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Faculty of Entrepreneurship

## ADVANCES IN BUSINESS-RELATED SCIENTIFIC RESEARCH JOURNAL (ABSRJ)

Volume 9, Number 2 (2018)

ISSN 1855-931X

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## ACADEMIC COMMUNICATION IN BUSINESS STUDIES

**Ana Globočnik Žunac**  
*University North,*  
*Department for Business and Management,*  
*Croatia*  
[agzunac@unin.hr](mailto:agzunac@unin.hr)

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### Abstract

The paper starts with the assumption that academic communication is the basis for achieving a high level of expertise in the field of any activity, including in the field of business and management. Only highly qualified employees can contribute to the positive changes and sustainability of the organization. Expertise is achieved in the academic milieu before gaining practical experience. For academic achievement it is important to have knowledge, managing and understanding of academic communication. Paper sets the frameworks by determining what belongs to the field of academic communications that is far more than written and oral skills themselves. It includes academic behavior based on ethical norms, developing the ability of discursive analysis, evaluation, prioritization and developing a logical thinking based argumentation. The aforementioned contributes to the development of the image of an individual-expert, his persuasiveness and professional authority. The paper presents a case study of a process of introducing Academic Communication within Business and Management studies based on the results of a pilot study on knowledge of basic academic communication skills required for later acquisition of business and management expertise.

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### Key Words

Academic communication; academic behavior; argumentation; business communication; managers' functions; managers' competencies.

## INTRODUCTION

An antique inscription in Greece says 'Who rhetoric does not learn will become its victim'. Even in the 4th century BC, Greek rhetoricians spoke of the obligation of the individual to speak publicly, persuade and thus influence the development of society. From this it can be said that the development of speech abilities is one of the primary tasks in the contemporary world that is under constant influence of change that is unstoppable. Andrew Weaver, a Canadian scientist and politician, said there are innumerable ways to make a living in America, but that effective speech is the foundation for each of them. The same could apply to any country or culture in the world. Speech skills are used multiple times throughout life and ensure better business performance. Academic communication that covers significantly more than the correct, but inadequate definition, that it is every communication that takes place between the communicators in the academic milieu, takes a particular place. Only through academic rhetoric new social values are created and transported into different segments of life and through time and only a clear rhetoric based on academic principles contributes to the understanding and acceptance of a particular social community. To define the notion of academic communication it is necessary to establish the specifics and principles on which it is based.

This paper stems from the fact that the highest level of rhetoric needed for the development of society is acquired by academic education and that insisting on the development of top quality speech is the task of the higher education system. In this regard, this paper aims first of all to identify the specific features of academic communication and how the development of competences for academic communication influences the development of competent experts in the field of business and management.

The term academic communication is often identified with the notion of academic literacy. The notion of literacy within the higher education system and science is generally referred to as academic literacy. By definition, it is an interdisciplinary concept involving the study of applied linguistics, sociolinguistics, anthropology, socio-cultural theory of learning, and discourse studies. Silobrčić (2008) criticizes academic work in Croatia from the aspect of meaningful, linguistic and aspect of formal structure and cites the need for literacy. Lillis and Scott (2007) determine academic literacy as an area of academic communication with emphasis on literary expression. They also talk about it as a hub of theory and application whereby application is viewed as a dynamic phenomenon that is embedded and inseparable from research. In other words, no research is carried out by itself, but the possibility of applying the obtained results is expected. Academic literacy creates preconditions for students' writing according to the demands of higher education institutions aimed at developing the area of language, rhetoric and cognitive structure (ibid.). For the last decades in the world, and in recent years in Croatia, there has been an increasing need for emphasizing and implementing educational programs of academic literacy and introducing teaching subjects from the field into study programs. The reason is that students in their achievements show significant limitations in

the use of formal discourse, but (perhaps under the influence of the Bologna system of higher education) do not understand the very concept of study which basically contains research activities. On the other hand, written work by students is primary in terms of language advancement within the higher education system. In many developed countries in the world, one academic year is foreseen, the so-called preparatory year before the beginning of tertiary education, and after the high school, during which future students develop the preconditions for successful academic communication. In the UK, the need for introducing special academic literacy programs has been observed in the 1990s when the number of students has increased. The same tendency has been observed in many other developed countries. Because of this, the heterogeneity of students has increased with regard to the already developed communication skills and at the same time the possibility of individual intervention is lost (Ganobcsik-Williams, 2006).

Studies conducted at that time showed that 90% of respondents considered introducing academic literacy programs to be necessary and clarified their views for two main reasons:

1. In this way, the maintenance of educational and scientific standards that have started to be distorted are promoted and ensured.
2. Academic literacy is the only way to maximize the intellectual potential of an individual (ibid.).

There is another significant educational goal that cannot be met without developing the knowledge and skills of academic communication. It is the training of an individual for the role of a quality audience (listeners). Modern society where specific technologies are developed as public communication channels, special emphasis has also been placed on rhetoric education of the audience. Does the audience accept the message in the way it is conceived? Does an individual have knowledge and skills to think critically about the received message? Academic communication develops the capabilities of critical thinking, analyzing the received messages and signals and drawing them on the basis of minimizing the potential risk of making a wrong conclusion or decision because, speech is a means of making decisions (Kišiček and Stanković, 2014).

