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Attitudes of Business Deans and Students Regarding Academic Sustainability Programs: A Comparative Analysis

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ABSTRACT

This study reports on the opinions and perspectives of business school deans and students on the role of sustainability in business academic programs. The focus of the enquiry is to investigate the status, standing, and appeal of sustainability topics in business curricula, including the desirability of alternative approaches to teaching sustainability. Harrison et al. (2015) reported survey results of U.S. business school deans covering these topics, including their assessment of students’ sentiments toward sustainability in the curricula. That work was extended to include student sustainability perspectives directly, taken from students studying in the U.S. and France, comparing and contrasting these results independently and with the previously reported deans’ sustainability viewpoints.

Key words: Business Sustainability, Business Education, Curricular Design

INTRODUCTION AND LITERATURE REVIEW

The issue of sustainability affects everyone, although clearly people of differing persuasions (politically and otherwise) have widely dispersed viewpoints. Business schools have taken on the issue to varying degrees, with very few, to our knowledge, absent some level of sustainability in the curricula. With AACSB and EQUIS accreditation standards openly requiring some level of sustainability coverage, this trend will surely continue. As no dominant methodology, technology or emphasis exists to achieve optimal sustainability, the area remains open to alternative approaches. The umbrella of corporate social responsibility (CSR) clearly includes green and environmental issues, along with related human resource issues, working conditions, ethical practices, and financial/security aspects such as living conditions, pensions, health care and education. Impacting all, the contributions of all are welcome and needed, although the emphasis and paths toward progress is neither clearly defined nor enjoys universal accord. Employees, managers and future business owners are urged to balance the needs to ‘make budget’ without putting in danger long-term survival of business and society in general. As such, business school graduates, regardless of specialization, require some level of sustainability in their curriculum.

Rapid advances in global technologies offer the prospect of exciting future opportunities for business students on many levels. Paired with corresponding population increases and resource concerns, the opportunities are vast, tempered by increasing environmental challenges. The challenges and environmental risks are increasing at what many consider dangerous and exponential rates (Hansen et al, 2005). The Paris Climate Change Talks reported that environmental challenges need prompt and effective action on a coordinated level. Differences in opinion exist and seriously impede

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progress, adding to delay, the level of threat, and rates of change. Governments, society and businesses jointly have recognized the need to increase awareness and knowledge of potential environmental vulnerabilities, as well as stimulate research on feasible alternatives and implementations of solutions to mitigate identified issues. The business community is aware of the importance of the issues, with some working toward leadership roles. Over 7,000 businesses now issue sustainability reports that include their environmental performance and impacts (GRI, 2015). This is not all reactionary, costly, or negative. New business opportunities have developed in response to growing environmental awareness, with new technologies finding receptive and profitable markets for practical environmental solutions. “Green Business; Sustainable Production; Environment Friendly Products & Production, Green Accounting” are but a few of the now common terms found throughout the world. Sustainability clearly is an important area for business, requiring business schools to adequately prepare graduates for the issues, challenges, and opportunities awaiting them.

Some segments of the business community have engaged more enthusiastically than others to the growing global interest in sustainability. They believe the sustainability area offers new market segments, new opportunities and niches in current markets, and the prospect of leading product development life cycles. The AICPA suggests that business should move toward business sustainability “not just because it is the right thing to do, but also because it makes good business sense.” (Coffey, 2012) The academic community needs to work with business to provide leadership, research, and motivated graduates ready to take on the challenges and opportunities these technologies offer, in safe, sustainable and profitable directions.

The academic community, business schools in particular, have responded with growing interest and active program development. The eagerness with which they have responded, however, is not well documented. Sustainability pairs well with existing CSR programs integrated within business programs for several decades; to that extent the addition of sustainability should be somewhat seamless. The AACSB and EQUIS both recently added sustainability requirements in their accreditation standards. The AACSB also added an annual sustainability conference to their educational programs and a Sustainability Resource Center to its website. With varying levels of interest and progress, university business programs are incorporating sustainability topics into their curricula. In Europe, educational institutions that have been slow to implement some level of sustainability into their curricula are additionally encouraged by the European Higher Education Area (EHEA), who report they are “dealing with non-implementation.” (As reported within their website on implementation and quality assurance; Bologna Process, EHEA 2016; [http://www.ehea.info/article-details.aspx?ArticleId=391]).

Business schools and individual degree programs may treat the field of sustainability differently, to best fit the students’ major, and cognizant of resource and course constraints. There are choices, sustainability objectives can be achieved with varying degrees of efficiency, effectiveness, and resources. Deans have ultimate responsibility for strategic sustainability deployment within the curricula, but this is further complicated by student needs and perceptions. Curricula influences student experiences and perceptions, ultimately reflecting on the reputation of the school and university. Underlying all of this is the need to meet the relatively new sustainability curricular accreditation requirements (although admittedly vague). The less than perfectly defined sustainability accreditation requirements give way to various coverage alternatives, which we queried as well.

Education ideally includes esoteric and abstract notions. Such education may heighten intellectual capability and abstract thought. Graduates seeking employment, however, may be hampered if they do not have skills grounded in the practical applications, problems, and pressing issues affecting the employer, the industry sector and nation states. This includes a working knowledge of the issues and alternative approaches to sustainability objectives. Sustainability topics, as a growing field, offer both esoteric challenges as well as practical groundings. Sustainability pedagogy offers a valuable chance to otherwise avoid ‘death by PowerPoint’, using other interactive means, including
a range of games to teach sustainability (Dahlin, Fenner and Cruickshank 2015). The EHEA aims to achieve improve educational models by orienting away from theoretical knowledge toward professional skills. Practical problems in sustainability that demonstrate value added provide welcome, grounded learning opportunities for both business and engineering students. Business school students typically do not have the technical background of an engineer, however, they can direct attention toward challenges and solutions – in this case sustainability – working with the technical side, from different perspectives. Such harmony could provide valuable teamwork experiences across disciplines in an area of increasing importance [sustainability] that will surely be pertinent to both disciplines as the students move into the workplace.

Recent adoption of some environmental and sustainability academic program initiatives show varied progress, with most moving favorably forward. Given continued impetus from society, the need to meet accreditation standards, and the expanding commercial market for green products and technology, this momentum will likely increase. Despite progress, the future remains vague; much needs to be done and learned. It remains unclear how business schools ultimately will respond with viable program initiatives that will contribute meaningfully to business leadership and measureable progress. Will business programs take the route of complying the standards, “checking the boxes” but adding little to the research and leadership needed to truly meet the needs of advancing global technologies and environmental issues? Or will significant advancements be made with new academic programs, integrative curricular approaches with meaningful advances? Such progress requires energy, enthusiasm, change – a truly dynamic willingness to change (Saffron, 2016). In the opinion of some, change is something that may challenge the comfortable academic way of life, and may therefore find less than enthusiastic acceptance. Further, some wonder if the attention paid to business ethics, integrative course approaches, assessment, and accreditation requirements has truly produced a generation of business school graduates best equipped to lead the business community into the future. If not, better direction and execution are necessary. Sustainability issues, programs, and pedagogy are similarly impacted. Understanding the present academic sustainability alternative approaches, practices, programs, and achievements is a start.

A study by Rezaee and Homayoun (2014) concluded that “business colleges and accounting schools have much work to do in terms of motivating students to the importance of CSR and sustainable practices in business programs.” Their conclusions were based on their examination of 45 business sustainability course syllabi with corresponding observations from academics. Our study examines implementation from a different perspective using a different modality. We used survey data to compile and compare the perceptions of and favorability toward sustainability curricular alternatives. The survey compared the responses of business school deans with those of students. Our survey diverges from the Rezaee and Homayoun (2014) study of existing curricular practices, by moving to an information gathering modality, investigating and contrasting the viewpoints held by those responsible for future sustainability curricular directions, the deans, with those to whom the programs are addressed, the students. We examined their opinions on alternative sustainability curricular designs, program approaches, best practices, and ideal implementation strategies. The question of efficacy in terms of student success in understanding sustainability issues, applications and alternative solutions sets was not a subject of our or the Rezaee and Homayoun (2014) study. That important question remains, requiring resolution in itself, regardless of the positive directions taken by many to integrate sustainability within the curricula (Rundle-Thiele and Wymer, 2012). Much work remains open for all.

METHODOLOGY

Our study merged the results of two surveys we performed on sustainability issues and curricular approaches. We started with a prior study (Harrison et al. 2015) that examined the practices, plans and viewpoints on sustainability curricular issues held by U.S. Business Schools deans with our more recent survey of business students. The students were undergraduates from the University of South Carolina Aiken (USA), and the IESEG School of Management (Paris & Lille, France).
IESEG School of Management has a mix of French students in their third year of study along with a broad mix of international graduate students; (about 75% of the IESEG students surveyed were French). Given the mix of U.S. students, French, and international students, we believe we have attained a wide segment of student opinion on sustainability, albeit mostly U.S. and French. As were the dean responses in the initial survey, the subsequent student responses are of great interest independently, each as standalone studies, but provide even more interesting observations as side-by-side analyses. All in all we believe we attained an interesting spectrum of viewpoints and perspectives in this important and timely area. Comparing responses between U.S. and international students provides yet further opportunities to compare and contrast perspectives. Noting that both EQUIS and the AACSB’s latest accreditation standards require increasing commitments to sustainability within the curricula, and that much progress remains to be made, we believe our analyses will be of some help to those interested in developing sustainability programs further.

We used web-based survey software (Lime) for the first, deans’ survey, with responses limited to mid-sized AACSB business schools in the United States, our peer group. While we hoped the results and observations of this first survey would have value to others, we had a more parochial motivation as well. We are in the process of developing an inter-curricular sustainability center at our university. Our business school is taking the lead role. We believed that the survey results would provide us with valuable insights with which to move forward. As we moved ahead with the analyses of the deans’ survey results it occurred to us that it might be interesting to ask the same sustainability questions of our students in the U.S., and to add to that students in a French business school with which we had contact and access, and which included a significant segment of international students from different parts of the world.

The deans’ survey ended up with a respectable 31 responses of the 83 deans we polled (37%), although it was less than for which we hoped. We had a more “controlled” survey environment for the student surveys – we simply surveyed students in our classes. We decided to use a paper survey for this, as we could ensure survey completion, achieving basically a 100% response rate. We had 60 U.S. students’ respondents and 72 French/International. We should also point out that in contrast to the investigation Rezaee and Homayoun (2014) undertook where they painstakingly reviewed program syllabi, the nature of voluntary questionnaire surveys necessitates less detail. To ask more of the respondents would diminish both the number and quality of responses. We believe, however, our analysis of the results has provided some valuable insights and information for those business programs desiring to further integrate sustainability with their curricula.

The surveys for the deans and students were essentially identical instruments. They included 21 main questions; the dean survey also included a set of sub-questions for those schools that already offered some form of sustainability courses. We did not include those in the student survey, however, as students were not likely to know much of programs or courses for which they were not registered. (See Harrison, et al. 2015 for other results.) The survey questions were all simple “check the box,” type, and designed to appear relatively easy to read and complete. Most of the questions were of the “strongly agree to strongly disagree” fashion. The survey took roughly 15 minutes to complete. Accordingly, the survey was not a burden, and seemed to hold the students’ attention, something we had worried about. And it was short enough to attract a reasonable dean response rate.

RESULTs, & OBSERVATIONS

What is Sustainability? We initiated the survey by asking respondents to identify with one (or more) of the following sustainability definitions. We considered this a “set the stage” question in our initial survey of deans. It served to get the respondents thinking about sustainability, and focus them on some generally recognized definitions of sustainability. While [hopefully] not as important for the deans, for the students we felt it was especially important to give them definitions of sustainability prior to moving ahead with the rest of the survey. In this instance, and only in this instance we had different formats for the deans and students. For the deans we simply asked them...
to select definitions that they felt appropriately defined sustainability. (They could choose more than one.) We gave the students the strongly agree / strongly disagree scale. While we truly were interested in the dean definitional preferences, we felt most students would not appreciate the nuanced differences in the definitions, would not really devote much time contemplating such, and didn’t want to turn the students off with a difficult first question. The ‘agree/disagree’ format doesn’t stretch the brain much. We did, however, very much want to inject these sustainability concepts and definitions into the student mindset at the outset of the questionnaire. Given that the students all seemed to basically like all the definitions (avg. of 3.7 of 5), with a standard deviation of less than 1.0, we seem to have judged this decision properly.

For the deans, the only definition that directly mentioned CSR had the lowest response rate. This is a bit of a surprise. To be fair, however, that definition contrasted CSR with sustainability in terms of a time frame, so the low score may have less to do with the CSR term, than the framing of the questions in a past/future context. Most deans favored the triple bottom line approach, joining profits with social and environmental goals.

What is the Value of Sustainability?

It is encouraging to note that substantially everyone, deans (90%), USA students (81%) and French students (69%) overwhelmingly agree or strongly agree that sustainability topics are important components of business education. At the same time, it is perhaps disappointing to see that 10% of deans, 18% of USA students and almost a full third of French students are either neutral or disagree (much less, 3%, 3%, 7%) and don’t think there is any value in sustainability in the curricula.
noted throughout this survey, the American students had a far more favorable attitude toward sustainability than did the French. While pleasing to these U.S. authors (plus one British), the comparative level of French enthusiasm is surprising. It encourages us to widen the respondents within Europe. We would expect more favorable sustainability acceptance in countries such as Germany, Sweden, and others.

While we can content ourselves about the positive value placed on sustainability by all, our prior deans’ survey showed that only nine of the 31 respondents had [at least] one sustainability course in place, and that there was a generally low level of self-reported faculty sustainability expertise overall (presented further along in the tables). Who is going to teach these courses as they are introduced?

Approaches to Sustainability (Current Practices – from Prior Dean Survey): Business schools indicated a diverse approach to covering sustainability within their curriculum. We were surprised to see that only about 30% in our survey of U.S. Deans at our peer institutions had sustainability embedded within existing core courses, and one-quarter of the schools reported “no program or emphasis in place yet.” No schools had yet required sustainability courses within their core, and only one in ten had any sustainability elective courses. This may be because we targeted mid-sized schools. We suspect that larger schools would at least have elective courses, including a major or minor, none of which our respondents had. We are a somewhat small school, with business student enrollments of about 500, yet we have had an elective cross-discipline (Biology) sustainability course for five years. We hope to expand our program soon, indeed are required to for accreditation! (Enrollments are now building, although admittedly the course got off to a slow start.) Four of the 31 respondents included some level of emphasis in sustainability in their capstone course.

Opinions Favoring Various Approaches: The following charts show response attitudes toward a series of approaches, viewpoints, and other sustainability matters, with our discussion following. We have highlighted some response areas that are of note.

Table 3: Approaches To Sustainability
“The following approach is likely to achieve valuable and lasting sustainability awareness, interest, and knowledge.”

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded in more than one core course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deans</td>
<td>48%</td>
<td>38%</td>
<td>14%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>USA</td>
<td>31%</td>
<td>40%</td>
<td>20%</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td>France</td>
<td>25%</td>
<td>44%</td>
<td>23%</td>
<td>1%</td>
<td>7%</td>
</tr>
<tr>
<td>Significant component of existing Business &amp; Society Course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deans</td>
<td>12%</td>
<td>30%</td>
<td>25%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>USA</td>
<td>25%</td>
<td>40%</td>
<td>30%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>France</td>
<td>13%</td>
<td>49%</td>
<td>26%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Embedded broadly across major area courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deans</td>
<td>32%</td>
<td>43%</td>
<td>18%</td>
<td>7%</td>
<td>0%</td>
</tr>
<tr>
<td>USA</td>
<td>34%</td>
<td>43%</td>
<td>17%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>France</td>
<td>6%</td>
<td>43%</td>
<td>39%</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>Required stand-alone core course</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deans</td>
<td>18%</td>
<td>14%</td>
<td>32%</td>
<td>25%</td>
<td>11%</td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Due to space limitations, we were unable to include this in the student survey...*
At this time most respondents, deans and students (86%, 71%, 69%), favored embedding sustainability topics in several core courses. This approach reminds us of the mode of ethics coverage many AACSB schools chose when required to do so for accreditation. While in an ideal curricula an integrative approach is perhaps among the best of learning pedagogies, it can also represent an “easy” means to report coverage, while in actual practice often lacks true substance. For example, it can be argued that including different currencies (euro, rupee, yen) in accounting homework embeds global perspectives in courses; at best that approach is pretty superficial. Raising course content from “embedded” to “significant component” of the Business & Society core course drops the deans from 48% strongly agreeing to only 19%. The students, both US and French seem to agree that sustainability is appropriate within the major, although in contrast to the deans and USA students, only 6% of French students strongly agree on that point, and a whopping 39% were neutral.

