environmental sustainability, institutional operating revenue/cost efficiency that reflects economic sustainability of an IHE, tenure of college presidents, size of endowment, and professors' salaries are significant predictors of the president's compensation at an IEH. Sustainability had mixed results. Environmental sustainability was significant (but with a negative sign), while social was not. This is due to the fact that environmental sustainability is easier to measure, while social is more difficult to quantify and mostly based on perceptions (Eccles *et al.*, 2012). The objectivity of the social data could have skewed the final result for that variable. The results show that a college president who adopts environmental sustainable practices may not have any effect on their pay. Attaining LEED certified building status and other notable practices would likely to be linked to an increase in their pay, which is not supported by our analysis. As sustainability becomes more prominent in our colleges, hopefully more data will be available. This will obviate the possibility of identifying key metrics to quantify these variables. Sustainability, as a key variable in this study, will grow in importance as more colleges adopt sustainable practices.

It was no surprise that presidents' tenure was significant. We confirmed the results from previous studies that tenure is positively and significantly related to presidents' pay (Langbert and Fox, 2011). The longer a president works at a particular IHE, not only will his job security increase at that IHE, but his pay should increase as well. A university needs to make sure that they retain the best leader for their IHE for long haul by providing incentives in the form of salaries. They may offer

incentive plans and/or a stated percentage increase in their compensation to value loyalty (Banker *et al.*, 2009).

Our dummy variable for the institutional control such as public or private shows that private IHE presidents get compensated more on the average compared to public IHE. This is consistent with previous literature in that private colleges by nature are prone to risk due to the absence of public funding and state appropriations (Pfeffer and Ross, 1988). Although some previous studies have found it conclusively that public presidents get paid more (Quinn, 1979; Tansel, 2005), our model shows that private presidents are compensated more.

Endowment was our next significant variable. This confirms previous studies, namely, by O'Connell (2005) and Ehrenberg *et al.* (2001). As a college president increases the amount of endowments, her/his compensation is expected to increase. The same cannot be said for fundraising. It ended up not being a signficant variable. Future studies should focus on the impact of fundraising on president compensation. This is due to the fact that a large part of a president's responsibility is to raise funds for projects that will move the the IHE on a higher trajectory of excellence (Jackson, 2012).

Our final significant variable was the average salary of a professor as it relates to the president's compensation at an IHE. Our model shows that professor's salary does have a significant impact on the compensation of college presidents. This study has further concurred with the previous studies such as by Ehrenberg *et al.* (2001) and O'Connell (2005). Since college presidents have a more complex job, they are paid more in relation to professors. Typically the gap between the president and an average professor is about 3.7 times (Lewin, 2011).

7. Conclusion

Taken together, this study has shown that environmental sustainability, tenure, university classification, endowment, and the average salary of professors are significant predictors of IHE presidents' compensation. In other words, each significant variable led to a positive association with the president compensation. This study has confirmed previous literatures on similar issues. The variables that were not significant were social sustainability and fundraising.

A limitation of the study was the data we collected. Some of the variables under study did not have information in the database. For example, the PSI data on environmental and social dimensions of sustainability had only a few selected colleges that reported their data on a voluntary basis. This could have made the data for these measures skewed and possibly not representative of the population. Some colleges did not report a lot of the variables that were measured which led to many colleges not having all the information that was needed for the study.

The study could be richer if we had access to authentic enrollment data. The enrollment numbers could predict a president's salary (Cornell, 2004) in the same vein as an investment professional's salary, measured in terms of the assets they foresee (Brandon, 2012). Currently, the research shows mixed results on the effect of student enrollment on a president's salary. Ehrenberg *et al.* (2001) found that enrollment and the compensation of the IHE president are positively correlated. Similarly, other studies have found that enrollment size has a positive, but weak impact on college president's salaries (Holmstrom, 1999; O'Connell, 2005). O'Connell (2005) also stated that the financial health does not have an impact on salary. Other models have considered personality traits, that are considered ideal for leading a complex

institution defined by its scope, are linked to increased compensation (Banker *et al.*, 2009). The size of the student body and compensation has a stronger correlation in public colleges as opposed to private institutions (Pfeffer and Ross, 1988). It could be meaningful to have enrollment data of the institutions in the sample.

Another interesting variable could be the tuition revenues collected by the institutions in our sample and how they correlated with the presidents' salaries. As we know, private colleges are more reliant on tuition while public institutions rely only partially on tuition and mostly on funding from government appropriations. Tuition has been increasing at a rate faster than president's salaries in both private and public IHEs. Significantly, in the tick of recent recession in 2009, private colleges raised tuition about 4.3 percent. In addition, they increased tuition on the average 4.5 percent for 2010 and 4.6 percent for 2011 (Ellis, 2011). Despite budget cuts at state colleges during the period 2009-2011, presidents' pay still increased along with tuition (Briody, 2012). For these reasons, it is important to study the effect of annual tuition on the president's salary of an academic institution. Since a president's pay on average is increasing, the costs are passed on to students. Previous studies have shown that IHE are spending more money on administration, typically on college presidents rather than on faculty and instructions (Schneider, 2009). Schneider's work showed that it was not necessarily faculty salaries that resulted in increased tuition. Generally, faculty salaries do not grow faster than inflation. However, IHE presidents' salaries did increase faster than the tuition increase at their respective institutions and some used circuitous ways to justify the increase. Tang *et al.* (2000) observed in their study that rising tuition is attributed to higher president compensation. They used a traditional multiple regression model consisting of the type of institution, region, size of the school measured by student and faculty count, president's pay, and academic reputation ranking, to determine college tuition. Several studies (Hauptman and Merisotis, 1990; Cunningham *et al.*, 2001; Hoenack and Weiler, 1975) have shown that increasing level of presidents' compensation is associated in part to the increases in tuition rates. These studies show that on the average that when tuition rises it is likely that the IHE president's pay will increase significantly, even more than the increase of tuition rates. This is logical because if tuition rates increase the college will have more cash inflows to pay their president, all other conditions remaining the same (Hauptman and Merisotis, 1990). The addition of a variable capturing the tuition revenues could make the study more meaningful.

Apart from the above two variables, future studies should focus more heavily on sustainability, a topic gaining greater importance in the era where universities like businesses are adopting triple bottom lines, i.e., making a profit by conserving the planet and taking care of people around them. Further, new standardized metrics need to be developed to reduce objectivity in social measurements. In addition, variables such as endowment, retention rate, and fundraising could be fine-tuned to produce replicable statistics for the research.

The results of the study shed lights on our prevailing compensation model of IHE presidents. Although our IHEs are considered the harbinger of sustainability, it seems IHE presidents at such organizations are not compensated based upon their involvement in making their institution sustainable. IHE presidents that engage in sustainability, they do so from the "good" of their hearts as there is very little extrinsic motivation for them in their compensation structure. If we want our campuses to be in the front of the pack to foster environmental, social, and economic sustainability, our trustees need to spell out their expectations on sustainability in the salary contract

issued to our IHE presidents. They may wish to benchmark the sustainability measures with other IHEs pertaining to presidents' compensation with the objective to create a campus ecosystem where sustainability is taught, researched, practiced, and cherished.

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