## **DETERMINATION OF ACADEMIC COMMUNICATION**

Academic communication is every one that is realized within the academic community at all levels, in all forms and through any media. It is accomplished through literary works, but also oral discussion and reflection on scientific problems and well-known theories. One of the key features of academic communication is that it is based on a very formal structure or a predetermined strategy. Formal structure is clearly required in written works but in oral communication it is not so always visible or predicted. Academic communication strategy, as any other, has to be based on a clear and concrete problem that it addresses, the specific goal that the communication intends to achieve, and the starting points or the hypotheses represented by the academic communicator. In addition, it is necessary to determine which

tasks are to be undertaken on this journey, which methods, and it is important to keep in mind who will be interlocutors in academic communication, readers in the written one.

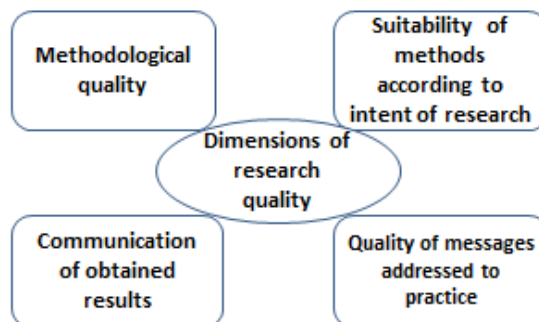
Baynham (2002) studies academic literacy but his theory can be applied to academic communication in general, both in written and oral discussions. He observes academic writing through three perspectives and says that academic writing can be accessed through:

1. Skill - because he considers that there is a generic set of skills and strategies that can be learned and then used in a particular discourse of some discipline. This set refers to a set of rules such as referral patterns, work structure, formatting etc. but he finds an objection to this approach to teaching academic writing the specifics of a particular discipline are ignored.
2. Content - because it sets the theory of academic writing into homogeneous content that needs to be discovered, analyzed and learned. This approach involves the linguistic analysis of the text and the genre to understand the nature of a discipline in relation to the written task that needs to be fulfilled. There are different types of reports (laboratory, case studies) and essays. Each discipline or area of science uses the specific linguistic characteristics that the student adopts through academic writing. The objection to implication of this approach is exactly the opposite of teaching skills because they adopt very specific knowledge for writing within a very narrow field of a discipline and the student does not gain the breadth in academic literacy.
3. Practical application - where the same author discusses the need for the applicability of the learned, sometimes conflicting and demanding theories of a certain discipline that needs to be put into the social context, in the context of applying that specific discipline. This approach of teaching implies that an individual has previously adopted the skills and knowledge required for the analysis and use of the content or characteristic linguistic discourse of a discipline and all this is used in a practical sense, whether it is literary criticism or reporting of laboratory experiments. While the first two approaches exclude others, the third approach speaks of the need to include all three into the integrative one, the only that provides credible and quality academic writing. Bazerman (2000) says that when developing practical gains from written academic work, social development or delay in development is encouraged. Practical goals must necessarily provide an evaluation framework that will be built during the course of study with a view to proper professional reflection. Innovation, complexity, intricacy, comprehensiveness, yet ultimately ease and reachability of social influence make academic writing an interesting subject of study, and at the same time a significant integral part of human society.

One of the perhaps most significant features of academic communication is its founding in the research. The very notion of 'studying' comes from the Latin word *studere* which means trying to test, scrutinize or rethink, devoting

to learning and studying. This means that by studying some topic, it is contemplated by studying all available sources and how other, eminent authors in the profession think of this. Here are two key research concepts. Primary research is related to the terms primary data and primary literature or source, and secondary research with secondary data and secondary literature or sources. These are the differences in access to data collection. Primary data collection means that the author explores a research method (changing conditions, studying changes, examining attitudes, legality, specifics of a case, and so on) and gets "raw" never publishing results, or direct information about the researched object. The author analyzes them and shapes them into work that ultimately represents news and contributes to the scientific activity of the discipline within which the subject is being dealt with. So, ultimately, he presents original results as well as his own attitudes and opinions that can prove the results of the research. Unlike the primary approach to the gathering of information, the researches and opinions of others that are already being investigated and used, the other author authorizes them and puts them in context with his own theory as arguments and proves. Secondary data was generated on the basis of the other primary, meaning that once they were the primary ones at the time of the origin of the original work. Ivanić (according to Lillis, 2009) displays secondary data called 'talk about text (content)'. With its primary results, the author does not have the need to indicate the source while at secondary results it is expected, and it is necessary to refer correctly to the primary source. Secondary research is being carried out to study theories in order to discuss them in the discussion and ultimately to reach a common generally accepted conclusion on the observed problem. By studying research as a fundamental form of academic work, Boaz and Ashby (2003) have defined four dimensions of the quality of research (Figure 1) that are monitored by the quality of the signals (messages addressed to practice), noise (methodological quality), suitability (methods of intent of research) transmission (communication of the obtained results).

**Figure 1:** Dimension of Research Quality



*Source:* Translation and adaptation by author according to Boaz and Ashby (2003).

## PRINCIPLES OF ACADEMIC COMMUNICATION

From the previously identified features of academic communication it can be concluded that there are fundamental principles that are preconditions for achieving success in such communication. In introducing academic expression, these principles need to be understood and developed to the ability of automatic, independent and skillful academic expression in discussions, debates, presentations or written works. Any academic work, whether written or oral should be based on:

1. Academic style;
2. Academic Objectivity;
3. Academic Evidence;
4. Professional and/or scientific social contribution;
5. Academic Ethics.