We unfortunately neglected to ask student about standalone courses (an oversight), but clearly the deans disfavor this approach – including a strong showing of 25% that felt it was inappropriate, with one in ten strongly objecting. This is probably more a resource issue than desirability, but that remains conjecture on our part.

**Student Interest in Sustainability?** It seems the younger generation, in the eyes of the dean’s anyway, is less receptive to sustainability than one might think from the popular press. The students, again especially in the U.S. show a distinctly more favorable, and expected (on the authors’ part in any event), attitude toward the area. Here’s some contrasting statistics: While almost one in four (24%) of U.S. students believe students have strong interest in a sustainability major, only 3 of 100 deans feel students share the opinion. We believe this is a remarkable difference. (Of course it is also quite remarkable that even less (1%) French students believe students are strongly interested. This trend was consistent through this attitudinal area. Deans feel 60% of students are indifferent to a sustainability major. And 50% of the French believe students have no interest at all in such a major.

Moving beyond the major, interest pick up at most levels. Deans still feel only 3% of students would have an interest in a sustainability minor, but the French move up to 12%, and at the somewhat interested level, clearly interest has risen. Courses in sustainability are clearly favored, with 86% of deans responding that students would have at least some level of interest in sustainability embedded in coursework. (Perhaps wishful thinking on the deans’ part, as we have discussed the embedded modality most easily “checks that box.” Again the USA leads in interest for certification programs. We should note that several large universities in the U.S. have very successful and popular sustainability specialization and major programs.
And… Faculty Interest? Given the relatively high student level of interest, what about faculty?

![Table 4B: Student Perception of Faculty Interest](image)

Table 4B: Student Perception of Faculty Interest

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Deans+ Schools with existing sustainability courses</th>
<th>USA Students</th>
<th>French Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>11%</td>
<td>22%</td>
<td>10%</td>
</tr>
<tr>
<td>Agree</td>
<td>56%</td>
<td>28%</td>
<td>40%</td>
</tr>
<tr>
<td>Neutral</td>
<td>0%</td>
<td>43%</td>
<td>37%</td>
</tr>
<tr>
<td>Disagree</td>
<td>22%</td>
<td>5%</td>
<td>11%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>11%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>

None of the deans took a ‘neutral’ position on this, interesting. Two thirds like the idea (mostly at the ‘agree’ level’) and one third don’t. Students, however, are much less certain how faculty feel about sustainability. That in itself is an interesting observation. On the plus side, in contrast with the dean’s 33% of negative faculty interest, students think it to be much less, 7% for USA and 14% French. About half the USA and French students feel faculty are receptive to sustainability within the curricula.
Faculty Sustainability Expertise: Given the overall favorable faculty, dean, and student interest in sustainability, what about the faculty expertise – how well are we equipped to deliver credible topical coverage?

The answer, faculty expertise, appears to be “pretty good.” Appears is the key word here, depends on how one looks at the answers. The deans report that existing faculty can deliver effective coverage given additional training, well about half say they can: half empty or half full? For a new area we’ll choose the half full version, and conclude that it’s acceptable if not pretty good. Of course if asked about coverage in the traditional areas any answer other than 100% – (of course we deliver effective coverage) – would be heresy. Still about one third of the deans did not feel existing faculty could be effective even with further training. The students, pleasingly, have far more confidence in faculty. Hardly any feel we cannot be effective in the area given some training, and only about 20% of USA students feel we can’t do an effective job unless we have further training – the other 80% think we can do it without further training needed. Apparently USA faculty have properly instilled the superman/woman philosophy effectively in our student population. In conclusion, there seems to be some acceptable level of confidence that sustainability can be effectively covered by existing faculty, recognizing that additional training would be valuable. There was a notable minority that disagreed that current faculty could properly cover the area.

Other Disciplines In Coordinated Teaching Approaches: We also asked about cross-discipline approaches to sustainability topics. This included coupling business faculty with faculty from other areas including biology, ecology, political science, freshman orientation, and integrated within general education programs. Our university currently has a sustainability topics course team taught by management and biology professors. None of the deans strongly favored any of these cross discipline approaches, although about half liked the idea of immersing it within general education coverage. (One might speculate on motives here, getting that bird and General Ed at the same time would have its attractions!) There was not a lot of “strongly agree” across any category, with the exception of the French and Political Science. The French and their love of political debate, you’ve
got to love them! It was very surprising that everyone thought combining Ecology with business sustainability was not a good idea. Ecology? While we may perhaps forgive students not understanding what ‘ecology’ means exactly, for only 56% of the deans to not look favorably on this remains surprising. The deans looked even more unfavorably on a combined approach with Political Science, which is perhaps not surprising. Overall the cross discipline approach appeared less favorable than we expected.

**Table 6: Cross Discipline Teaching Approaches**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biology with Business Issues</strong></td>
<td>Deans</td>
<td>7%</td>
<td>30%</td>
<td>48%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>12%</td>
<td>17%</td>
<td>17%</td>
<td>27%</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>9%</td>
<td>4%</td>
<td>23%</td>
<td>29%</td>
</tr>
<tr>
<td><strong>Ecology with Business Issues</strong></td>
<td>Deans</td>
<td>7%</td>
<td>37%</td>
<td>37%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>18%</td>
<td>25%</td>
<td>27%</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>14%</td>
<td>23%</td>
<td>31%</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Political Science with Business Issues</strong></td>
<td>Deans</td>
<td>4%</td>
<td>33%</td>
<td>40%</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>14%</td>
<td>36%</td>
<td>31%</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>28%</td>
<td>36%</td>
<td>23%</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Freshmen Orientation Courses with Business Issues</strong></td>
<td>Deans</td>
<td>14%</td>
<td>29%</td>
<td>32%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>14%</td>
<td>10%</td>
<td>36%</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>12%</td>
<td>22%</td>
<td>30%</td>
<td>22%</td>
</tr>
<tr>
<td><strong>General Education Requirements with Business Issues</strong></td>
<td>Deans</td>
<td>7%</td>
<td>55%</td>
<td>28%</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td>USA</td>
<td>15%</td>
<td>29%</td>
<td>32%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>15%</td>
<td>32%</td>
<td>34%</td>
<td>13%</td>
</tr>
</tbody>
</table>

**Approaches to Sustainability:** Having covered student and faculty interest in sustainability, we investigated a related question, different nuance. We asked how they felt their school would favor various approaches to implement sustainability within the curricula. Importantly, we asked them to consider this in the absence of resource constraints. We had not asked this in original dean survey, [unfortunately]. We believed that looking at the desirability of alternative approaches from the school’s perspective, and in the absence of resource constraints, would provide further insights. While we [unfortunately] did not have the deans’ responses, we did survey an additional 22 students enrolled in a sustainability elective course at the French university. As these students presumably had elevated interests in sustainability (as evidenced by taking the elective course), we did not include their responses in with the other survey topics, but lacking the dean data, we thought it would be interesting to view their responses with those of their colleagues in the U.S. and France. We looked at these alternative approaches from two vantages: (1) creating opportunities for students to take sustainability courses, and (2) requiring sustainability in alternative formats.

It comes as no surprise that the French “sustainability” students favored creating sustainability program coverage at higher levels than USA or “regular” French students. (“Favoring” = strongly agree + agree responses combined.) In terms of creating sustainability major, the sustainability students led at 62% over USA students at 52%. French regular students trailed at 35%. Surprisingly, the USA students led French sustainability students in favor of a minor, 75% vs. 68%, with only 44% of the regular French student in favor of a new minor in sustainability. USA students favored new sustainability electives 80% over 68% for French sustainability students. As far as working within the General Education curricula to include sustainability, the USA students flipped on this one, with only 33% favorability, vs. 72% for French sustainability students. The French regular students came around on the General Education side, with a 61% favorability rating.
Moving from “creating” sustainability academic opportunities to requiring coverage, the USA students generally led the others in accepting this approach. Fifty eight percent of the USA students thought requiring sustainability coverage in “most” core courses was a good idea, vs. 37% regular French students, and 45% in the sustainability course. It was striking that about one in three of the French sustainability students did not like that idea, at all. This level of disapproval was not noted in the other approaches or by other students. Requiring sustainability coverage within the major was highly supported by French sustainability students, (72%), and generally favorable by all. Recall from Table 4A on student interest in majors, minors, etc. that the level of favorable interest was much lower. For example only 38% and 25% (USA/French) felt there was student interest in a sustainability major. The lower level of student interest, vs. alternative approaches they felt their school would endorse, was consistent through categories. Although we noted that, with only one exception, students approved of the alternative approaches, they responded (Table 4A) with far greater negativity in terms of student interest. The conclusion is, yes, they appreciate the need for sustainability education (Table 2), and they understand the need for alternative sustainability approaches (above), but they either don’t seem to like these particular alternative approaches, or simply don’t know what might be the most valuable, or perhaps interesting, approaches in practice.
CONCLUDING REMARKS / LIMITATIONS

As expected, everyone surveyed, business school deans (90%), USA Students (81%), and French students (69%) overwhelmingly agree [or strongly agree] sustainability topics were important to a business education. We were surprised that USA students reportedly favored sustainability within the curricula more than French students. We suspect that students in other EU countries would respond more favorably than the French. There is always the possibility of survey bias or faulty construction influencing these results, especially with respondents across nationalities. Certainly with English as the second language for the French students (their English, however, is excellent) there may be some nuance in our questionnaire wording causing the divergence. We will consider paying closer attention to that potentiality for future designs. Regardless, the responses, USA and French, were consistent directionally and our preconceived assumptions perhaps are not well founded.

We found that sustainability topics were welcomed by most respondents, with deans and students (86%, 71%, 69%) favoring embedding sustainability topics in several core courses. The students, both USA and French, seem to agree that sustainability is appropriate within the major, although in contrast to the deans and USA students, only 6% of French students strongly agree on that point, and a large portion (39%) were neutral. It was interesting to contrast the deans’ thoughts on how they believe students feel toward sustainability in the curriculum with the students’ actual opinions. Only three percent of deans feel students have a strong interest in a sustainability major, while almost one in four USA students reported a strong interest in a sustainability major. Further, deans believed 60% of students were indifferent to a sustainability major, way more than the 24% indifference reported by USA and French students alike. At the same time the French students pretty much agreed with the deans in terms of strongly agreeing” that a sustainability major was not of much interest to students.

Students seemed to have far greater confidence in faculty preparedness to teach sustainability, while the deans were not so sure – needing further training according to the deans. We were surprised to find that respondents across the board did not strongly favor cross-discipline approaches to teaching sustainability, with no combination of disciplines getting more than 18% strong agreement (one exception). There was, however, more favorable reception (“agree”) to cross-discipline around the 25 to 30% level for the most part. The majority thought was either neutral or on the disagreeing side. This is counter to popular current approaches in curricular design, combatting the dreaded silos of education, but on a practical level implementation of integrated approaches is far more troublesome than the ideal would have us believe.

Our research suggests that the senior administrators, deans, of today’s business schools and students share an awareness of their responsibility to educate and be educated in sustainability if we are to truly prepare responsible business leaders of tomorrow. Society’s dependence on limited resources, renewable and non-renewable, highlights the need for better stewardship and management of our environment. Sustainability has evolved from an emotional, philosophical, and political debate to growing acceptance based on research and knowledge. It is clear to many segments of society that our dependence on finite, non-renewable resources has an unpleasant end. That business schools, accrediting organizations, and students agree on the challenges, opportunities, and difficulties is a welcome finding of the survey. To say that acceptance and the favored educational approach is universal, however, largely overstates the case. While a growing portion of society believe it is imperative to develop and apply programs to motivate different areas of sustainable research and discovery, backlash remains. Higher education has an important role in the process. And business schools, in particular, can lead the way with relevant research and supportive educational programs.

The world business community can and should play a major part in the education, investment, and implementation of activities furthering sustainable technological advances, industrial practices, and business opportunities. Developing technologies demonstrating the growth and profit potential
of sustainable directions will go a long way to foster the sustainable movement. Sustainability education in Business School programs, at the undergraduate and graduate levels, will support the necessity of efficient and effective resource management, as well as the impetus to develop new and renewable sources of energy. We believe our survey moves us some, perhaps small, steps closer to understanding current business school curricular initiatives and programs. The survey shows that sustainability course integration and programs are largely favored by business schools, although implementation remains an issue. As programs develop, further successes and failures in curricular approaches should lead the way to effective advances supporting our next generation of business leaders with knowledge on effective and profitable sustainability business ventures. Higher education, with science and business programs in particular, remains in a supportive, developmental phase. As academic programs move forward, the research and educational needs to meet the challenge and opportunities afforded by the sustainable movement look to be both favorable and opportunistic. The business leaders of tomorrow must be involved in the knowledge, education, and research focused on the concept of sustainability. This will create future leadership that will direct the global business community to seek out and develop new practices to help ensure a future that will allow mankind to live in a safer, more productive, and interesting world.

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Free-Markets’ Sustainability: Socio-Economic Policy Analysis

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Abstract

Learning from historical experience, economic policies could always be much more responsive to the critical needs of societal sustainability and justice. This occurs in the sense that rules and regulations to be mandated by a balancing force of various income classes as opposed to mainly being developed by the most financially influential businesses, individuals, and/or politicians. Capitalism would never be conducive to an ideal system in which prosperity can be maximized if it is not effectively saved from overly greedy capitalists, and allegedly itself, through appropriate laws and regulations. Although many countries have implemented all types of regulations and regulators’ oversight of businesses, it is argued that those were formulated and implemented either directly or indirectly through financially-influential businesses and individuals. The ongoing challenge of market-oriented economic policy has been in the mixture of highly valuable efficiency of the competitive market system and the often-compromised socio-economic welfare of a nation as a whole. This research is dedicated to an analysis of appropriate policy choices that would serve capitalism and a nation better in the long run in achieving societal sustainability and equity. A healthy policy would not be expected to result in a marginalization of - and shrinking – the middle class. There seems to be a lack of appropriate regulations as well as an adequate understanding of the damaging effects of a rapidly-evolving financial system into more sophistication. The long-term effects of such adverse evolutions are more unemployment, violence, crime, terrorism, increasing family breakups and divorces, alcoholism, drug addiction, admissions to mental hospitals, increasing rates of suicide, and the huge national output and prosperities that would be forgone. The statistical procedure adopted here would minimally include – but not be limited to - correlational analysis of major socio-economic variables and data, including human development, economic indicators, income distribution measures, social justice measures, and economic policy consequences.

Keywords: Policy, socio-economic, middle class, capitalism, income, market

¹ BOG-Distinguished Professor of Economics
I. INTRODUCTION

Learning from historical experience, economic policies could always be much more responsive to the critical needs of societal sustainability and justice in the sense that rules and regulations to be mandated by a balancing force of various income classes as opposed to those mainly generated by the most financially influential businesses, individuals, and/or politicians. Capitalism would never be conducive to an ideal system in which prosperity can be maximized if it is not effectively saved from overly greedy capitalists and, allegedly, itself through appropriate laws and regulations. Although many countries have implemented all types of regulations and regulators’ oversight of businesses, it is argued that those were formulated and implemented either directly or indirectly through financially-influential businesses and individuals. The ongoing challenge of market-oriented economic policy has been in the mixture of highly valuable efficiency of the competitive market system and the often-compromised socio-economic welfare of a nation as a whole.

The anxiety of the post Great Recession of 2007-2009 has brought about many more tendencies in various groups and individuals towards certain more liberal ideologies. Capitalism and free enterprise system have appeared to be less attractive to many due to the vulnerabilities of many families’ prospects to the devastating consequences of capitalists’ greed and manipulations of the markets. The massive layoffs and losses of family structures have broken the needed trust for the system and big businesses. In response to all such adverse events, among other emerging strident economists, Piketty (2014), Robert Reich (2015), Deaton (2015), and Bernie Sanders’s political platform (2014-2015), have all recommended notions and policy prescriptions that are expected to influence the new face of capitalism. This transition is envisaged to be from what it has been to being somewhat more regulated via new types of regulations that are designed to save capitalism from capitalists. Perhaps the two biggest threats of our modern economies have been a lost understanding of the damaging effects of a shrinking middle class and a run-away or rapidly-evolving financial system into more sophistication. Obviously, violence, crime, terrorism, increasing family breakups and divorces, alcoholism, drug addiction, admissions to mental hospitals, increasing rates of suicide, and more than anything else, the huge national output and prosperities that would be forgone could be highlighted in a more tangible and measurable fashion.