None of the above principles is more or less important, and failure to comply with any of these leads to the failure of academic work. Only used simultaneously and integrated into a unique communication these principles make successful academic communications that meet their general social goals.

### 1. ACADEMIC STYLE

A good academic style is above all the one that fulfills its purpose which is a successful transfer of information. It is said that the beauty of the styling is in its functionality and convenience for the purpose it is intended for. What is valid for the academic style in written forms is mainly as well valid in oral academic communication. Writers of academic works are limited to the freedom to develop writing style if compared to writers of literary works but this does not mean that over time and the development of their own skills will not achieve any recognizable way of academic writing. Academic stylization does not aim to build an individual, recognizable style, and does not use the beautifying effects. In academic communication, creativity will not fully come through the style but through the ways and methods the author uses to explore the topic. Silobrčić (2008) cites the features of good scientific stylists and includes:

- appropriateness to the subject, the interlocutor and the occasion in which the communication takes place;
- shortness in explanation using just as many words as necessary to deliver clear information;
- equality in reference;
- balance in the scale of the individual parts of the content;
- monitoring the content sequence;
- motivating display of the content and
- presence of ethical qualities that he understands as sincerity, openness, honesty and humility.

Silobrčić (ibid.) quotes instructions for authors of academic works emphasizing the need to think about the interests of the interlocutor, to show clarity when thinking about the subject, to adhere to the logical sequence, to

back up the claims that need to be clear, simple, concise, precise and accurate presentation of ideas and facts. From this it can be concluded that linguistic correctness and precision is a starting point without which academic communication is unsustainable. Although lower levels of education deal with linguistic competences, and in tertiary education are meant to be established, Kapp (1998) raises the question for a million dollars: 'Why do students struggle with language?' The answer to this question is not possible, though can be explained in the context of bilingualism and multilingualism, in the academic environment in which the language of students is their mother tongue. By entering academic communication processes, participants accept academic discourse, but also the one specific for the field of study or expertise and thus acquire communication skills for professional and structured professional communication. No one can make clear and understandable thoughts if they are not entirely clear and understandable to the one. There is another reason to invest in the development of academic discourse. According to Kapp (1998), teachers-scientists who pass on knowledge to students are often immersed in specific discourse of the study area and become unconscious of cognitive and linguistic demands addressed to students. Or according to Snow (2010), the academic language is designed to be concise, accurate and authoritarian, and to achieve these goals uses sophisticated words and complex grammatical constructs that interrupt reading comprehension and disable learning. In other words, teacher-scientists will use phrases and language forms that will be unknown to the students, unobtrusive, and removed from the path of achieving academic success. Any information that is not understandable fails its purpose.

Academic language has a specific developmental structure that is significantly different from everyday conversation or professional expression within media revelations (Bazerman, 2000). Often unknown words mark things and phenomena that in everyday situations are called with different names, and are supported by proofs, numbers, descriptions of observations, pictures and the like. One of the features of the academic language is precision and uniqueness so that nothing is spoken to leave the imagination to construct incorrect conclusions. Academic interactions in the form of discussion and performing written research tasks gradually develop functional competencies for the use of an expert language called the proximal development zone (Vygotsky according to Bazerman, 2000). At each stage of this development, an individual adopts certain language structures and develops independent use in professional communication. Scientific formulation of knowledge leads to successful understanding and persuasion of this communication. Bazerman points out the need to develop curiosity in achieving academic communication that includes the desire to imitation, to be engaged or to surpass the expert idol. Actually, it's about developing an expert jargon. A jargon that, by definition, carries specific characteristics of a group or location, and is not a standard literary language in this sense implies a specific language that describes the procedures, phenomena and constituents within a specific activity. Such language is largely accessible and therefore understandable to the experts and



employees of the relevant profession. Professional jargon can also be termed 'special terminology' (according to Silobrčić, 2008). Although academic papers are mainly written for individuals in the profession, it is recommended that any specialized terminology, term or phenomenon is described in a way that even non-experts can understand what it is about.

Academic communication must have a clear start, meaningful sequence and logical conclusion. Silobrčić (2008) links clarity, simplicity and shortness with the logical sequence of thoughts and views. If the author, and what is normal to expect, wanders during the research, it must not be visible in his final view. The topic of work must clearly define the area in which the written work is to be spoken and the contents must not be out of these frameworks. The terms that introduce discourse must have a precisely defined meaning, and in logical sequence they lean and intertwine by building a new structure. If not wanting to make a mistake, the author should put in the skin of the reader who will appreciate the clear structure from which the short and clear sentences result. Content logic stems from the entire work corpus while compatibility of sequences in rough lines can be traced through the content structure, through headings and subtitles. If making a deeper step into the work, the content logic must also be vivid within each title or subtitle, and the sequence alignment is also viewed within the content of each section by introducing the terms. Chaotic thoughts will not ultimately represent a clear and understandable work. No matter how complex a topic is, this complexity cannot be justified by the ambiguity of content within the topic discussion. Silobrčić (2008, p.30) says: 'The goal must be: with as few words to say everything precisely as not to burden the reader and make the understanding difficult.' Academic communication requires learning how to construct clear thought, and with academic work it is realized. The general guidance for achieving success in the part of logic and clarity of work is to follow three simple principles:

1. Starting from a general concept towards a specific one
2. Defining the known facts before the unknown, where new terms are gradually introduced and determined
3. Explaining from simple structures to complex ones because only such sequence guarantees the understanding of the new complex in its entirety.

Talking about the academic style humor should be mentioned as well. Although it may be assumed that there is no place for humor in academic discourse, the use of humor elements has positive impacts. Thinking of function of humor, and humor is always functional, it could be said that its function is in connection with the subject of discussion. Bateson, according to Berger (2013), believes that humor involves thinking and various forms of communication processing that can be related to the full attention of the interlocutor (reader or listener of academic communication). Many authors who have studied the influence of humor in teaching agree that it has an influence on attention but, more importantly it contributes to the memory of speech and the better acquisition of knowledge. An academic speaker should at any time be aware of this function of humor and it should be the only real reason for using it within academic discourse therefore one needs

to make sure that he does not become a stand-up comedian in his public academic performance. The use of humor must be carefully selected and closely related to the topic, otherwise the humor tends to attract the attention of the academic audience and turn the discussion in the unplanned direction.

## 2. ACADEMIC OBJECTIVITY

According to cognitive theory, subjectivism is based on the sensory and thoughtful abilities of a person. This means that subjective approaches often involve the emotions of a person towards someone or something (some topic). Subjective presentation of the facts means that due to possible individual differences in what something is truth for the person who sets it up, the same truth will not be true for other possible recipients of a message. Contrary to this objective approach means that knowledge is created independently of the subject or the very course of knowledge is deprived of emotion and can be defined as mere reference to facts and perceived relationships. Consequently, the requirement to achieve objectivity implies constant judgment and criticism while constantly verifying the purpose of the academic work. Academic subjectivism finds a place in the essay as an academic literary form in which the author includes personal views and own perception of a topic. When it comes to other professional and scientific forms, the objectivity of the author is expected.

Investigations in the field of neutrality in academic communication lead to debates whereby some scientists argue that there is room for the personal presence of the author in academic communication (Tang, Suganthi, 1999). Hacker (2003) considers that the use of passive in scientific and professional papers places the emphasis on research, its course and its outcomes, and removes attention from researchers who remain neutral. Lillis (2009) thinks that there are three ways in which the researcher-author of written academic work expresses his own standpoint:

- by the way in which the problem is investigated and the direction in which the research will start and end;
- by careful selection of lexical discourse chooses the way in which author's perspective of observation of the theme will be presented and
- by creation of opportunities to open questions that will require re-evaluating the value of a certain fact.

This is also supported by Bazerman (2000) who says that decision-making is based on the assessment of options. It is about considering the benefits of some content that will be considered in the author's placement in an evaluation position and the same would otherwise be banned from the standpoint of academic and scientific objectivism.

## 3. ACADEMIC EVIDENCE

Given the diversity of perceptions and a large number of possible perceptual errors that occur in viewing the world and world relations, but also

under the influence of different sociological reasons, above all cultural, the perspective of observing an academic theme can be significantly different from individual to individual. For this reason, the basic method of academic communication that meets the requirements arising from both the principle of academic objectivity and the principle of academic evidence is method of academic argumentation. This method inevitably relies on the aforementioned process of studying or thinking about the subject by studying all available sources, the ways that other, eminent authors in the profession think of this topic. The basic idea of this method is to formulate other ones' theses and link them to neutral conclusions that leave room for discussion. The ability to argue properly Mitchell and Andrews (2000) consider as extremely important for an individual, especially in social and human sciences. This ability is taught and developed during studies in the higher education system. It is a productive approach to disagreement based on critical thinking about the facts available. Argumentation is the basic communication skill for successful professional development gained by participating in discussions and developed controversy during the course of the study. It is a process based on psychological processes of thinking and reflection. Barth and Krabbe (according to Andriessen, 2013) describe the argument as a dialogue between a proponent (of some attitude) and an opponent on the same subject. Walton (2000) defines the argument as a shift in dialogue in which two sides are trying to judge a topic together, and Škarić (2011) says it is a process where a claim becomes a highly probable truth to the audience. If the argumentation is approached from the position of the academic method, it can be said that this is the way to discover the truth verbally in communicating with others (during debates and discussions) or when it is about written academic communication, independently (in collaboration with experts, studying their theories through research of their written works) by confronting different theories and evaluating them. Rhetorical argumentation signifies the process of supporting someone's attitudes (claims) by facts, data and examples. Argumentation necessarily requires logical connections, and lack of argumentation leaves doubts about the truth or ultimately doubts about the utility of the claim. Baker (2004) identified four mechanisms related to learning the argumentation:

1. Creating explicit knowledge – by arguing one explains and prepares for defending attitudes leading to deeper learning;
2. Conceptual change - transformations in the concept that arise from argumentation;
3. Collaboration in creating a new knowledge (self-learning is developed through dialogue with theoreticians);
4. Increasing the articulation - argumentation requires proper formulation of questions and answers.

Collaboration in creating new knowledge through argumentation is possible through various types of dialogue: persuasion, questioning, negotiating, searching for information, reflection and controversy. Kuhn and Udell (2007) emphasize the necessity to perceive the importance of this dual position, which presupposes a deep understanding and proponent of theory and opposing theory, as well as the general purpose of argumentation. Their

research suggests that younger individuals have trouble with coordinating attention on both positions in the argument. Individuals expressing their attitudes are mostly intensely motivated to prove their accuracy and foundation, but often (perhaps because of selective perception) are unaware of the fact that their attitudes "do not hold water". Kuhn (2010) sees the argumentation as a social activity in which volunteer engagement in understanding the other's attitude is being developed. She distinguishes two strategies in the process of integrating evidence during argumentation. These two strategies are: support strategy in which the aim of the evidence is to support its own claims and challenging strategies aimed at challenging the controversial claim in question. Developing criteria for judging arguments is the aim of the theory of argumentation, and on the basis of studying the various arguments theorists Andriessen (2013) says the following:

1. The process of argumentation includes elaboration, detailed exposition, conclusion, and possible implications, and these activities help in more conceptual learning.
2. Students learn the argumentation structure.
3. Productive argumentation is a form of co-operation that can lead to the development of social awareness and the general ability to cooperate.
4. The members of some social group usually use the same traditional patterns of argumentation, thus further developing competent argumentation.