It is not a hidden issue that, at this time, many nations of the world are frustrated about how big businesses, and to a large extent, their capital-driven-and-lobbied governments, have not contributed to the wealth of nations, as once recommended by the father of free economic systems, Adam Smith, in his world shaking, The Wealth of Nations (1776). In response to so much frustration, Raghuram R. Rajan and Luigi Zingales (2013) published their recommendations in their: “Saving Capitalism from the Capitalists: Unleashing the power of financial markets to create wealth and spread opportunity.” The following is their summarized advice:

Politics— for better or worse—lays the foundations for markets, and thus for prosperity. For creative destruction, sustained by free markets, is the elixir that has let the free enterprise system flourish for so many years. Yet the disruptions that creative destruction spawns sometimes prove too big for a free society to survive without a safety net. Markets need to be preserved against their biggest enemy: Themselves. Markets need a heart for their own good.

They assessed that financial markets provide golden opportunities for individuals in advanced countries, like U.S. and Germany to take risk and implement daring ideas. Yet there is a pronounced concern that: “It is not inconceivable that the anti-market movement may gather strength there and then spread to developed countries.”

William A. Niskanen (Fall 2009) in his “The Undemanding Ethics of Capitalism” tries to refute the rapidly-growing notion that the financial turbulence of 2007-2009 was simply inherent in the nature of greed in capitalism. He argues that if we can blame an airplane’s crash on gravity, we can similarly blame a financial crisis on greed. Capitalism’s main challenge is how to channel self-interest into mutually beneficial behavior. He acknowledges that:
“On occasion, the public and private institutions that have the responsibility to monitor economic behavior fail to perform their roles before there are large losses to other parties.” (p. 559)

Rober Reich (2014) argues that capitalism needs to be regulated but regulations and laws have been made by the richest not by a real representation of the general public. Bernie Sanders’ ideas (2014) are also, to some extent, in line with Deaton’s and Reich’s, in which he calls for a political revolution in a sense that a healthy government budgeting necessitates a new tax system in which the richest would shoulder more of the tax burdens and sacrifices necessary to provide reliable and better social security as well as a Medicare system for all not just those of 65 or higher. His officially-declared list includes the following:

Table 1: Some Well-known Economic Policies Proposed by Reich and Sanders

<table>
<thead>
<tr>
<th>Robert Reich’s Stabilizing Policy Choices</th>
<th>Bernie Sanders’ Stabilizing Policy Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rebuilding Our Roads</td>
<td>1. Make work pay</td>
</tr>
<tr>
<td>2. Reversing Climate Change</td>
<td>2. Unionize low-wage workers</td>
</tr>
<tr>
<td>4. Protecting Unions</td>
<td>4. Invest in infrastructure</td>
</tr>
<tr>
<td>5. Raising the Wage</td>
<td>5. Pay for these investments with higher taxes on the wealthy</td>
</tr>
<tr>
<td>6. Pay Equity</td>
<td>6. Make the payroll tax progressive</td>
</tr>
<tr>
<td>7. Making Trade Work for Workers</td>
<td>7. Raise the estate tax and eliminate the “stepped-up basis” for determining capital gains at death</td>
</tr>
<tr>
<td>8. Cutting College Costs</td>
<td>8. Constrain Wall Street</td>
</tr>
<tr>
<td>10. Bringing Health Care to All</td>
<td>10. Get big money out of politics</td>
</tr>
<tr>
<td>11. Ending Poverty</td>
<td>11. Building a Movement</td>
</tr>
<tr>
<td>12. Stopping Tax Dodging Corporations</td>
<td></td>
</tr>
</tbody>
</table>

Bernie Sanders’ proposed platform is based on his belief that there is a strong need for a political revolution, through which his ideas above could be implemented. This may make sense on the grounds that given current influences of the affluent industries and individuals, through their lobbyists, most of those ideas are not even be possible. Robert Reich’s list (2014) is, to a large extent, similar to those of Sanders’, as seen in Table 1.

Thomas Piketty’s monumental book (2014), *Capital in the Twenty-First Century*, is more of an integrative approach based on facts and massive data on economic evolution of current issues and challenges. He too has addressed the outgrowing of power and disproportional average growth rate of capital, as contrasted with the average economic growth rates. He has concluded that fact as being a reason for an imbalanced economic development and more loss of the middle class, in both size, net worth, and hence influence on major sets of socio-economic prospects.

A socially equitable economic policy that would indirectly contribute to the sustainability of the free-enterprise system has repeatedly been recommended to include the following targets and provisions:
- Higher minimum wages that will be indexed to the inflation variations: According to Robert Reich (May 12, 2014), “The fastest-growing categories of work are retail, restaurant (including fast food), hospital (especially orderlies and staff), hotel, childcare and eldercare.” The pay in these work categories is too low. He argues that no full-time working American should live in poverty.
Investment in the foundation and infrastructure of the economy

On wages and the shrinking middle class, both Reich (2014) and Sanders (2014) emphasize raising wages. Sanders argument is that one of the key empowering forces for low-wage earners in the private sector is their unionization and reinvigoration of unions. Reich similarly proposes that unions must be protected.

Government investing in education and cutting the cost of higher education are strongly recommended by both Reich (2014) and Sanders (2014). Another critically needed policy is investment in infrastructure, which has been obsolete - as faced especially by many lower income-groups of American workers. Sanders has made references to “long commutes to work, excessively high home and rental prices, inadequate Internet access, insufficient power and water sources, and unnecessary environmental degradation.” (p. 1)

Higher taxes on the wealthy individuals who have been enjoying a higher share of the total national income in recent years are recommended. Also, a progressive payroll tax policy is the choice of most of liberal economists and politicians.

The financial sector’s negative impact on the middle class and the poor has added to their already-challenging pressures. The Glass-Steagall Act, which had prevented commercial- and investment-banking functions to be merged, should be brought to an effective implementation. The nation’s biggest banks’ sizes should be limited.

The richest 10 percent of Americans own roughly 80 percent of the value of the nation’s capital stock; the richest 1 percent own about 35 percent. Due to the outweighing growth rate of returns to capital relative to the returns to labor, the wealth allocation and ownership are further aggravating inequality. So, Sanders (2014) recommends most specifically that:

“Ownership should be broadened through a plan that would give every newborn American an ‘opportunity share’ worth, say, $5,000 in a diversified index of stocks and bonds—which, compounded over time, would be worth considerably more. The share could be cashed in gradually starting at the age of 18.”
Figure 1. Change in U.S. Real Household Income and Selected Goods and Services (2000-2012)

Data Source: Center for American Progress – “The Middle Class Squeeze”, September 2014, extracted from: https://en.wikipedia.org/wiki/Income_inequality_in_the_United_States

Bernie Sanders (2014) has emphasized the fact that policies are influenced by wealthy corporations and individuals. Therefore his platform is heavily based on “getting big money out of politics.” He strongly suggests that the influence of great accumulations of wealth on the political process is damaging to American democracy in the sense that average Americans lose their fairly expected voice of collective influence. He suggests that some corrective constitutional amendment needs to be implemented, and before that happens, the U.S. needs to move toward a well-calculated way of public financing of elections, in which the federal government would provide $2 for every $1 raised from small donors by presidential candidates, as well as House and Senate candidates in general elections.

Sanders’s political revolution also includes his well-emphasized prescription of a public grass-root movement for shared prosperity in the country as opposed to leaning on corrupt and hopeless political reforms through the U.S. Congress. That, he recognizes, would take time. He too believes that as before, capitalism can be saved from itself through certain appropriate progressive rules and laws initiated by the public.
It is interesting and promising to know that according to a study conducted by Ostry and Berg (2011) for the period of 1950-2006, of the factors affecting the duration of economic growth in developed and developing countries, income equality has been found more effective than trade openness, sound political institutions, or foreign investment.

**Trend of Growth of Government Engagement**

It is worth noting that if socialism should be identified in how heavily governments participate in economic activity, the directions and trajectory are clearly showing more active governments, and hence, more of “socialism.” In that context, many U.S. conservative presidents of the recent times could be identified as more engaged in “socialism” than the liberal ones of the 1960’s. The following example clearly attests to that fact.

Figure 2. The Relative Strengths of Major Factors Influencing Steady Economic Growth for the period of 1950-2006
Source: Berg and Ostry (2011)
An absolute reliance on free competition and market economic system could lead to disastrous consequences, such as those globally experienced during the most recent Great Recession of 2007-2009 (and even longer for many countries). The real challenges faced by nations of the world are in their genuine exploration of more sustainable and equitable economic policies that would lead to promotion of the middle class. The classical and neo-classical economic policies have been proven to be inadequate in stabilizing nations’ economies and prosperity.

Table 2: Distribution of Net Worth and Financial Wealth in the United States, 1983-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Top 1 percent</th>
<th>Next 19 percent</th>
<th>Bottom 80 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>33.8%</td>
<td>47.5%</td>
<td>18.7%</td>
</tr>
<tr>
<td>1989</td>
<td>37.4%</td>
<td>46.2%</td>
<td>16.5%</td>
</tr>
<tr>
<td>1992</td>
<td>37.2%</td>
<td>46.6%</td>
<td>16.2%</td>
</tr>
<tr>
<td>1995</td>
<td>38.5%</td>
<td>45.4%</td>
<td>16.1%</td>
</tr>
<tr>
<td>1998</td>
<td>38.1%</td>
<td>45.3%</td>
<td>16.6%</td>
</tr>
<tr>
<td>2001</td>
<td>33.4%</td>
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<td>15.6%</td>
</tr>
<tr>
<td>2004</td>
<td>34.3%</td>
<td>50.3%</td>
<td>15.3%</td>
</tr>
<tr>
<td>2007</td>
<td>34.6%</td>
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</tr>
<tr>
<td>2010</td>
<td>35.4%</td>
<td>53.5%</td>
<td>11.1%</td>
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</table>

Financial (Non-Home) Wealth

<table>
<thead>
<tr>
<th>Year</th>
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<th>Next 19 percent</th>
<th>Bottom 80 percent</th>
</tr>
</thead>
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<tr>
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<td>42.9%</td>
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<tr>
<td>1989</td>
<td>46.9%</td>
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<td>6.6%</td>
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<tr>
<td>1992</td>
<td>45.6%</td>
<td>46.7%</td>
<td>7.7%</td>
</tr>
<tr>
<td>1995</td>
<td>47.2%</td>
<td>45.9%</td>
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</tr>
<tr>
<td>1998</td>
<td>47.3%</td>
<td>43.6%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Years</td>
<td>Fed Income Tax - Top 1%</td>
<td>Top 5%</td>
<td>Top 10%</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------</td>
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</tr>
<tr>
<td>1980</td>
<td>19.29</td>
<td>37.07</td>
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<tr>
<td>1985</td>
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<td>2000</td>
<td>37.42</td>
<td>56.47</td>
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<tr>
<td>2007</td>
<td>39.81</td>
<td>59.9</td>
<td>70.41</td>
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<td>2008</td>
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<td>2013</td>
<td>37.8</td>
<td>58.55</td>
<td>69.8</td>
</tr>
</tbody>
</table>


Potential Damaging Tendencies for Deterioration of Capitalism

It is a great responsibility for governments through a real democratic process to guard the system from the ever-existing tendencies of capitalists’ greed and fraud. Let’s refer one more time to Niskanen’s (2009) comparison of the placement of blame on gravity in causing airplane crashes with the potential excessive greed in causing financial failures. In the former case, critically needed efforts are constantly made in making the best possible planes to not only prevail over any gravity-related challenges but over all other environmental risks that are possibly involved in every flight. Many economists and policymakers are now more sensitive to the existing externalities that have not been quite properly recognized by most market-oriented economists and policymakers. These externalities such as huge and often irreversible and devastating losses that could be inflicted by unethical practices of some market participants are supposed to be prevented and/or corrected by governments to save capitalism from those illegitimately-greedy capitalist through appropriate regulations and even deregulations within the market economic system.

Dyck, Morse, and Zingales (February 2013) estimated the percentage of firms engaged in fraud as well as the consequential cost of fraud. They reported that there was an estimated chance of 14.5% in any given year that a company would be engaging in a fraud. The loss as a result of fraud is not too small to ignore under the rosy promises of more extensive enterprise freedom that would necessitate no or minimal government regulations. They also estimated that corporate fraud resulted in investors losing 22 percent of the fraud-committing company’s value and an average rate of 3 percent of enterprise value across all firms.
Table 4: Corporate Fraud and Weakening Trends of Legal Consequences

<table>
<thead>
<tr>
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<td>67</td>
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<tr>
<td>Indictments/Information</td>
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<td>60</td>
<td>59</td>
<td>81</td>
<td>80</td>
<td>90</td>
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<td>Sentenced</td>
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<td>40</td>
<td>78</td>
<td>82</td>
<td>61</td>
<td>72</td>
</tr>
<tr>
<td>Incarceration Rate*</td>
<td>81.4%</td>
<td>72.2%</td>
<td>90.0%</td>
<td>83.3%</td>
<td>81.7%</td>
<td>77.0%</td>
<td>77.8%</td>
</tr>
<tr>
<td>Average Months to Serve</td>
<td>35</td>
<td>40</td>
<td>67</td>
<td>47</td>
<td>51</td>
<td>48</td>
<td>43</td>
</tr>
</tbody>
</table>

*Incarceration Rate includes confinement to federal prison, halfway house, home detention, or some combination thereof. Data Source: Criminal Investigation Management Information System. Also: [https://www.irs.gov/uac/Corporate-Fraud-Criminal-Investigation](https://www.irs.gov/uac/Corporate-Fraud-Criminal-Investigation-%28CI%29)

The above tabulated information, followed by the following figures, show the weakening trend of punitive consequences of various stages of fraud, which would be in line with serious concerns about a lack of effective government rules and regulations governing greed and corporate crime.

![Trend Analysis Plot for Investigations Initiated](image1)

![Trend Analysis Plot for Prosecution Recommendations](image2)
Trend Analysis Plot for Indictments/Information

Linear Trend Model

\[ Y_t = 99.7143 - 8.35714^t \]

Trend Analysis Plot for Sentenced

Linear Trend Model

\[ Y_t = 78.2857 - 3.32143^t \]
When a linear trend model was applied, among all the variables tested, the only upward trend experienced was about the incarceration rate, which was ruled out by a more valid quadratic trend model, through its lower estimated error measures.
**RECOMMENDED SOCIO-ECONOMIC THEORETICAL FRAMEWORKS**

The author recommends two of his formulated alternative methodologies for this research:

**(I) The first framework** is proposed to link various indicators of social equity measures to an indicator of economic performance, as formulated below:

\[ EPI_{ij} = a_{ij+1}SEI_{i+1,j} + \xi_{ij} \]  

Equation (1) is simply the matrix form of the regression equation of EPI for representing either \(i = 1, \ldots, 4\) countries, or 4 various measures (indicators) of economic performance for any single country. Also, the matrix of 4 independent variables (or social equity indicators) is represented by SEI; the last one represents the error terms vector.

\[
\begin{bmatrix}
EPI_{11} \\
EPI_{21} \\
EPI_{31} \\
EPI_{41}
\end{bmatrix}
= 
\begin{bmatrix}
a_{10} & a_{11} & a_{12} & a_{13} & a_{14} \\
a_{20} & a_{21} & a_{22} & a_{23} & a_{24} \\
a_{30} & a_{31} & a_{32} & a_{33} & a_{34} \\
a_{40} & a_{41} & a_{42} & a_{43} & a_{44}
\end{bmatrix}
\begin{bmatrix}
1 \\
SEI_{11} \\
SEI_{21} \\
SEI_{31} \\
SEI_{41}
\end{bmatrix}
+ 
\begin{bmatrix}
\xi_{11} \\
\xi_{21} \\
\xi_{31} \\
\xi_{41}
\end{bmatrix}
\]  

(2)

That would be simply summarized in (3), as follows, for a choice of only one EPI (e.g., real GDP per capita for many countries), or one country’s one EPI only:

\[ EPI = a_0 + a_1SEI_1 + a_2SEI_2 + a_3SEI_3 + a_4SEI_4 + \xi \]  

(3)

Where:

- EPI = Economic performance indicator
- SEI = Social equity indicator for \(i = 1, \ldots, 4\), and to be more specific, let:
  - SEI_1 = Gini Coefficient
  - SEI_2 = Human development indicator
  - SEI_3 = literacy index
  - SEI_4 = Healthcare indicator

**(II) The second method** is based on the application of Categorical Data Analysis, in which a column of 4 countries’ (or more) Economic Performance Indicators, EPI, will be listed in the first column of the categories matrix, and 4 (or more) Social Equity Indicators, SEI, will be listed in the first row of the matrix, where \(i = 4\) (or more) and \(j = 4\) (or more).