A concise description of the basic characteristics of the argumentation method that differs from the constant communication methods speaks of four features:

1. Duality - two positions that are contradictory;
2. Collaboration - by exchanging relevant evidence supporting each of the theories, discussions are being developed;
3. Productive coping - involves respecting the perspective of the other side and willingness to move their own starting point;
4. The conclusion of the argumentation is based on the assessment of the evidence presented.

The importance of emphasizing the problem of academic communication, especially in this case of the academic argumentation, shows the state of academic practice. It has been proven in a study conducted by Kuhn who tried to determine the ability of individuals to argue properly (Andriessen, 2013, Adler and Rips, 2008). In the research, respondents were expected to state their own attitude towards three issues: 'Why do prisoners return to crime after being released from prison?'; 'What Causes School Failure?' and 'What Causes Unemployment?'. Respondents were to determine their own theories (their own attitudes and opinions) about the problems mentioned, find evidence to support their theories, produce possible counter-measures, and find the theory of objection to these counter-measures. The results show a lack of competence to justify their own theories, and only 16% of the total number of respondents found support to their own theories.

#### 4. PROFESSIONAL AND/OR SOCIAL CONTRIBUTION

The reasons for academic literacy and the impact on the intellectual development of the individual are already sufficiently precisely explained. These are sufficient for the purpose of academic communication within education of the future professionals. It has already been mentioned that Boaz and Ashby (2003) define the four dimensions of academic research, where one dimension they see in the necessity of taking into account the contribution to the social environment. Peck McDonald (1994) argues that the purpose of academic communication is to create knowledge and to process the academic communication as a knowledge plant where the individual interest of a person is realized, but through the education of an individual, the social interest of the professional community is also a necessity.

## 5. ACADEMIC ETHICS

Academic discourse implies ethics. Nevertheless, suspicion, accusation and proof of various forms of academic theft often fill the pages of media not only in Croatia but also in the world. Although imitation is sometimes accepted as a desirable skill (in specific drama forms), viewed through the prism of academic imitation it is a crime. Plagiarism comes from the Latin word *plagarius* meaning robbery or literary theft. Freedman (according to Park, 2003) defines this stealing very strictly and says it is "an attack on ... nothing less than the basic human right to property and identity." Today's ability to reach more and faster access to information over the Internet, as well as the availability of finished academic works, opens the door for easier plagiarism. Carroll (2013) argues that students and teachers do not perceive plagiarism alike and that general criteria should be established, to determine very precisely what is and what is not plagiarized and within what limits. Numerous researches presented by Park (2003) show that students consider plagiarism by even minor offense. Plagiarism in academic work is primarily defined as stealing by copying someone else's words or ideas and displaying them as their own without the reference of a source. Park considers that the problem of plagiarism should be viewed in a considerably broader framework of general student cheating. Academic insincerity he observed throughout the list of plagiarisms, including the cheating on the exams, in drawing up tasks, forging information, improper use of resources, taking others' credit, and even manipulating teachers and other academic staff. The importance of this problem Park sees through the results of Sims's research (1993, according to Park, 2003). Sims proved that the students who had cheated during the study showed the tendency of cheating in later professional life. Another survey (Meade, 1992, according to Park, 2003) on a sample of 6000 students of the highest ranked universities in the US showed that 87% of business students, 74% of engineering students, 67% of students of natural sciences and 63% of the students of humanity studies during their study cheated.

Relying on numerous researches of other authors, Park (ibid.) explains reasons for plagiarism as following:

- lack of understanding;

- students consider that they need to be evaluated on the basis of effort and not achieved results;
- poor and unsuccessful time management
- because of one's personal values and lifestyles;
- because of the defiance or the way in which some students report disrespect of authority;
- due to the negative attitude of the student towards the subject or teacher;
- they are not even aware of their act of cheating and reject it as that is what is happening
- because they feel it as a challenge and they are given an opportunity and
- lack of authority.

It is important to note that other factors such as age and maturity of a student, academic ability, social circumstances, personal characteristics and attitudes also play a role in these reasons. Carroll (2013) says that students opt cheating and plagiarized less often if:

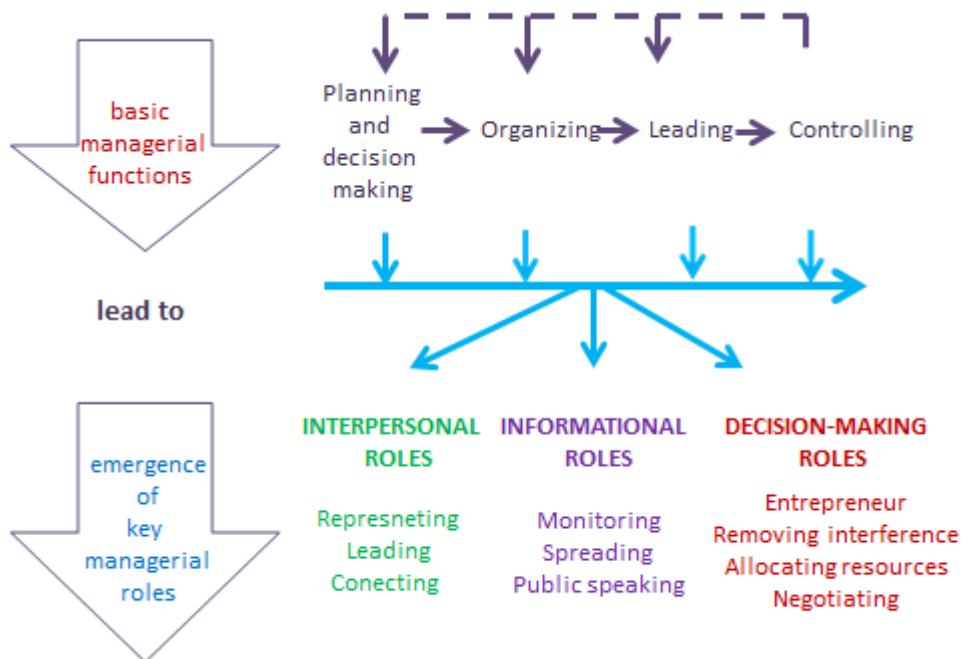
- the subject matter is understandable,
- the task is clear and they know exactly what is expected of them and
- they have knowledge of academic literacy.

The problem of plagiarism is growing and in focus and generations that is about are referred to by Stahl (2002, according to Park, 2003) are termed "generations without fear". Straw (2002, according to Park, 2003) calls them 'why not? generation'. Precisely because of that it has been expanded in the academic circles, plagiarism is carefully scrutinized and severely sanctioned. On the other hand, it has to be highlighted that by developing intellectual (cognitive) and emotional (social) skills, individuals learn and accept behaviors that are in line with moral social norms.

## **EDUCATION FOR BUSINESS AND MANAGEMENT**

The next step, after the term of academic communication is determined in details, is to define competences needed for performance of successful management processes in business. Mintzberg (1990) divided managerial roles into three basic groups: interpersonal roles, informational and decision-making roles of a manager. According to Sikavica and Bahtijarević Šiber theorists argued about Mintzberg theory and proposed a connection where basic functions of management lead to basic managerial roles (figure 2). Interpersonal roles that Mintzberg defines as the key ones are the role of representing, leading and connecting while the informational ones are monitoring, spreading and public speaking. Within the group of decision-making roles Mintzberg finds first of all the role of being an entrepreneur, removing interference, allocating resources and negotiating.

**Figure 2:** Relation of managerial functions and managers roles



Source: Author according to Sikavica, Bahtijarević-Šiber (2004).

Investigating key competences of any employee, UNESCO (2016) defined the ones that are basic for business management. According to them key managerial competences are leading and managing changes, strategic thinking, quality decision-making, developing partner relations, leading by empowerment and managing processes. Talking about competences that by definition of Business Dictionary are the clusters of related abilities, commitments, knowledge and skills that enable a person or an organization to act, personal characteristics, traits or personality should be mentioned as well. Goldberg (1990.) created five factor model of personality that is connected with career success. There are two dimensions of career success observed: job satisfaction as intrinsic success and income and occupational status as extrinsic success. Within these 5 personality factors he grouped five basic traits: Extroversion, Emotional stability, Agreeableness, Conscientiousness and Openness to experience. These basic traits consist of adjectives that describe personality. Extroversion is defined by adjectives: social, communicative, active and self-confident while emotional stability is determined by: being stable, calm, self-conscious and relaxed. These two along with the third group Conscientiousness is according to Judge at al. (1999) the most important for career success. Conscientiousness consists of: neat, responsible, organised and ambitious. According to the same authors Agreeableness (adjectives: warm, careful, confidential and cooperative) and Openness to experience (creative, original, intelligent and curious) are as well important as they are linked to developing team work

skills and intellectual development. Goldberg (1990) finds these personality traits representable across all cultures and they remain stable over time. Although some theorists suggested that traits have genetic basis, by practice and education these can be highlighted or developed to higher level.

Business communication is one of the important segment of manager education that is consisted within interpersonal and informational role of the manager. Hagge (1989) defined 7C principles of business communication. According to him business communication needs to be clear, concise, concrete, correct, coherent, complete and courteous. More recently Lamza-Maronić and Glavaš (2008) compressed business communication principles into five: principle of clarity, principle of briefness, principle of content confinement, principle of accuracy and principle of figuration.

## **DISCUSSION**

Long time ago did psychologists Vygotsky and Piaget presented and proved theories in which taking part actively in process of learning is more successful access to learning if compared to passive gathering of knowledge. Academic communication based on previously determined principles leads to creating a persistent conceptual knowledge of a studied area on the one hand and highly developed speech skills on the other. From the presented theories it is noticeable that all aspects of academic style and more than anything developing logical mental processes at evaluating information one develops skills important for decision making processes and by developing specific language structures or expert vernacular skills for informational role of a manager are built. These leads to development of strategic thinking and in business communications satisfies the principles of clarity, principle of briefness, principle of content confinement and principle of figuration. Taking into account necessity of influence at personal traits of a future manager that is in process of education, academic style supports strengthening of mental intelligence, neatness and originality.