The following empirical analysis relies heavily on the first proposed framework.

**An Empirical Analysis of Quality of Life in Various Countries, and a Balancing Policy**

The author has collected data for 57 countries covering many socio-economic factors in explaining the quality of life. So Quality of Life Index would stand for the EPI (economic performance indicator).

**Regression Analysis: Quality of Life**

The following estimated regression equation is a summary of the factors that explain Quality of Life in a statistically-significant way:

\[ QLI = -211 + 1.32 \text{SI} + 1.56 \text{HCI} - 5.39 \text{PPIRI} - 1.17 \text{TCTI} + 0.995 \text{GI} + 291 \text{HDI} \]  

(4)
Table 2: Regression Results for Quality of Life Index for 56 Countries of the World

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>SE Coef</th>
<th>T</th>
<th>P</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-211.15</td>
<td>46.85</td>
<td>-4.51</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>SI (Safety Index)</td>
<td>1.3171</td>
<td>0.3072</td>
<td>4.29</td>
<td>0.000</td>
<td>1.7</td>
</tr>
<tr>
<td>HCI (Health Care Index)</td>
<td>1.5590</td>
<td>0.3764</td>
<td>4.14</td>
<td>0.000</td>
<td>1.4</td>
</tr>
<tr>
<td>Property-Price-to-Income Ratio (PPIR)</td>
<td>-5.3936</td>
<td>0.6859</td>
<td>-7.86</td>
<td>0.000</td>
<td>1.4</td>
</tr>
<tr>
<td>*Traffic-Commute-Time Index (TCTI)</td>
<td>-1.1666</td>
<td>0.5982</td>
<td>-1.95</td>
<td>0.057</td>
<td>1.8</td>
</tr>
<tr>
<td>Gini Index (GI)</td>
<td>0.9951</td>
<td>0.390</td>
<td>2.55</td>
<td>0.014</td>
<td>1.2</td>
</tr>
<tr>
<td>Human Development Index (HDI)</td>
<td>291.24</td>
<td>49.43</td>
<td>5.89</td>
<td>0.000</td>
<td>1.8</td>
</tr>
</tbody>
</table>

| S = 25.6669 | R-Sq = 88.7% | R-Sq(adj) = 87.4% |

*TCTI is the only variable with a significance level of 0.057 (slightly worse than 5%)

Table 3: Analysis of Variance for the above Regression Model

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>6</td>
<td>259844</td>
<td>43307</td>
<td>65.74</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual Error</td>
<td>50</td>
<td>32940</td>
<td>659</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>292784</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is obvious that almost all the included variables in the above model are significant at 5% and better levels, and the F value is perfectly high with a 0 level of significance. In simple words, quality of life is most strongly and significantly explained by HDI, Property-Price-to-Income Ratio (PPIR), Health Care Index (HCI), Safety Index (SI), Traffic-Commute-Time Index (TCTI), and Gini Index (GI, as explained in the following figure).

![Figure 4. Cumulative Percentage of households](image)

Gini Coefficient = A/(A+B) (Min or worst = 0; Max or best = 1)

In search of any alternative empirical explanation, the following slightly revised regression model was also estimated:

QLI (Quality of Life Index) = 65 + 1.00 PPI (Purchasing Power Index) + 0.75 SI (Safety Index) + 0.50 HCI (Health Care Index) - 0.2 CPI (Consumer Price Index) - 2 PPIRI (Property Price to Income Ratio Index) - 0.5 TCTI (Traffic Commute Time Index) - 1 PI (Pollution Index) - 0.0001 GI (Gini Index)

(5)
Table 4: Quality of Life Regression Model

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Coef</th>
<th>SE Coef</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>64.9835</td>
<td>0.0116</td>
<td>5620.97</td>
<td>0.000</td>
</tr>
<tr>
<td>Purchasing Power Index</td>
<td>1.00000</td>
<td>0.00006</td>
<td>6583.53</td>
<td>0.000</td>
</tr>
<tr>
<td>Safety Index</td>
<td>0.750085</td>
<td>0.000105</td>
<td>7124.710</td>
<td>0.000</td>
</tr>
<tr>
<td>Health Care Index</td>
<td>0.499943</td>
<td>0.000130</td>
<td>3847.700</td>
<td>0.000</td>
</tr>
<tr>
<td>Consumer Price Index</td>
<td>-0.199920</td>
<td>0.000090</td>
<td>-2233.34</td>
<td>0.000</td>
</tr>
<tr>
<td>Property Price to Income Ratio</td>
<td>-2.00057</td>
<td>0.00030</td>
<td>-6656.98</td>
<td></td>
</tr>
<tr>
<td>Traffic Commute Time Index</td>
<td>-0.499726</td>
<td>0.000204</td>
<td>-2451.65</td>
<td></td>
</tr>
<tr>
<td>Pollution Index</td>
<td>-0.999824</td>
<td>0.000098</td>
<td>-10162.98</td>
<td></td>
</tr>
<tr>
<td>Gini Index</td>
<td>-0.0001112</td>
<td>0.0001517</td>
<td>-0.73</td>
<td></td>
</tr>
</tbody>
</table>

S = 0.00821876     R-Sq = 100.0%     R-Sq(adj) = 100.0%

Table 5: Analysis of Variance for the above Regression Model

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>8</td>
<td>292784</td>
<td>36598</td>
<td>5.41807E+08</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual Error</td>
<td>48</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>56</td>
<td>292784</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The lack of statistical significance of Gini Index in the above regression would lead to a more narrowed-down regression, as presented in Table 6, which reveals results significant at all levels.

Table 6: Stepwise Regression Results for Quality of Life

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Value</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>64.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchasing Power Index-PPI</td>
<td>0.99997</td>
<td>19120.19</td>
<td>0.00</td>
</tr>
<tr>
<td>Pollution Index, PI</td>
<td>-0.99985</td>
<td>-10857.40</td>
<td>0.00</td>
</tr>
<tr>
<td>Property Price to Income Ratio, PPIRI</td>
<td>-2.00064</td>
<td>-7007.20</td>
<td>0.00</td>
</tr>
<tr>
<td>Safety Index, SI</td>
<td>0.75010</td>
<td>7369.38</td>
<td>0.00</td>
</tr>
<tr>
<td>Health Care Index, HCl</td>
<td>0.49995</td>
<td>3889.51</td>
<td>0.00</td>
</tr>
<tr>
<td>Traffic Commute Time Index, TCTI</td>
<td>-0.49975</td>
<td>-2483.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Consumer Price Index, CPI</td>
<td>-0.19991</td>
<td>-2271.53</td>
<td>0.00</td>
</tr>
</tbody>
</table>

QL = 64.98 + 1PPI – 1PI – 2PPIRI + 0.75 SI + 0.5 HCl – 0.5 TCTI – 0.2 CPI
CONCLUSION

Without some effectively implemented laws and regulations, capitalism would hardly be conducive to an ideal system in which prosperity can be maximized. It has to be effectively saved from too greedy capitalists and allegedly itself through well-calculated laws and regulations. The Nobel Prize worthy formulations of the optimal number of – as well as most appropriate policies – is the challenge of our globally dominating pessimistic sentiments against the seemingly unrestricted influence of capital. Although many countries have implemented all types of regulations and regulators’ oversight of businesses, it is argued that those were formulated and implemented either directly or indirectly through financially-influential businesses and individuals. Long-term strategic policy should target social stability and promotion of the middle class, which has been shrinking to smaller fractions. The more sophisticated our modern systems are becoming, the more significant the needs are realized for policymakers and legislators in adopting rules and policies that would improve lives of all classes through better and cleaner environments, more inclusive health care benefits, education at all levels, an equitable legal justice system, home ownership opportunities, smoother and more equitable income distributions, elimination of financial influences of big corporations and extra wealthy individuals, improved working conditions, and adoption of some equitable minimum wage laws. Countries that are ranked as best places to live, have responded to those societal needs much better than the others. The author has found in this empirical examination that Quality of Life has been influenced - through a strength ranking - by Purchasing Power, Safety, Health Care, CPI (Consumer Price Index), Property Price to Income Ratio Index, Traffic Commute Time Index, Pollution Index, and Gini Index. Such stabilizing policy implications are broad in not only elevating the prosperity of nations but helping effectively in overcoming problems of violence, crime, and even terrorism, in the longer lives of nations.
APPENDIX

In Table 2, Domhoff (2016) has defined: Total assets: sum of the gross value of owner-occupied housing, other real estate owned by the household, cash and demand deposits, time and savings deposits, certificates of deposit, and money market accounts, government bonds, corporate bonds, foreign bonds, and other financial securities, the cash surrender value of life insurance plans, the cash surrender value of pension plans, including IRAs, Keogh, and 401(k) plans, corporate stock and mutual funds, net equity in unincorporated businesses, and equity in trust funds.

Total liabilities are the sum of mortgage debt, consumer debt, including auto loans, and other debt.

REFERENCES


Small Businesses as a Force for Sustainable Development? New Perspectives from an Emerging Market

Chanel Venter, Stellenbosch University, South Africa

Abstract

The sustainability discourse is receiving increased attention in the business, academic and public domains. Various sustainability studies have focused on large corporates. This is understandable as large organisations have been the main change agents in the adoption of sustainable practices. A less frequently studied area is that of Small and Medium Enterprises (SME) and the integration of sustainability into their business strategies. Given the importance of SMEs to South Africa’s economy, and owing to the fact that SMEs are well positioned to pursue sustainability agendas, the business implications of sustainability for SMEs merit greater scrutiny. SMEs have only hesitantly adopted focused sustainability strategies, therefore research into the sustainability perceptions of SME owner-managers is required. How a business perceives sustainability will clearly be essential to the way it approaches this relatively new business phenomenon. Access to small business data in South Africa remains a challenge. For this study, 33 SME owner-managers’ views were collected to provide an exploratory glance into their perceptions of sustainability. An adapted web-based questionnaire was used, and results show that although there is some awareness of the concept of sustainability among SME owners, the implementation of sustainability lacks strategic focus. Findings have the potential to guide government and business initiatives to ensure that sustainability is managed in an integrated manner. Further investigation into promoting sustainability in SMEs is warranted.

Key words: sustainability, corporate sustainability, corporate social responsibility, SME, small business, owner-managers, business strategy, South Africa.

JEL M14, L21

Introduction

The days when businesses could attempt to conduct operations independently of its community, suppliers and environment, are long gone. An interconnected world and diminishing resources demand value-driven businesses to engage much more closely with their stakeholders to ensure a sustainable future. Debates around sustainable development and the role of the public and private sectors also feature increasingly in the popular media and on the South African legislative agenda (Hens & Nath, 2003; Du Plooy, 2006; NPC, 2012).

Sustainability requires that businesses consider the environmental, social, cultural and economic needs of their present and future generations. Businesses are sustainable when they commit to sustainable practices at a strategic level, involve all divisions in the planning process, embed a sustainable development approach all policies, plans, programmes and projects as well as boosting a desire and willingness among employees to contribute by taking ownership for the creation of economic, social and environmental value simultaneously, working toward the so-called “triple bottom line” (Wilson, 2003; Hubbard, 2005; Morrison-Saunders & Therivel, 2006; Lozano, 2012; UNCG, 2015).
It seems that larger enterprises have accepted the sustainability challenge, and see sustainable business as a source of competitive advantage. Many small businesses however, experience increasing pressure on premium assets such as time and money, and have not adopted a sustainability focus (Miller, 2010). It is ironic, then, that small businesses were actually the original adopters of sustainable business practices. They have close ties with suppliers, customers and their community, and since many of them are family businesses, their longevity has always been a primary concern (Aronoff, 2004). These attributes are key to sustainable business practices. The question thus arises as to why small businesses remain hesitant to include sustainability into their core operations.

The perception among most small businesses is that business cannot be seen as a vehicle to assist in addressing sustainability issues (Elkington, 1998). The popular view is that the development and implementation of sustainable practices cost money, and that sustainability issues are not real or material. The common misconception remains that there are neither immediate advantages nor threats to businesses in becoming more sustainable (Nidumolu, Prahalad & Rangaswami, 2009; Berns, Townend, Khayat, Balagopal, Reeves, Hopkins, & Kruschwitz, 2009a). This is a skewed view, because a corporate sustainable advantage has become not just complementary, but elementary (Morrison-Saunders & Therivel, 2006).

**Defining corporate sustainability**

Sustainability is a loaded albeit relatively young concept, with complementary definitions based on the context in which it is used. Visser (2007) proposes that sustainability be viewed as an umbrella concept which focuses on the management of the interface between business, society and the environment. Wheeler, Colbert and Freeman (2003) state it most elegantly as: “the business of business is the creation of sustainable value — economic, social and ecological.”

Returning to the roots of corporate sustainability, one has to acknowledge that there is an ongoing debate concerning sustainable development, the organisation’s role and areas that require focus in order to achieve sustainable development. It is important to understand that action needs to be taken and that business as usual will not be able to sustain the world in the future. This does pose a challenge as sustainable development is still a relatively new field of study and thus more research needs to be done with regards to best practices and what is already done in organisations to align to sustainable development goals of a country, as set by government, but also with regards to international goals as set by the United Nations and agreed to by countries around the world.

The most cited definition of sustainable development is that of the World Commission on Environment and Development (WCED, 1987), the Brundtland Commission: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Sustainability is vital, among others, to corporate social responsibility, business ethics, stakeholder management and general development. Hart (1997) conceptualises sustainability in three dimensions: economic, social and environmental. Concurrently Elkington (1998) coined the triple bottom line which incorporates two additional dimensions of social and environmental responsibility to the traditional economics-focused perspective of businesses.

Sustainability as a business imperative has increased in status and more and more organisations are looking to ensure sustainability of their existence. Wilson (2003) argues that corporate sustainability can be regarded as the new paradigm for corporate management. He uses the term “paradigm” because corporate sustainability goes further than the traditional capitalist thinking of organisations. Sustainability within organisations requires more than a profit focus. Corporate sustainability as a management paradigm, as the strategic intent of an organisation, recognises that although profit is important, the development and preservation of the society and environment is of equal importance (Wilson, 2003; Lozano, 2012). Corporate sustainability is based on the core idea of sustainability and the need for organisations and our world to be able to operate today, but also in the future. Organisational leaders are also coming to realise the interdependence of the
economic, environmental and social aspects of development (Elkington, 1997; Baumgartner, 2014; Hahn, Pinkse, Preuss & Figge, 2015; Benn, Dunphy & Griffiths, 2014).

Corporate sustainability is built on the understanding of a combination of different theories and concepts. Various authors (Wilson, 2003; Sharma & Khanna, 2014; Amini & Bienstock, 2014; Linnenluecke & Griffiths, 2010) refer to corporate sustainability in terms of a combination of the following terms: sustainable development, stakeholder theory or shared value, corporate social responsibility and corporate accountability. The United Nations Global Compact (UNGC), as an authoritative voice, states that in order for corporate sustainability to be achieved, organisations need to operate responsibly, support and strengthen their society, commit to sustainable practices at a strategic level, report on their practices and they need to take local action and create change in their local sphere (UNCG, 2015).

More specifically, corporate sustainability, as the strategic intent of an organisation, recognises that although profit is important, the development and preservation of society and the environment is of equal importance (Wilson, 2003; Lozano, 2012), if not more so, as without society and the environment, profit will be irrelevant.

In order for an organisation to be sustainable, it is thus necessary to connect and grow partnerships in their local community and country, as change can and should be effected locally. Organisations within a community have some of the best chances to impact their society and support and strengthen development initiatives as they are closest to the source of the issue and possible solutions. To create this change and impact, strategic intent is required and therefore the consideration of sustainable practices and how to operate sustainably need to be incorporated into the strategic planning of an organisation. It is therefore relevant to better understand strategic planning in terms of how organisations can use it to include a focus on sustainable development. With regards to the locality of the impact, it is necessary for organisations to engage and support government, where government sets specific goals towards sustainable development of the country.

Considering the myriad of definitions and views of corporate sustainability, this study will focus on the concepts identified by various researchers as listed above, and conceptualised in the model proposed by Wilson (2003) in Figure 1. He argues that in trying to define corporate sustainability, it is evident that the term is used in conjunction with or as synonym to “sustainable development” or “corporate social responsibility”. The research conducted on corporate sustainability gives rise to an understanding of four main theories that together add to the understanding of corporate sustainability as a concept. The evolution of corporate sustainability effectively combines the disciplines of economics, ecology and social justice to the moral drive for sustainability as well as the strategic intent and regulatory environment.
Figure 1: The Evolution of Corporate Sustainability

The evolution of the corporate sustainability conceptual model does not necessarily describe a change in focus from one concept to the other as corporate sustainability gained popularity, but instead refers to the integration of these concepts that together create the concept of corporate sustainability.

Whatever the focus and history, the business implications of sustainability merit further investigation (Berns et al., 2009a). This is echoed in practice by Fludder: “I think that the world has reached a tipping point now. We’re beyond the debates over whether addressing sustainability is something that needs to be done or not—it’s now mostly about how do we do it?” (Fludder cited in Berns et al., 2009b).

Problem statement

Sustainability efforts are mainly evident in large corporates, those businesses that seem to have sufficient resources to manage such an integrated and complex phenomenon. Previous research however proposes that SMEs can also play a significant role in the sustainability landscape (York & Venkataraman, 2010). While SMEs may have small social, environmental and economic impacts, “cumulatively their impact is significant” (Lawrence, Collins, Pavlovich & Arunachalam, 2006). SMEs contribute significantly to job creation and GDP. In South Africa this contribution is more than 40 per cent of total GDP, and SMEs account for more than 60 per cent of all employment (DTI, 2008). SMEs are the dominant driver of productive economic growth and employment in Africa, accounting for approximately 90 percent of all businesses in Sub-Saharan Africa (IFC, 2011) and anywhere from 55 to 93 percent of jobs across the continent.

Additionally, quantitative and qualitative research with respect to sustainability in SMEs is limited, especially in developing countries (Hongxia & Fong, 2010:34).

Based on the sustainability imperative, the hesitant adoption of focused sustainability strategies by small businesses remains worrying. It was expected that small businesses would have moved on from awareness to adoption. Taking a step back, insight into small businesses’ perception of
sustainability is lacking. If there is no clear indication of what the concept of sustainability means to small businesses, no appropriate government and internal initiatives will be developed to ensure that sustainability leads to a competitive advantage.

Thus, based on the impact of SMEs on the economy, their longevity and unrealised potential as a force for sustainable development, and given that the focus of sustainability research has mainly been on large corporates, the question is raised: How can SMEs become engaged in the uptake of sustainability practices? (Lawrence et al., 2006). Acknowledging that this is a valid question, the author proposes that a baseline to which to work from first needs to be established. In other words, limited knowledge exists on the sustainability phenomenon in SMEs, and as such this research has the primary objective of filling this gap by exploring the sustainability perspectives of SME owner-managers.

Insight from these perspectives can hopefully act as a solid foundation from which academics, government and SME advisors can collaborate on integrated sustainability efforts.

Research design and methodology

In this descriptive study, an adapted Business of Sustainability questionnaire by Berns et al. (2009a) was used. Researchers at MIT Sloan Management Review, together with The Boston Consulting Group, conducted more than 50 in-depth interviews with a broad mix of global thought leaders and academics to form hypotheses and shape questions prior to the survey. They subsequently developed a 20-question electronic questionnaire, 16 of which were deemed relevant to the aim of the current study.

To determine if the 16-question questionnaire functioned effectively in a South African setting, a pilot test was conducted with 7 SMEs in the Western Cape, and improvements were made to ensure coherence and comprehension.

A non-probability sampling method using a convenience sample approach was adopted. The population for this study comprised the members of the Helderberg Small Business Club, which forms part of Helderberg Branch of the Cape Chamber of Commerce in the Western Cape Province. The criterion for inclusion was the classification of the business as an SME, based on the criteria provided by the National Small Business Act No. 102. Forty-one SME owner-managers’ contact details were acquired.

Google survey was used as a web-based tool to facilitate the data collection for the study, and the questionnaire was emailed to the 41 SMEs. The survey was conducted over a period of three weeks, after which follow-up reminder emails were sent throughout this period. The data collection stage concluded with a realised sample of 33.

As this study was intended to provide insights from the sample, descriptive statistical analysis methods were used.

Results and discussion

The characteristics of the sample indicated that there was an even spread between micro, very small and small businesses in the sample. The SMEs conducted business in diverse industries, and two-thirds (73%) of the owner-managers regarded themselves as novices in the field of sustainability, with none classifying themselves as thought leaders or experts.

Defining Sustainability

The first question in the survey tried to determine what SME owner-managers perceived as sustainability. The results echo the point made earlier that sustainability is a complex and
interrelated concept, and Figure 2 portrays that a single definition for sustainability eluded SME owner-managers. Definitions ranged from very broad to a very narrow environmental focus.

**Figure 2: Sustainability definition**

![Sustainability definition chart](image)

Operationalising sustainability

A question was asked to determine if there were operational tools, techniques or processes in place to manage sustainability. The majority (72%) of SME owner-managers indicated that they had no knowledge of, and were subsequently not managing a sustainability-focused business strategy via a policy or business tool.

This is in stark contrast to the global findings indicating more than 90% were addressing sustainability “in some way”. It could also be argued that SME owner-managers are already incorporating a level of the sustainable practices into their daily operations, but have no explicit language to articulate this as it has not been formalised. The treatment of sustainability as independent issues seems to be a concurrent theme. Explicit processes and policies need to support a sustainability strategy, and not be treated as an add-on (Lurie, 2009).

**Motivations for the uptake of sustainability**

SME owner-managers were highly motivated to adopt sustainability as a strategic focus provided that improved company image and brand equity were realised in the process. This finding reinforces the “green/blue-washing” phenomenon in which organisations pursue sustainability efforts only to ensure an enhanced brand image.

Almost a third (30%) of the SME owner-managers indicated that increased economic incentives and clear industrial standards would add urgency to the adoption of sustainability. In line with Jenkins (2009), only four owner-managers indicated that sustainability could differentiate the business and lead to a competitive advantage.
Assigning responsibility to sustainability

Even though a business case for sustainability might be evident in an organisation, the responsibility of driving an integrated sustainability effort may remain fragmented (Lurie, 2009). The aim was to establish if there is a disconnect between presumed responsibility and what occurs in SMEs in reality. The results in Figure 3 indicate that there is the perception that senior leadership should be taking responsibility for sustainability efforts, but that in practice the employees were perceived as being responsible for implementing sustainability.

Figure 3: Perceptions of responsibility for sustainability

A potential explanation for this occurrence could be linked to compliance. Lurie (2009) explains that the senior leadership may view sustainability as a set of technical compliance issues to be “crisis managed” and thus delegate them to lower levels to execute. Again, the value of an integrated systemic view eludes SME owner-managers.

Barriers to sustainability

Not surprisingly, the results portrayed in Figure 3 indicate that there are too many internal competing priorities present in an SME. These, together with a clear roadmap for implementation, are barriers to adopting a strategic sustainability focus. Porter and Kramer (2006) maintain that “the pressure companies feel to implement sustainability practices too often results in a jumble of uncoordinated sustainability activity, disconnected from the firm’s strategy, that neither make any meaningful social impact nor strengthen the firm’s long-term competitiveness.”

Figure 4: Internal barriers to addressing sustainability

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Turning to the external environment, SME owner-managers viewed the insufficient demand from customers (30%) and limited availability of financial capital (27%) as factors pushing sustainability even lower down the SMEs’ list of priorities.

**Implications & Conclusion**

The findings indicated that that most of the SME owner-managers in the sample are only partly aware of the concept, scope, and ownership requirements of implementing sustainability initiatives.

In looking ahead, a consensus is required of what sustainability means for SMEs. Appropriate language and frameworks need to be created or formalised to ensure a generally accepted standard is adopted (i.e. UN Global Compact). SME owner-managers should prioritise and integrate sustainable goals and build collaborative capacity. Sustainability considerations should not be treated as a crisis.

Government’s small business initiatives need to include the objective of promoting the awareness and adoption of sustainable businesses practices in SMEs and not incentivise short-termism.

Educators should take cognisance of the challenges to SME owner-managers regarding sustainability and aim to equip them with skills to ensure that they take their sustainability efforts to the next level.

To assist practitioners from an academic perspective, future research agendas could include obtaining insight into best practices employed by SME owner-managers’ in the operationalisation of sustainability. This could also lead to an identification of the critical skills such as scenario-planning and systems-thinking SME owner-managers’ need in order to implement and manage their sustainability efforts.

In conclusion, sustainability considerations in large and small business are here to stay. A need for a thorough and structured gathering and sharing of basic facts about sustainability was confirmed as a first step towards assisting SME owner-managers to integrate sustainability objectives, strategies and measures into their business strategies. This research has been a first attempt at trying to answer that call, and focuses on providing a view into SME owner-managers in one region of the Western Cape’s perspectives on the intersection of sustainability and business strategy.

**Bibliography**


The Influence of Country Competitiveness onto the Inflow of FDI- Evidence from Serbia and Regional Countries

Čeliković Zorica, Belgrade University, Serbia

Abstract:
Along with the globalization of the world economy the importance of the competitiveness concept is expressed. The currently modeled conditions of business do not just bring individuals and companies in the position of constant fighting for competitive positions, but due to modern trends, it is inevitable that the states themselves also participate in the competitive game. The countries which have seen the importance of competitiveness in time have managed in a relatively short term to strengthen their economies, increase investment and export and thus create important preconditions for long term economic development. The competitiveness is especially important for small countries which, due to insufficient resources, i.e. development funds, are directed to international funds and attracting foreign investors. The paper analyzes the state of competitiveness of Serbia, as well as its competitive position compared to other regional countries. The aim of the paper is to determine whether the degree of country competitiveness influences the inflows of FDI in 10 regional countries: Albania, Bosnia, Croatia, Hungary, Macedonia, Montenegro, Romania, Serbia, Slovakia and Slovenia. The data which have been used have been retrieved from relevant reports and data bases. FDI data was provided by the United Nations Conference on Trade and Development (UNCTAD), and the Global Competitiveness Index was collected from the Global Competition Report (GCI). The analysis has been performed for a period of eight years. The overall results demonstrate that the host country's global competitiveness is a significant predictor of inflows of FDI for all countries studied in the observed period. This research confirms the fact that the improvement of competitiveness of a country must be in the focus of the creators of economic policies, therefore, within the final analyses, potential directions for their acting are raised.

Key words: national competitiveness, FDI, GCI, Serbia, transition countries.

Introduction
In modern conditions competitiveness is gaining more and more importance and is becoming the most important determinant of success of a country. The competitiveness of an economy represents a particular contribution to the social product, life standard and employment. Also, it contributes to innovation, business improvement and total economic growth. The importance of the competitiveness concept is even more clear with the process of globalization of the world economy. Such modeled conditions of market business do not just bring individuals and companies into a state of permanent battle for the competitive position, but due to modern trends and creating a global village, it is inevitable for the states themselves to participate as well. The thing which needs to be pointed out is that the sources of competitive advantage are always changing and their sustainability during time is difficult, even impossible. Thus the key task of every country is to be compatible with those sources.

Competitiveness, both on a micro, i.e. company level, and macro, i.e. state level, during the last 30 years has become one of the most often analyzed economic variables. When we speak of competitiveness on a macro level, there are different attitudes concerning its measurement. It is interesting that certain analyses represent an extreme attitude that the term “competitiveness” is not applicable at the state level, but only at the level of companies. However, significant differences in economic movements in

individual countries clearly imply the existence of more and less successful countries. The national competitiveness or the competitiveness of a country is defined as the country’s capability to achieve growth faster than other countries and to increase the welfare in such a manner that its economic structure does not change and that it adapts as best as possible to the movements in international trade.  

**The competitive position of Serbia**

Up until the 70ies of the past century, the term “competitiveness” referred to the ability of a company to produce and sell the product on the domestic or foreign market. Bearing in mind the barriers in trade, a difference was made between competitiveness/sales on the domestic versus competitiveness/sales on foreign markets. The bearers of the so called constant market share analysis connected competitiveness to the ability of a company and country to increase its participation in global goods export and in global production. From the 70ies onward, competitiveness has started to be connected with the ability of a company to create, produce and successfully sell products on the domestic and foreign markets.

With the globalization of the world economy the competitiveness concept is becoming more and more important. Countries which have in time seen its significance have managed in a relatively short term to reinforce their economies, increase investment and export and thus create important preconditions for long term development. Numerous analyses have shown that countries which are highly ranked when it comes to competitiveness are also highly ranked when it comes to income per capita, i.e. standard of living. Competitiveness is especially important for small countries which due to insufficient resources, i.e. funds for development, have been directed to international funds. Serbia belongs in this group of countries.

The competitiveness of the Serbian economy, after two decades since the start of transition is still very low. Although the majority of socialist countries which started the transition process in the same period as Serbia even before the beginning of the global economic crisis have achieved pre-transit levels of GDP, that was not the case with Serbia. Serbia faced already being in a crisis. The low level of competitiveness of the Serbian economy is shown by numerous indicators. For example, judging by the score of the Global economic Forum, Serbia holds the 94th position out of 140 ranked countries when it comes to the level of global competitiveness.

The following tables show the rank of Serbia’s competitiveness for the period 2007 until 2015 and the value of the total Global competitiveness index (GCI) for the regarded period, but also its individual components.

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2 Bienkowski, W., (2006), How much are studies of compatitiveness worth? Some critical theoretical reflex on the issue., Poland, p. 45.
3 Trusinski, H., (1980), World Trade in Manufactured Commodities, Manchester School, Manchester, p.23.
6 The reports of the Global economic forum for the stated years, [http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf](http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf), accessed on 20th July 2016; 1) the report contains 131 country; 2) the report contains 134 countries; 3) the report contains 133 countries; 4) the report contains 139 countries; 5) the report contains 142 countries; 6) the report contains 144 countries; 7) the report contains 148 countries; 8) the report contains 140 countries; 9) the report contains 140 countries.
**Table 1.** The rank of Serbia according to the Global competitiveness index (GCI) and the value of GCI for the period 2007-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Rank of Serbia according to GCI</th>
<th>The value of GCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>91</td>
<td>3.78</td>
</tr>
<tr>
<td>2008</td>
<td>85</td>
<td>3.90</td>
</tr>
<tr>
<td>2009</td>
<td>93</td>
<td>3.77</td>
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<tr>
<td>2010</td>
<td>96</td>
<td>3.84</td>
</tr>
<tr>
<td>2011</td>
<td>95</td>
<td>3.88</td>
</tr>
<tr>
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<td>3.90</td>
</tr>
<tr>
<td>2015</td>
<td>94</td>
<td>3.90</td>
</tr>
</tbody>
</table>


Historically seen, the best position in the past seven years our country achieved a little bit before the first tide of crisis in 2008, when the GCI recorded the value of 3.9. Already the following year, 2009, the value of GCI had dropped significantly to 3.77. After that period came a gradual recovery, only to see the GCI drop to the level of 2009 again in 2013. During the most recent years, the competitive position of Serbia has become much better (it has improved by seven positions), but it is still very bad. The low competitiveness of the economy of the Republic of Serbia is confirmed when compared to other transition countries.

Analyzing the changes which occurred in the individual pillars of competitiveness (Table 2) during the regarded period, we can see much more clearly the consequences of low competitiveness. This is very significant for the bearers of the economic policy of the country, since only in that manner can we have a wider picture of the issue and direct our strategies onto improving the key elements of competitiveness.

**Table 2.** The Value of GCI by pillars of competitiveness for the period 2011-2015

<table>
<thead>
<tr>
<th>Pillars of competitiveness</th>
<th>2011</th>
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<th>2013</th>
<th>2014</th>
<th>2015</th>
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<td>3.51</td>
<td>3.93</td>
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<td>5.75</td>
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<tr>
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<td>Innovation</td>
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<td>2.81</td>
<td>2.85</td>
<td>2.89</td>
<td>2.9</td>
</tr>
</tbody>
</table>

*Source: The global economic forum (Reports for 2011-2015)*
Picture 1. The movement of the value of the pillars of competitiveness for Serbia in the five year period

Based on the data from the previous table and graph we can clearly see that in the seen five-year period, although they have recorded slight growth, the worst graded factors are still Business sophistication and Innovation. The best graded factor is Health and primary education, although its value has fallen compared to the beginning of the period and mostly as a consequence of bad macroeconomic surroundings where the index value has fallen from 4.18 to 3.5. Also, it is an encouraging fact that the other group of factors, i.e. the factors which increase the efficiency have the tendency of growth in the years considered, and it is known that this group has the biggest influence while calculating the total composite index for Serbia (the particular weigh is 50%).