As well as any other academic principle, academic objectivity influences at developing more roles and competencies of a manager but most important one is the role of decision making. Traits that are improved by this principle are closely related to management of processes due to the need of having ability very precisely follow the evaluating mental process and logical flow that allows objectivity. The second competency is development of partner relations as persons involved in academic communication need to work together to process the evidences objectively and to find mutual conclusion. Increasing the objectivity leads to greater accuracy in communication and influences development of creativity and emotional stability.

Academic objectivity is inseparable with academic evidence. It might be concluded that both principles influence the same. Decision making process that is based on verifiable evidence is of high quality and minimizes the risk. Manager who is able to communicate on evidences improves relaxation and self-confidence and result with greater presentation and authority. Objectivity



demands accuracy and consistency and insisting on academic objectivity will raise these characteristics of a future manager.

The field of ethics is from the presented findings an area of special focus. Its importance influences every of defined managerial role. Ethical communication improves any interpersonal relationship and brings to higher quality of informational role. Ethics is an inseparable part of decision making process and develops confidentiality and responsibility, consistency, accuracy and kindness.

The last academic principle of professional and social contribution unites the whole academic communication process. As Aristotel defined 'good' as what is useful, the quality of any academic communication depends of the relevance of communicational results. Though the interconnection of this principle could be find at more managerial roles and competencies, one that stands out is a change management. Personality traits that are underlined and improved by trying to communicate based on the contribution of this communication process are curiosity, sociality and ambition as well as consistency and completeness.

## **CONCLUSION**

Basic arguments about the purpose of academic communication differ from those that bring benefits to the individual and those that speak of the well-being of a community in which an individual that is competent for academic communication works. Looking at the contribution from an individual perspective, the purpose of academic communication can include the following:

1. Active participation in learning by technique of research the known facts leads to a longer-lasting knowledge which, when needed, is used easier or better in a new situation or puts in a new structure.
2. Academic work is based on the strategy and respect of the given structure, thus contributing to the development of the ability to find new logical links in the creation of new formal forms.
3. By analyzing content that is an inseparable segment of academic communication, the ability to recognize the essential and prioritize is developed.
4. Academic communication must necessarily contribute to the development of academic congeniality and the creation of habits and behaviors that will continue through ethical conduct of professional activity.
5. By learning the academic methods of communication, cooperation in achieving the goals of both sides is taught and creativity is developed.
6. Academic communication methods and techniques are based on research and thus develop individual's curiosity but also a sense of satisfaction in discovering new facts and research success itself. This contributes to the general motivation of an individual to engage.

The listed points of contribution are correlated with desirable traits and competencies for business and management and it can be concluded that academic communication is an inevitable area of business education.

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## DYNAMICS OF UNDERGROUND ECONOMY IN SIERRA LEONE AND MACROECONOMIC POLICY IMPLICATIONS

**Michael Nyong**

*University of Calabar,  
Department of Economics,  
Nigeria*  
[nyongmike@gmail.com](mailto:nyongmike@gmail.com)

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### Abstract

An important challenge to development policy making in Sierra Leone is the conspicuous absence of credible statistic and systematic evidence on the underground economy. Despite of the fact that activities of the underground economy are wide ranging knowledge of the size, trends, causes, and dynamics of the underground activity are scanty and remain inadequate. In this study an attempt is made to estimate the size of the underground economy of Sierra Leone for the period 1960-2015, and investigate the implications for macroeconomic policy. The results revealed that the relative size of the underground rose from 58.8% in 1960 to 62.05% in 1968, fell slightly to 58.2 in 1980, rose sharply to 75% in 2000 and fell moderately to 73.9% in 2015. The mean size of the underground economy was estimated at 64.97%. The relative size was fairly stable at 60% between 1960-1989, rose rapidly to 71.9% on average during the civil war years 1990 -2001 and fell marginally to 69.2% during the period 2002-2015. The mean tax evasion was estimated at 4.34% of GDP. The estimated value for extent of tax evasion is large and should not be ignored given that the actual mean tax revenue during the period was about 11.36% of GDP. The results revealed cointegration between formal GDP and underground economy GDP. Causality test between the formal economy and the underground economy indicates bi-directionality with causality running from both ways (from RGDP and URGDP). The policy implications of the study were also articulated. Overall, the estimates for the underground economy in Sierra Leone are considerably larger than those obtained for other African countries (Zimbabwe 30.35% 1980-2009, Tanzania 36.93% 1968-1990, South Africa 9.5% 1966-2002, Ghana 40% 1983-2003). This is not surprising given the

collapse of infrastructure and other formal support services arising from more than a decade long civil war.

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## Key Words

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Underground economy; macroeconomic policy; Sierra Leone.

## INTRODUCTION

The term underground economy is synonymous with informal, black, shadow, or second economy. Although there is as yet no precise definition of the term, a common definition used is "unmeasured and untaxed economic activity" that takes place in a country. It refers to economic activities, visible or invisible, irregular, parallel, and hidden that operate outside the purview of government regulation. Smith (1994) defines underground economy as "... all economic activities according to national income conventions but are presently not captured by official national accounts statistics and may be broadly conceived as consisting of three categories: informal sector, parallel and black market activities".