Also, from the data we see that during the past five years Serbia has achieved a minor improvement in Institutions, Infrastructure, Higher education and training, while the biggest downfall has been recorded in Macroeconomic environment and the Sophistication of the Financial market. The macroeconomic pillar of competitiveness analyzes the budget deficit, inflation, savings and state indebtedness and shows the slight downfall of indicators in the first three years, after which it recovers, but this recovery has not yet given significant results when it comes to the national competitiveness, but certainly it represents a good direction and a platform for future steps which could improve our position on the global level. The worst graded is the last pillar which refers to the influence of innovation on the country competitiveness. In the case of our country, innovation is certainly the missing element which should be improved and thus correct the total grade and country rank. Of course, the key role in defining the competitiveness development strategy is in the hands of the state. However, despite small growth during on the first and second decimal in certain pillars, as generally seen, the grades which Serbia has are rather low, and what is particularly worrying is the multi-decade stagnation with only slight movements. Therefore, the key question is how to find the real and shortest path to achieve a higher level of competitiveness.

The competitiveness of Serbia and the regional countries

In the lower phase of competitiveness, in the factor driven phase, the countries compete with available factors and natural resources. Professor Porter often states that the inherited natural resources do not represent a good basis for achieving global competitiveness, and that it must be built on what is not inherited but created. Therefore, a greater degree of competitiveness is achieved by those countries which do not necessarily have a lot of inherited natural resources, but which invest a lot of efforts to
With the improvement of development, country wages also rise, thus the country passes on into the middle phase of development in which competitiveness is based on efficiency, in which more efficient product processes are developed and the quality of products is achieved. As the country is getting nearer to the top, innovative phase, it shall be in the position to sustain higher wages, and thus a growing life standard, if and when the business within it is capable to compete with new and innovative products. In this phase, the companies compete first of all with their own innovation and production of new and differentiated products which use the most developed production processes. Serbia is still in the second phase, as is the majority of regional countries.

Besides serious financial and economic issues which the European countries are facing, the Old Continent is still one the most competitive regions in the world. Out of 10 best ranked countries in the world, six come from Europe.

Within the following tables we see given data on the value of GCI and the rank of Serbia and regional countries for the period 2007-2015.

Table 3. The value of the GCI for the period 2007-2015

<table>
<thead>
<tr>
<th></th>
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<td>3.77</td>
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<td>4.34</td>
<td>4.25</td>
<td>4.22</td>
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</tbody>
</table>


Table 4. Rank of Serbia and regional countries according to the value of GCI for the period 2007-2015

<table>
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<tr>
<th></th>
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<td>89</td>
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</tr>
<tr>
<td>Bosnia</td>
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</table>


Regarding the reports of the Global Economic Forum for the last nine years, we can conclude that Albania, Macedonia, Montenegro, Romania and Bosnia and Herzegovina have improved their competitive positions, and some of these countries have even made significant progress on the list. On the other hand, the majority of other regional economies recorded degraded results year after year, with slight irregularities to the rule. The greatest decrease in the stated period has been recorded by Slovakia, followed by Croatia and Slovenia. Serbia also recorded a downfall in the position from the beginning of the regarded period, but after 2013 it comes into a slight growth period of country competitiveness. Although it has not fallen a lot, seen from the perspective of the number of places, compared to other countries, along with Albania it is currently the worst ranked country in the region.

Based on previously stated data we can conclude that during the last two years there has been a trend of convergence of the value of GCI for the chosen group of countries. The countries with a relatively high values of GCI compared to Serbia have recorded a downfall of values, while the countries with low values have recorded growth. With countries that have high values of GCI, the value reduction has come as a result of insustainability of the achieved positions, due to the effect of the crisis and final the decay of vital parameters which are depicted through the quantitative data, but also through the worse perception of country competitiveness as seen by top managers still, which mutually forms a composite value of the GCI.

On the other hand, the countries which have achieved significant progress in the last two years, despite the crisis and the decrease of quantitative indicators of competitiveness, owe their progress firstly to optimistic results as shown by the survey. We can conclude that such movements are not a rule when it comes to Serbia, thus the movements, whether good or bad, mostly demonstrate real movements, which cause relatively sustainable values of GCI, if the strong external shocks are excluded, such as economic crisis of global scale, wars etc.\(^\text{10}\)

We have seen in the past analysis the position of Serbia concerning competitiveness and the lag between the regional countries is worrying. It is obvious that economic reforms and transition should include more seriously the micro economic tissue of the Serbian economy and that firms should take an active stand in the regard to strengthening their own competitiveness. An active approach does not mean that companies just follow modern trends and that their only interest is growth of market share, but also:

- That they recognize and develop their own internal capabilities, and
- That they develop the key factors of success as preconditions for strengthening the strategic position and improving competitiveness.

The setback in economic development compared to the region, but also other European countries, can be compensated for only if Serbia rises the level of the competitiveness of its economy, which in great deal measure depends on the possibility of economic subjects investing in improving the features of the existing products and services and the development of new ones, as well as the introduction of new, modern technology and technological procedures. It is a fact that all countries in the transition period have secured a higher level of competitiveness through FDI, which enabled these countries to successfully integrate the global flows of international production and economy. These measures of progress should be implemented more seriously by Serbia.

\(^{10}\)http://fren.org.rs/sites/default/files/articles/attachments/KONKURENCTNOST%20SRBIJE%20ZA%202013.%20GODINU.pdf, accessed on 26th July 2016.
The influence of country competitiveness onto the level of FDI on the example of Serbia and the regional countries

The level of country competitiveness encourages both the inflow and outflow of FDI. The aim of this analysis is to determine whether the degree of country competitiveness influences the inflow of FDI. The data used have been retrieved from relevant reports and data bases. FDI data was provided by the United Nations Conference on Trade and Development (UNCTAD), and the Global Competitiveness Index was collected from the Global Competitions Report (GCI). The analysis has been performed for the eight-year period from 2007 until 2014. The data on FDI for 2015 are still not available for all countries included, thus this year is omitted. We have included 10 regional countries: Albania, Bosnia, Croatia, Hungary, Macedonia, Montenegro, Romania, Serbia, Slovakia and Slovenia.

The marked regression model is shown using the following equation:

$$ FDI_i = b_0 + b_1 GCI_i + b_2 \text{country} + b_3 \text{year} = -264640.98 + 0.544 \text{GCI} $$

The marked model is statistically significant. The coefficient which stands by the explanatory variable shows the change of FDI due to the change of the change of the explanatory variable for a unit. The Global Competitiveness standardized coefficient is 0.544, meaning that for every unit increase in GCI we can expect a 0.544 point increase in FDI.

The column “R Square” represents the coefficient of determination, i.e., the proportion of dispersion of the dependent variable which can be explained by the independent one. The gained value of 0.865 means that 86.5% variability of the dependent variable can be explained by the independent one, so we conclude that the connection is strong. The results of the analysis show that the independent variable has a good statistical forecast of the dependent variable. The overall results for a sample for 10 countries demonstrated that the host country’s global competitiveness is significant predictors of inward FDI for all studied countries.

As a limit of this analysis, we must consider a short time period of regarding the change, only 8 years. Also, as one of the limitations we should point out the perception of GCI by potential investors. Although there is a serious connection between the two variables, it is very possible that there is a high degree of skepticism with potential investors towards the methodology of calculating the very GCI, and thus the achieved score of competitiveness of a country. There, following, we shall state the most important potential methodological lacks of this indicator.

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The concept of national competitiveness, and thus the very indicator has previously been criticized by Paul Krugman, pointing out that the domestic factors dominantly influence the level of GDP per capita and the welfare, and not the national competitiveness confirmed in a global market. Krugman points out that while defining the national competitiveness the importance of structural factors is pointed out (productivity, innovation, skills), and the essence of the competitive advantage, the comparative advantages, is omitted. When economies trade, they do not compete in a confronted manner (as do firms), but they do business in order for every part to have a certain benefit. The countries specialize only in those goods which they produce, i.e. the ones with lower opportunity costs. Besides Krugman, Smith also criticized the GCI, i.e. he criticized the shortcomings of the calculation methodology.

A great shortcoming of this indicator is that it is too partial, and that it derives from the way GCI is formed. The index is formed by a great number of soft and hard data. The soft data are gathered using a survey performed on top management of companies from a chosen sample. The fact is that some categories which are important for the precise profile of a country can be judged by only using a survey, and contain the possibility that some sub-indicators are over or under valued. The surreal grade of sub-indicators is transferred across the pillars onto the final value of the GCI and the country rank. If we add the fact that while calculating the index, the participation of soft data is up to 70%, the relevance of this indicator becomes even smaller.

Also, certain factors can influence the competitiveness of certain countries, but are not included in the analysis. Primarily, we are talking about socio-psychological (economic) factors of competitiveness, but also some others such as: integration participation, closeness to economic centers, other macroeconomic indicators (labor cost per unit, the exchange rate) etc.

**Conclusion**

The paper analyzed the state of competitiveness in Serbia, as well as its competitive position compared to other regional countries. There are numerous research reports which show that a higher degree of competitiveness contributes to the increase of FDI in a country. The results of this study confirm that hypothesis in the case of Serbia and the regional countries. To be precise, within the group of 10 analyzed countries the level of FDI depends on the level of competitiveness of the regarded country. The strengthening of the Serbian economy is one of the main strategic goals of economic policy, and this research only confirms that this is the direction in which the creators of economic policies should be heading in the future. The reach of a certain level of international competitiveness is the precondition to enter the EU, since the states must fulfill the condition of effective market economy and competitive companies capable of sustaining the pressure of the mutual market, which is an additional incentive for our country to engage further in this field.

The analysis of the partial component of GCI has shown that Serbia has a very low position when it comes to numerous factors. In order to improve the competitiveness of Serbia it is necessary to break current institutional and infrastructure obstructions to competitiveness. That should represent a starting point or the basis for bigger legal and investment security, for bigger capital inflow and the intensification of its movement and for the construction of modern competitiveness strategies based on high productivity and innovative business strategy. The most important recommendation for improving Serbian competitiveness is connected to better factor conditions, which firstly refers to infrastructure and institutions. The weaknesses shown in this segment, in the area of administrative and innovation infrastructure, have brought Serbia onto the borders of Europe. The responsibility for solving this issue in the near future lies primarily with the state. When we discuss improving the educational and innovation infrastructure, capital market and financial systems, the responsibility of the state must be activated through educational and financial institutions. Without improving these segments, Serbia

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cannot step out of the trap of its own underdevelopment, which additionally narrows the space for export expansion. Serbia is not competitive enough on the labor market, and in order to change that in the future, changes are needed within the law on labor. It needs to show more attention to education and employee training, but also to define more clearly the rights of employees and their employers in order for the grade of this factor, while calculating GCI, to be better. In the current economic situation of Serbia, with great technological underdevelopment, insufficient own capital, as well as insufficient management knowledge, it needs to use the advantages and the resources which the country currently has. Porter points out that during competitive battles for national prosperity it is less important in which branch a nation competes. The way in which it competes is far more important. The entry into the investment led phase sets upon Serbia new challenges in the form of improving competitiveness, and the transfer to the innovation phase in the future shall demand the fulfillment of even more quality demands. By fulfilling them, but also many other measures, Serbia should improve its business climate, increase the degree of competitiveness, which shall result in the increase of FDI and, what is most important, a better living standard of the entire nation.

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Collaborative Consumption of Medical Equipment

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Abstract

Collaborative consumption is one of most under-investigated and most dynamically changing research areas. This paper focuses on medical equipment sharing as an example of collaborative consumption phenomenon. The main contribution of this paper takes the form of presenting research results that identify motives standing behind the inclination to collaborate with other consumers in medical equipment sharing. Based on an explorative online survey among individual customers this paper emphasizes frugality, altruism and sociability as the main determinants.

Key words: Collaborative consumption, consumer behaviour, medical equipment, sharing

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Introduction

Collaborative consumption as a consumer behaviour phenomenon is gradually gaining attention among researchers, which seems to be directly connected with the mega-trends in the current economy. With progressive development of new technologies, people gain access to unlimited sources of information and, what is even more crucial, unlimited access to each other. Current consumers are not afraid of being connected and a substantial proportion even base at least some fields of their lives on this connection; they have already learnt how to benefit from global networks and tend to naturally develop them to be even more useful.

The phenomenon of collaborative consumption is also of special importance because of the economic crisis, which still has a strong impact on the global economy. This is because sustainable consumption can be treated as a mechanism preventing over-consumption caused by easy credit. The increase in costs of acquiring and maintaining ownership as well as the uncertainties of the labour market have made traditional ownership models less attainable than what they have been used to be before. The last decade saw an increased interest in behaviour which could minimize the psychological and economic costs of long-term interaction with personal property.

The shared consumption is mostly associated with car sharing services, time banking, swapping books or DVDs or booking accommodation via online community marketplaces. It is also present in healthcare. In the broader sense it appears in a sharing economy among hospitals, where thanks to an intermediary, the hospitals can swap the medical devices which are not currently in use and in this way avoid waste of resources. This phenomenon in a basic form appears among patients who share medical equipment, often also some medicines, and in this way save their money. As the collaborative consumption of medical equipment seems to not be analysed in its current state of study at all, the aim of this paper is to describe the propensity of consumers to share their medical equipment.

1. The concept of collaborative consumption

Collaborative consumption, often associated with the sharing economy, takes place in organized systems or networks in which participants conduct sharing activities in the form of renting, lending, trading, bartering, and swapping of goods, services, transportation solutions, space, or money (Möhlmann, 2015).

There is no narrow consensus in the literature with regard to how collaborative consumption should be defined. Originally, the term was proposed by Felson and Spaeth (1978: 614) who defined...
acts of collaborative consumption as those events in which one or more persons consume economic goods or services in the process of engaging in joint activities with one or more others. It focused on joint activities distinguishing collaborative consumption. In this context, drinking tea with friends, joint driving to visit someone, or common use of a washing machine were used as the examples of these specific consumption acts.

Taking into account specific features of collaborative consumption, it means a joint consumption of products or services and consumer ownership of shared goods, it should be assumed that the propensity to collaborative consumption can be far more complex than in case of individual consumption or previously popular forms of cooperation between consumers. Studies which have been conducted up until now have not taken into account some of the important aspects of this phenomenon (e.g. the interaction with unknown people and motifs associated therewith).

Collaborative consumption can concern shared consumption of medical equipment like rehabilitation devices, crutches, inhalers, anti-decubitus mattress, wheel chairs etc. Such equipment can be relatively expensive and very often patients use it just in an emergency situation. Except for proper sterilization, the risk associated with equipment sharing seems to be much lower than in cases of medication sharing. Usually patients are said by doctors to buy such equipment and are guided how to use it. Benkler (2004) conceptualizes collaborative consumption as a shift from our current state of mass-consumption and ownership to the one that deals with relearning to share and relies more on social connections than price systems while helping to reallocate resources. The equipment in many cases would be a waste, if not for a possibility to loan it to other consumers in need. This form of collaborative consumption seems to be very common. It can be observed that when such needs emerge, consumers first ask their family members, friends and other people from their environment if they have the required equipment or alternatively make a relevant purchase.

Although previous works related to the phenomena of collaborative consumption (cf. Hirschel, Konrad & Scholl, 2003, Gansky, 2010) underlined the need to move away from having to use the products determined by many factors related to their characteristics (e.g. price), relatively little attention was devoted to the exploratory motives of participation in such collaborative consumption from the perspective of individual consumers themselves.

The subject of access to goods by other consumers was raised for example in the works of Shaheen, Mallery & Kingsley (2012), Cherrier, Black & Lee (2011). These considerations, however, had a theoretical nature and were related specifically to the situations where the ownership passes to another user (eg. purchases on the secondary market). Moreover, the issues related to the separation of ownership and use were also analysed, for example, in the research of Bardhi & Eckhardt (2012). Their study, however, was focused on motives of the separation of ownership and use in the context of access to goods, in particular on the use of products by renting them via a flexible billing system, such as pay-as-you-go.

Because the exact motives have never been explored in any research, the main contribution of this paper takes the form of presenting research results that identify motives standing behind inclinations to collaborate with other consumers in the form of medical equipment sharing.

2. Methodology

A structured questionnaire was used to collect the data. The following constructs have been measured by appropriate scales for each of variable. The sensitivity towards the price of the products/services (frugality) was operationalised in terms of 6-item measure based on scale developed by Lichtenstein, Ridgway & Netemeyer (1993) and Lastovicka et al. (1999), where respondents were asked to assess the following statements:

a) I believe that it is worth being careful regarding how money is spent;

b) I am very careful to spend my money very reasonably;

c) I deny myself certain things now, to save for the future;
d) When I am shopping I always compare prices of products to make sure that money is spent well;

e) Finding the lowest prices is usually worth of my time and commitment,

f) I shop at many stores to get the lowest prices of products.

Altruism was measured with a 4-item measure based on Morgan, Miller (2002):
  a) I agree with the old proverb that it is better to give than to receive;
      b) I am happy when I can help others;
      c) Helping others is an important aspect of my life;
      d) I would do everything I can to save someone's life.

Health literacy was examined with a 4-item measure created on the basis of Ishikawa, Nomura, Sato, Yano (2008):
  a) I can collect health-related information from various sources;
      b) I can extract the information I want;
      c) I can consider the credibility of the obtained health-related information;
      d) I can make health-related decisions based on information I found.

Sociability was measured with a 4-item measure created on the basis of Cheek, Buss (1981):
  a) I think people are more inspiring than anything else;
      b) I prefer to work with other people than alone;
      c) Getting to know people is for me a pleasant experience;
      d) I really like talking to people.

Perceived health status was gauged with a 4-item measure created on the basis of a general health perception scale (Ware Jr, J. E.,1976):
  a) My health is excellent;
      b) I am healthier than anyone I know;
      c) It is easier for me to get sick than for the others;
      d) I expect my health to get worse.

Finally, the propensity to share medical equipment was measured with the following 4-item scale developed by authors:
  a) I would be willing to lend medical equipment to the others;
      b) I would be willing to borrow the medical equipment of the others;
      c) I would be willing to participate in both activities;
      d) I will try to participate in sharing various medical equipment in the future.
All items have been measured on a 5-point Likert scale from “strongly disagree” to “strongly agree”. A number of demographic questions have also been included. The respondents’ responses have been gathered from March till the end of May 2016. The survey questionnaires were distributed in various health centres, they were also published on-line on SurveyMonkey.com portal and the links were publicized via Facebook and on various thematic forums. The research sample consists of 93 respondents. 27% of respondents have declared that they had been using lent medical equipment, 20% of them had been loaning medical equipment to the others, 53% of respondents had been participating in both activities.

The sample consists of 60% females and 40% males. The majority of them (52.7%) were aged between 25 and 35, 15.1% below 25, 10.8% between 36 and 45, 15.1% between 46 and 55, and the rest were above 55. Most of respondents within the sample were single (47.3%), followed by 43% of respondents being married, and 9.7% of respondents were divorced. Most of respondents (33.3%) were from big cities with populations above 100,000 inhabitants, followed by citizens of cities with 10,000 to 100,000 inhabitants (31.2%), then inhabitants of cities between 1,000 and 10,000 people (21.5%), from cities below 10,000 inhabitants (6.5%), village people (5.4%) and the rest (2.2%) is from the biggest cities with over 1 million of inhabitants. The vast majority of the sample consisted of full-time employees (73.1%), followed by students (9.7%), part-time employees and unemployed (both 6.5%), and retired (4.3%).

3. Measurement model results

In the first validation step the measurement models for 6 constructs have been evaluated: frugality, sociability, altruism, health literacy (health_literacy), perceived health status (perc_health) and propensity to share medical equipment (propensity), by conducting a principal component exploratory factor analysis (EFA). For all 6 scales Conbach’s α value and composite reliability exceed a recommended threshold of 0.7 (Henseler et al., 2009). The average variance extracted (AVE) exceed a value of 0.5 and provided information about the convergent validity. All results are illustrated in Table 1.

Table 1. Reliability

<table>
<thead>
<tr>
<th></th>
<th>AVE</th>
<th>Comp. rel.</th>
<th>Cron. alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>sociability</td>
<td>0.7593</td>
<td>0.9037</td>
<td>0.8521</td>
</tr>
<tr>
<td>altruism</td>
<td>0.6862</td>
<td>0.8971</td>
<td>0.8486</td>
</tr>
<tr>
<td>frugality</td>
<td>0.6353</td>
<td>0.8967</td>
<td>0.8578</td>
</tr>
<tr>
<td>health_literacy</td>
<td>0.7124</td>
<td>0.9083</td>
<td>0.8676</td>
</tr>
<tr>
<td>perc_health</td>
<td>0.5389</td>
<td>0.8154</td>
<td>0.7628</td>
</tr>
<tr>
<td>propensity</td>
<td>0.8436</td>
<td>0.9557</td>
<td>0.9382</td>
</tr>
</tbody>
</table>

Source: Own elaboration.

In order to test discriminant validity the Fornell-Larcker criterion was used (Fornell, Larcker, 1981). Discriminant validity is the degree to which items differentiate between constructs or measure different constructs. As indicated in Table 2 for the model in this research, all correlations have met the Fornell-Larcker criterion.

Table 2. Interconstruct Correlations and square roots of the AVE (Diagonal Values)

<table>
<thead>
<tr>
<th></th>
<th>sociability</th>
<th>altruism</th>
<th>frugality</th>
<th>health_literacy</th>
<th>perc_health</th>
<th>propensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>sociability</td>
<td>0.8714</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>altruism</td>
<td>0.6213</td>
<td>0.8284</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>frugality</td>
<td>0.3580</td>
<td>0.3121</td>
<td>0.7971</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>health_literacy</td>
<td>0.3347</td>
<td>0.4392</td>
<td>0.1099</td>
<td>0.8440</td>
<td></td>
<td></td>
</tr>
<tr>
<td>perc_health</td>
<td>0.1997</td>
<td>0.1810</td>
<td>0.0472</td>
<td>0.0441</td>
<td>0.7341</td>
<td></td>
</tr>
<tr>
<td>propensity</td>
<td>0.4147</td>
<td>0.5109</td>
<td>0.2012</td>
<td>0.3176</td>
<td>0.2775</td>
<td>0.9185</td>
</tr>
</tbody>
</table>

Source: Own elaboration.
4. Structural Model Results

The model was tested with a partial least square (PLS) using the structural equation modelling technique with SmartPLS 2.0 software package (Ringle, Wende, Will, 2005). The PLS technique was chosen because it is particularly useful to estimate relatively complex models by using relatively small sample sizes; moreover it is applicable to data that cannot be assured to be of parametric nature, as well as to management-related research with a predictive research scope (Chin, 1998; Henseler et al., 2009; Reinartz et al., 2009). The results of the PLS estimation are presented below (Fig. 1.).

Fig. 1. PLS-SEM Results

![Fig. 1. PLS-SEM Results](source)

Source: Own elaboration.

To obtain the t-values to test for significance, nonparametric bootstrapping procedure as incorporated in the SmartPLS 2.0 software was conducted (Henseler et al., 2009). The analysis revealed that both: perc_health and health_literacy had no significant effect on the endogenous variable. Age and level of education have been also assessed to have no statistical significance. For the other determinants, the critical value t=1.96 has been exceeded so they have a statistical significance (p<0.05). The coefficient of determination R2 equals 0.49 of the endogenous variable propensity, which indicates that almost half of the variable’s variance can be explained by its indicators. A moderation effect connected with consumer age is of borderline statistical significance (t=1.865).

Summary

The research results presented in this article, to the knowledge of its authors, are the first attempt to measure the propensity to collaborative consumption in relation to such specific group of products as medical equipment. Previous researches on this field seem to be rather fragmented (e.g. did not include all the variables which have been taken into consideration in this paper) and were focused on totally difference activities like ride-sharing.
The main conclusion from this research is that the issues directly related to health, mainly both perceived health status and health literacy do not influence significantly the propensity for collaborative consumption of medical equipment. The research, rather, indicates that the propensity for shared consumption is connected with strong frugality and high level of altruism. The potential of collaborative consumption for savings has been underlined, for example, by Belk (2014) and Gansky (2010). The altruism, on another hand, seems to result from the nature of healthcare sector itself. It should be underlined that the majority of respondents had been participating both in lending and borrowing of medical equipment. An analysis of the phenomena that could be very interesting would in terms of differences between those consumers who firstly had lent medical equipment, and afterwards borrowed from other consumers who were participating in collaborative consumption in reverse order, specifically in a context of reciprocity.

The research indicates the propensity to use and share medical equipment through collaborative consumption is a symptom of a strong desire to build social networks. This conclusion derives from the fact that those consumers may be connected for example by experiencing the same medical problem, even if the level of social interactions between consumers in this case is much lower than in case of for example collaborative consumption of flats. Expanding the research by collaborative consumption on other sectors would be then be especially significant in contexts of such mega-trends like sustainable consumption.

The presented research also has some limitations. The research sample was relatively small, the future research should be then performed on larger samples; and the research presented in this article should be treated as exploratory, both in the sense of measurement and the sense of dependencies included in presented model. The research conducted on a larger sample, moreover, with a higher rate of older respondents, could contribute to better understanding of phenomena of collaborative consumption of medical equipment.

References


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Abstract
Since the 1940s, economists have investigated whether inflation is harmful to the economy or not, analyzing the relationship between inflation and economic growth. While most of researchers see inflation as a problem for the economy, some suggest that only beyond a certain level, can inflation hurt the economy. What is the relationship between inflation and economic growth in Niger, which has one of the least developed and fastest growing economies in recent times? To answer this question, we should also act as these researchers, by investigating the relationship between inflation and economic growth for Niger. Thus, in this study, using data for the 1971-2014 periods and by time-series analysis, the relationship between inflation and economic growth is examined. During the time series analysis, the ADF unit root test, Johansen co-integration test, and Granger causality test were performed. According to the results of co-integration test, a 1% increase in inflation in the long term, leads to a decrease of 1.91% of GDP, and therefore inflation affects economic growth negatively. This means that there exists in opposite long-run relationship between inflation and economic growth. The causality test results suggest that there is a unilateral causal relationship which is determined by inflation one economic growth. It was deemed appropriate for Niger, which shares the same central bank (BCEAO) with seven (7) UEMOA member countries but must setup its own monetary policy independently of BCEAO and, if necessary its own central bank because Niger is experiencing structural problems which are due to political and economic instability of the larger monetary union.

Key words: Niger, inflation, economic growth, time series analysis.

1. INTRODUCTION
After the Second World War until today, various macroeconomic variables have been the subject of research. Inflation has been one of the most common issues investigated from among these variables. Since the Second World War, inflation has been the cause of financial crisis in many countries. Therefore, these countries have targeted inflation reduction in order to escape from such crisis. Inflation is defined by economists as the quick and permanent increase of the general price level. Inflation is measured by the consumer price index (CPI) which measures the price of a representative basket of goods and services purchased by the average consumer and is calculated based on periodic survey of consumer prices. Another measure of inflation is the GDP deflator which is available on an annual basis. When there is inflation, the currency loses purchasing power. Inflation is frequently described as a state where “too much money is chasing too few goods”. Even if the potato seller in the market or any person in the street may not know the exact meaning of inflation, he assumes that it is a problem for the market and the nation.

Since the 1940s, researchers have investigated how inflation affects the economy. The question of whether or not inflation is harmful to economic growth has recently been the subject of intense debate among policy makers and among macroeconomists. Details and results of these investigations will be given in the Literature Review. While most researchers consider that inflation is harmful to the economy, some have concluded that it is not harmful at a certain level. However, they conclude and concur that the fact that excessive and continuous inflation harms the economic growth of a country. To investigate whether inflation is harmful or not it is necessary to note the relationship of economic growth with the inflation.
The Niger Republic, which obtained its independence in 1960, is endeavoring to stay below the 3% standard inflation level determined by UEMOA. Despite several crises in its economic history, Niger has recently been able to keep its inflation under the standard recommended. Niger has never had a 3-digit inflation rate, and the highest inflation rate experienced was 36%. So if the Niger government generally has been able to keep the inflation below 3% level, what can be the impact of inflation on economic growth? We could not find any study investigating the relationship between growth and inflation for Niger and set out to do one ourselves (AFRISTAT, 2007; Presidence du Niger, 2015).

Thus, the main objective of this study is to investigate the relationship between inflation and economic growth in (the West African country) Niger in the independence era, and to discuss and put forward the results of this relationship. In this context, our work is structured as follows. In the second part of this study, we provide a literature review concerning the relationship between inflation and economic growth. In section 3, the data and methodology are presented followed by the empirical results in section 4. In section 4, in order to investigate the relationship between inflation and economic growth, time series analysis is made with E-views 8.0 program using annual data of the 1960-2014 period. The ADF test and co-integration analysis results are presented in the same section together with the result of the Granger causality test. Results and suggestions are discussed in section 5 as a conclusion.

2. LITERATURE REVIEW

Numerous studies have been carried out to provide clear evidence on the relationship between inflation and economic growth. While some economists see inflation as a danger for a country’s economy, some of them think that it has a positive effect on the economic growth of a country. Other studies yet state that the impact of inflation on economic growth could be positive up to a certain threshold level and beyond this level, the effect turns to be negative. In this section, we provide a brief review of these studies and analyze some of the related studies of African countries.

Firstly, let us start with the studies which conclude that there is a negative effect of inflation on economic growth. In its study of 53 countries in the 1961-1981 period, Fischer (1983) concluded that inflation negatively affects economic growth. Fischer (1993) found evidence for a negative relationship between inflation and growth in pooled cross-section time series regressions for a large set of 93 countries. In the same context, De Gregorio (1991) investigated the long-term relationship between growth and inflation by taking data of 12 Latin American countries for the 1951-1985 period. He found a negative long-term relationship between inflation and economic growth. Using panel estimation for industrial and developing countries, Burdekin et al. (1994) found significant negative impacts of inflation on economic growth. However, they stated that the magnitude of these effects is much larger for the industrial countries than for the developing countries. Faria and Carneiro (2001) examined the link between inflation and economic growth of Brazil, which is a country facing continuous, permanent high inflation. In this context, they found that there is no effect of inflation on real output in the long-term. However, there is a negative effect of inflation on output. Their results also support Sidrauski’s Super Neutrality Concept of Money in the long run. However, as shown by Fischer (1979), there is doubt about the short-term effects of the model for the divisible utility functions in the consumption and real money balances. Saaed (2007), who explored the relationship between inflation and economic growth of Kuwait for the period 1985-2005 found a long-run and strong opposite relationship between inflation and growth in Kuwait. In the same context, Yap (1996) investigated the link of inflation and economic growth in the Philippines and concluded that inflation is harmful for economic growth due to the lack of macro-economic policy towards inflation. Berber and Artan (2004) also did the same investigation for Turkey and found that inflation causes economic growth but that increases of inflation by 10% lead to a decrease of growth by 1.9%.

Now let us analyze the studies arguing that there is a positive effect of inflation on economic growth. In this framework, Tobin (1965) concluded that there is positive link between inflation and growth. The Tobin’s model states that during inflationary periods, individuals hold their assets as interest-earning securities. This leads to greater capital intensity and therefore promotes economic growth (Sindano, 2014, p. 18). Malik and Chowdhury (2001) investigated the short and long run dynamics of the relationship between inflation and economic growth for four (4) South Asian countries (Bangladesh, India, Pakistan, and Sri Lanka) using cointegration and error correction models. Their results concluded...
that there is a significant positive link between inflation and economic growth, and that the sensitivity of growth to changes in inflation rates is smaller than that of inflation to changes in growth rates. In his thesis related to the relationship between inflation and economic growth of the Chinese economy for the period of 1978-2007, Xiao (2009) employed cointegration and error correction models as well as correlation matrix and the Granger Causality Test in order to investigate the inflation-growth relationship. The results show that in the long run inflation positively affects the economic growth in a bi-direction. Umaru and Zubairu (2012) investigated the impact of inflation on the economic growth of Nigeria for the period of 1970-2010 through Augmented Dickey-Fuller test and Granger causality test of causation between inflation and GDP. The results suggest that a uni-directional causality relationship exists from GDP to inflation and that inflation affects positively the economic growth by encouraging productivity or/and output levels and on evolution of total factor productivity. In the same context, Osuala et al. (2013) also found the same results.

As we said previously, some policy makers or researchers state that the impact of inflation on economic growth could be positive up to a certain threshold level and that beyond this level the effect turns to be negative. In other cases results have been uncertain. In this context, Mubarak (2005) used annual data from the period of 1973-2000 to estimate the threshold level of inflation in Pakistan. His estimation of the threshold model suggests that inflation rate beyond 9% is damaging for the economic growth of Pakistan. Sweidan (2004) also found that the relation between inflation and growth in Jordan is approximately positive and significant below an inflation rate of 2% and there is structural breakpoint effect at inflation rates of 2% in the period studied. According to the result, inflation affects economic growth negatively beyond this threshold level. Lucas (1973) investigated relationships between real output and inflation by using the Ordinary Least Squares (OLS) method and annual data of 18 countries for the period 1951-1967. He found that in the countries where the prices are stable such as USA, there is a positive relationship between inflation and economic growth. However, in countries where the prices are volatile such as Argentina, it is rare to find this kind of positive relationship between inflation and economic growth. In the same framework, Grimes (1991) investigated the relationship between inflation and economic growth in 21 industrialized countries using annual data for the period 1961-1987. The findings suggest that while there is a positive correlation between the two variables in the short term, the relationship is negative in the long term. Christina (1996) investigates the inflation - output relationship for USA. The findings argued that in the 1884-1994 periods, particularly in the beginning of 1930s, an increase of 0.10 per cent in inflation led to an increase of the economic growth by 1%. Nell (2000) examines the effect of inflation on economic growth in South Africa with data for the period 1960-1999 using the Vector Auto Regressive (VAR) technique. He found that inflation may be positive for economic growth in the single-digit zone, while inflation appears to impose costs in terms of slower growth in the double-digit area. Barro (1995) also research the inflation-growth relationship by using a large sample of more than 100 economies in the 1960-1990 period. According to the results of his study, there is a significant negative relationship between inflation and growth if some countries’ characteristics (education, fertility rate etc.) are held constant. More precisely, an increase of the average inflation by 10% points per year decreases the economic growth by 0.3 to 0.4 percentage points per year. Furthermore, if this situation continues over a 30 year period, growth will be reduced by 6 to 9 percent.

As we did not find any case study of Niger about the relationship between these two variables, we looked into the case of countries sharing the same continent with Niger, i.e. African countries. However, there is one study about UEMOA countries. As we stated previously, Niger is a West African country, which is a member of regional economic organizations like UEMOA and CEDEAO. In this framework, Kouame (2010) examined the relationship between inflation and economic growth for West African Economic and Monetary Union (UEMOA), which targets a standard inflation rate of 3%. To do so, he estimated the optimal inflation rate at 8% by using Hansen’s (1999) threshold model. He argued that if the inflation rate in UEMOA countries stays below optimal inflation rate, inflation would not harm the economic growth. Motande and Christian (2015), performed the same investigation for BEAC countries by using the Panel Smooth Transmission Regression (PSTR) model. He found that when the 4.28 percent optimal inflation rate is below the threshold, an increase of 1% of inflation enhances growth by 0.287 point. Over the threshold, a one percent increase in inflation leads to a decrease of 0.257 point in growth. Bittencourt et al. (2014) made the same type of study for 15 Southern African Development
Community (SADC) members’ countries, and their findings show that there is negative effect of inflation on growth. Fabayo and Ajilore (2006) found that there is a significant positive relationship between inflation and growth of Nigeria, while, above a 6% threshold level, inflation begins to hurt economic growth. In the same framework, Salami and Kelikume (2010) used data of the 1970-2008 period to investigate the inflation-growth link in Nigeria. They found that there is an 8% threshold. Seleteng (2004) also concluded that when the inflation in Lesotho is above 10%, it harms economic growth. In Burundi, Ahishakiye (2011) found that there is no co-integration relation between the two variables and there is unidirectional causality from growth to inflation. Kigume (2011) argued that there is no causality between inflation and economic growth in Kenya for the 1963-2000 period. Hodge (2002) and Ogbokor (2004) investigated relationships between inflation and growth for South Africa and Namibia respectively. All of them found a negative relationship between the two variables.

3. Methodology

3.1 Research Questions

In this study, we examine the relationship between inflation and economic growth by using data for the 1971-2014 period using time-series analysis.

3.2 Estimation Techniques

Time series are statistics data observed and recorded in a certain period. These numerical data can be weekly, monthly, 3-monthly, or by year. Time series has deterministic (the presence or absence of fixed, trend and seasonal component within the series) and stochastic (whether the variables are stationary or not) characteristics. Recently time series analysis has been used in economics or other scientific researches. Generally, during time series analysis causality and co-integration relationship, and interaction between the variables are investigated (Sevüktekin & Nargeleçekenler, 2010, pp. 1-11; Köksal, 2003, pp. 443-445).

Before starting our investigation, our variables must be stationary. Non-stationarity has often been seen as a problem. It is not prudent to work with non-stationary series data during empirical analysis because working with them leads to spurious regression results. Several tests are used to test for stationarity. The most popular is Augmented Dickey Fuller Tests (ADF). Thus, we firstly have to test for stationarity of the variables under investigation by applying the ADF. The ADF test is based on rejecting a null hypothesis of unit root in favor of the alternative hypotheses of stationarity. The tests are conducted with and without a deterministic trend (t) for each of the series. The general form of ADF test is estimated by the following regression:

\[ \Delta Y_t = b_0 + b_1 t + \delta Y_{t-1} + \alpha_1 \sum_{i=1}^{\infty} \Delta Y_{t-i} + u_t (1) \]

Where: \( Y \) is a given time series, \( t \) is a linear time trend, \( \Delta \) is the first difference operator, \( b_0 \) is a constant, \( n \) is the optimum number of lags in the dependent variable and \( u \) is the random error term (Dikmen, 2012, pp. 308-310; Gujarati, 1995).

After the stationary test (ADF unit root test), we perform the co-integration test to examine whether there exists a long-run equilibrium relationship between the variables. Johansen (1991) procedure is applied in this study. Engel and Granger (1987) emphasized that a linear combination of two or more than 2 non-stationary variables may be stationary. If such a stationary combination exists, then we can say that the non-stationary time series are cointegrated. The vector auto-regression (VAR) is based on cointegration test by using the methodology developed in the Johansen (1991, 1995) studies. The methodology of Johansen’s takes its starting point in the VAR \((p)\) given by:

\[ Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_p Y_{t-p} + u_t \]

Where, \( Y \) is an nx1 vector of variables that are integrated of order commonly denoted \((1)\) and \( u \) is an nx1 vector of innovations. In order to determine the number of cointegrated vectors, two statistic tests were suggested by Johansen (1988, 1989) and Johansen and Juselius (1990); the trace test statistic calculated by: \( \text{TRACE STATISTIC} = -N \sum_{r=1}^{p} \ln(1 - \rho_r) \) (3)
Where, \(i = (r+1), (r+2), \ldots, n\) and \(r = 0, 1, 2\), and the maximum eigenvalue test determined with the following formula:

\[
\tau_{\text{max}} = -N \ln(1 - \rho_{r+1}) \quad (4)
\]

After co-integration test, we performed the Granger causality test between the variables. The Granger test is used to answer the following questions. Is it GDP that “causes” Consumer Price Index - CPI (GDP→Inflation)? Or is it the Inflation - CPI that causes GDP (Inflation→GDP)? The Granger causality test assumes that the information relevant to the prediction of the respective variables, GDP and Inflation, is contained solely in the time series data on these variables. The test involves estimating the following pair of regressions:

\[
Y_t = a_0 + \sum_{i=1}^{m} a_i Y_{t-i} + \sum_{j=1}^{n} b_j X_{t-j} + u_{1t} \quad (5)
\]

\[
X_t = b_0 + \sum_{i=1}^{m} b_i Y_{t-i} + \sum_{j=1}^{n} a_i Y_{t-j} + u_{2t} \quad (6)
\]

Here it is assumed that the disturbances \(u_{1t}\) and \(u_{2t}\) are uncorrelated and \(Y_t\) is Gross Domestic product, \(X_t\) is the Gross fixed capital formation. We have to note that since we have two variables we are dealing with bilateral causality. According to Johansen and Juselius (1988), the existence of co-integration implies the existence of the causality relation between Capital formation and GDP under the constraint /δ1/ +/δ2/ >0 (Gujarati, 1995, pp. 653-654).

3.3 Data

The original data used in this study for the period 1971-2014, are the series of annual real GDP (Gross Domestic Product) and the 2008 = 100 based annual CPI (Consumer Price Index). While real GDP represents the economic growth, CPI represents inflation. All this data was obtained from the data distribution system of the Central Bank of West African States (BCEAO) in West African CFA franc currency. In order to solve the volatility problem, the real GDP calculated in constant prices of 2008 and (2008=100 based) CPI variables have been transformed to logarithms; then they became LGDP and LCPI.

4. RESULTS AND DISCUSSION

4.1. ADF Unit root test

In the first instance, we applied the Augmented Dickey Fuller -ADF- Test (Dickey, Fuller, 1979) to check for the stationarity of the variables under investigation. To do so, we needed to determine the appropriate lags length by using Akaike criterion. The ADF test results in levels (intercept; trend and intercept) are given in Table-1.

According to Table-1, all variables are non-stationary in level at 1%, 5% and 10% levels of significance. 

Table-1: ADF test results at intercept, and trend and intercept level

<table>
<thead>
<tr>
<th>Variables</th>
<th>Appropriate Lags (AIC)</th>
<th>Variable state</th>
<th>t-ADF Statistic</th>
<th>McKinnon Critical %1</th>
<th>McKinnon Critical %5</th>
<th>McKinnon Critical %10</th>
<th>conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGDP</td>
<td>2</td>
<td>Intercept</td>
<td>1.53</td>
<td>-3.60</td>
<td>-2.935</td>
<td>-2.60</td>
<td>Non-stationary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trend and</td>
<td>0.040</td>
<td>-4.20</td>
<td>-3.52</td>
<td>-3.19</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCPI</td>
<td>1</td>
<td>Intercept</td>
<td>-2.53</td>
<td>-3.60</td>
<td>-2.93</td>
<td>-2.60</td>
<td>Non-stationary</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Trend and</td>
<td>-4.34</td>
<td>-4.21</td>
<td>-3.53</td>
<td>-3.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We reconduted the test by differencing all variables and the results of ADF test after first differencing are in Table-2.
Table-2: Augmented Dickey Fuller (ADF) Test Results after first Differencing

<table>
<thead>
<tr>
<th>Variables</th>
<th>Appropriate Lags (AIC)</th>
<th>Variable state</th>
<th>t-ADF Statistic</th>
<th>McKinnon Critical</th>
<th>conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>%1</td>
<td>%5</td>
</tr>
<tr>
<td>D(LGDP)</td>
<td>0</td>
<td>Intercept</td>
<td>-6.05</td>
<td>-3.60</td>
<td>-2.93</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Trend and Intercept</td>
<td>-6.18</td>
<td>-4.20</td>
<td>-3.52</td>
</tr>
<tr>
<td>D(LCPI)</td>
<td>0</td>
<td>Intercept</td>
<td>-4.11</td>
<td>-3.60</td>
<td>-2.93</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Trend and Intercept</td>
<td>-4.49</td>
<td>-4.19</td>
<td>-3.52</td>
</tr>
</tbody>
</table>

*Stationary at 1%, 5% and 10% level of significance

According to Table-2, all variables are stationary in levels at 1%, 5% and 10% level of significance.

4.2. Co-integration results

To investigate long run and short run relationship between the variables, we applied the co-integration test. In this context, the Johansen co-integration test result is given in Table-3. Here the essence-hypothesis (H0) is, “There is no co-integration”.

Table-3: Johansen co-integration test results

Unrestricted Cointegration Rank Test (Trace)

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Statistic</th>
<th>Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>0.302220</td>
<td>15.17072</td>
<td>15.49471</td>
<td>0.0559</td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.001355</td>
<td>0.056966</td>
<td>3.841466</td>
<td>0.8113</td>
</tr>
</tbody>
</table>

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

<table>
<thead>
<tr>
<th>Hypothesized</th>
<th>No. of CE(s)</th>
<th>Eigenvalue</th>
<th>Statistic</th>
<th>Critical Value</th>
<th>Prob.**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None *</td>
<td>0.302220</td>
<td>15.11376</td>
<td>14.26460</td>
<td>0.0366</td>
</tr>
<tr>
<td></td>
<td>At most 1</td>
<td>0.001355</td>
<td>0.056966</td>
<td>3.841466</td>
<td>0.8113</td>
</tr>
</tbody>
</table>

Trace test indicates no co-integration at the 5% level
Max-eigenvalue test indicates 1 co-integrating eqn(s) at the 5% level
* denotes rejection of the hypothesis at the 5% level
**MacKinnon-Haug-Michelis (1999) p-values

According to Trace and Maximum Eigenvalue statistics given in Table-3, there is one co-integration vector in the long. Let us create and estimate the equation of co-integration vector that we found in the table above. The said equation is given in Table-4.
Tablo-4: Co-integration equation

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGDP</td>
<td>-1.9104</td>
<td>0.35716</td>
<td>-5.348853</td>
</tr>
<tr>
<td>C</td>
<td>0.355209</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ LGDP = 0.355 - 1.9104LCPI \]

\[ \text{Error Correction } (\partial z_{t-1}) \]

According to the co-integration equation given in Table-4, at the significance level of 1%, the inflation coefficient is statistically significant and inflation has a negative impact on economic growth in the long term. In this case, an increase of inflation by 1%, leads to a decrease of GDP by 1.91%. According to this, we can state that inflation affects economic growth in a negative way. On the other hand, the coefficient of error correction variable \( \partial z_{t-1} \) (indicating that imbalance between variables in the short-term disappear in the long term) is statistically significant at the 1% level.

4.3. Granger causality test results

After co-integration analysis, we applied the Granger causality test to check the causality relationship between inflation and growth. The Granger causality test results are given in Table-5.

Table-5: Granger causality test results

<table>
<thead>
<tr>
<th>Null Hypothesis:</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Prob.</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCPI does not Granger Cause LGDP</td>
<td>43</td>
<td>4.63444</td>
<td>0.0374</td>
<td>Rejected</td>
</tr>
<tr>
<td>LGDP does not Granger Cause LCPI</td>
<td></td>
<td>0.03065</td>
<td>0.8619</td>
<td>Accepted</td>
</tr>
</tbody>
</table>

* There is causality at 5% significance level

According to Table-5, there is unidirectional causality relationship from inflation to GDP at the 5% level of significance.

5. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study has been to investigate the relationship between inflation and economic growth in Niger from 1971 to 2014. The methodology employed in this study is the Johansen co-integration and Granger causality test after the ADF unit-root test. To examine this relationship, the consumer price index (CPI) was used as a proxy for inflation and the GDP as a perfect proxy for economic growth. In Niger, generally there is walking inflation (i.e. moderate rising inflation 3-10%). The highest inflation that Niger recorded was about 36% due to the devaluation of CFA Franc in 1994. We did not find any case study of Niger about the relationship between inflation and growth. However, several studies were performed to discover whether or not inflation harmed economic growth. Most of empirical studies argued that high inflation is harmful for an economy. On the other hand there is some work concluding that inflation accelerates growth. Others studies could not arrive at any definite conclusion relative to the effects of inflation on the economy.

Firstly, a stationarity test was carried out using the Augmented Dickey-Fuller test (ADF). The null hypothesis being that there is presence of a unit root was accepted at levels but rejected at first difference implying that the variables were found stationary at 1% and 5% levels of significance. We used the Johansen-Juselius co-integration technique in assessing the co-integrating properties of variables, especially in a multivariate context. The co-integration test result showed that one co-integration vector could be used for the 1971-2014 periods. According to the results obtained, a 1% increase in inflation in the long term, leads to a decrease of 1.91% in GDP growth. Therefore, there is a negative relationship between inflation and economic growth in Niger’s long-term trends. In order to check the relationship between the two variables, the causality test was performed by employing the VAR-Granger causality test. According to the result of this causality test, a unidirectional causality from inflation to economic growth exists. This study suggested that Niger must design and implement its own monetary policy independently from BCEAO, and if necessary set up its own central bank.
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