Given that economic policies are motivated by realistic estimates from "the national account", the under reporting of economic activities in the underground economy may lead to misleading policy strategy (Bagachwa, Naho, 1995). Unreported economic activities in the underground economy means that macroeconomic variables namely consumption, investment, imports, exports, fiscal pressure, and debt burden estimates will be understated and may lead to fallacious conclusion. As seen in Ahumada et al. (2006) an underestimation of gross domestic product (GDP) will suggest an overvaluation of fiscal pressure, debt burden, public deficit/GDP ratios while per capita GDP would be undervalued. As a result government may not see the need and urgency to fashion or design "appropriate macroeconomic policies for optimal" macroeconomic management (Thomas, 1999). Furthermore, it is meaningless to analyze income distribution in a country without taking into consideration the underground economy incomes.

In spite of the critical importance of the underground economy in Sierra Leone, inadequate work has been done to estimate its size and determine its implication for tax yield and other macroeconomic policy concerns. This has become necessary because of the widening budget deficit, high level of smuggling, and dwindling revenue from diamond, the country dominant mineral export commodity. Annual production estimates of diamond varies "between \$70-\$250 million; however, only a fraction of that passed through formal export channels (1999: \$1.2 million; 2000: \$16 million; 2001: projection \$25 million)" as indicated in UNDP (2016). The balance is smuggled out and is said to have "been used to finance rebel activities in the region, money laundering, arms purchases, and financing of other illicit activities". Although Soltani-Koroma (2016) and Korsu & Amoah (2015)

have attempted to estimate the size of Sierra Leone underground economy, the coverage was limited. For instance, Soltani-Koroma provided estimates of composition and size of the underground economy for two years period 2013-2014 using results “from the 2004 Population and Housing Census and the 2011 Sierra Leone Integrated Household Survey”. Korsu and Amoah (2015) provided estimates of the size of the underground economy in Sierra Leone for the period 2003-2012 and its tax revenue impact. The study was part of a larger study that incorporated all the 15 West African countries in “Economic Community of West African States” (ECOWAS). In both studies there was no explicit attempt to link the underground economy to the formal economy to determine the direction of causality. Moreover, studies on the underground economy in Sierra Leone is still scanty. There is limited knowledge of the size, trends and dynamics of the underground economy in Sierra Leone. The underground economy in Sierra Leone, like in many other developing countries, “still remains an enigma as it has neither been comprehensively studied nor understood” (Ogbuagbor, Malaolu 2013).

The objectives of this paper are to (i) determine the size of the underground economy of Sierra Leone and its trends from 1960 to 2015, as well as its major determinants, (ii) examine the extent of tax revenue lost due to the underground economy, (iii) investigate the cointegration and causal relations between the underground economy and formal economy, On the basis of results obtained in (i), (ii) and (iii) this paper will attempt to derive key macroeconomic policies for sustainable economic growth and development in Sierra Leone.

The rest of the paper is organized in four sections. First section has been the introduction. In second section we present a brief literature review and the theoretical underpinning. Third section articulates the analytical methodology. In fourth section the empirical results and analysis are presented. The last section concludes together with some macroeconomic policy implications.

## **THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

One of the major challenges of studies on the underground economy pertains to measurement without theory (Koopmann 1947; Thomas 1999). According to Koopmann (1947) the challenge of theoretical void has led to “measurement without theory” approach. Thomas (1999) was more specific. According to him empirical studies on the underground economy were carried out without any theoretical anchor. The results have been “that measuring the size of the underground economy has been an end” in itself, rather than a means to investigating the fundamental issues of how it relates to the formal economy.

Fortunately for us four dominant theoretical perspectives on the underground economy do exist. These are the dualist school of thought, the structuralist, legalist, and the voluntarist school. The dualist school of thought insists that the underground economy emerges “as a result of the failure of the formal” economy to “absorb the entire labour force”. The underground

economy consists of marginalist activities and not related to the formal economy. It operates to provide income “to the poor and safety-net in times of crisis” (ILO, 1972; Hart, 1973; Sethuraman, 1976; Tokman, 1978). Thus, the underground economy is a separate economy not related to the formal economy, its role being to provide a “survivalist” safety-net for the poor (ILO 1972). The dualist school of thought may be seen as a reaction to the apparent failure of the Lewis (1954) prediction “that economic development in developing countries would, in the long-run, generate enough modern jobs to absorb surplus labour from the agrarian/traditional economy” (Chen, 2007; Chen, 2012). Consequently, it is recommended that government should promote a relation between them. Fighting unemployment in the formal economy may be one way of addressing the problem. Promoting productivity in the informal economy may be another.

The structuralist school of thought brings a new dimension to the causes of the emergence of the underground economy. The structuralists (Moser, 1978; Taylor, 1979, 1983, 1989; Castells, Portes, 1989; De Soto, 1989, MacAfee 1989; La Portes et al., 1989; Kelley, 1994) maintain that the underground economy consists of subordinated micro-enterprises and workers and that it serves to reduce input and labour costs, thereby increasing competitiveness of large corporations. It subscribes to the dependence between the formal and underground economy because history, institutions and politics make some structures more likely than others. It insists that lack of employment in the formal economy stimulates demand for underground economic activity. It added that the formal and underground economies may be competitive. Harding and Jenkin (1989) insist that not only does the underground economy promote competition it also “reduces pressure on wages, stimulating economic growth while keeping inflation low”. However, the existence of the underground economy may weaken any stimulating influence of the Keynesian demand management policies (Kelley, 1994). Therefore, the underground economy should not be relied on to promote growth and reduce poverty.

Legalist school of thought focuses on over-regulation. It maintains that over-regulation in the official economy is a major determinant of the existence of the underground economy. According to the legalists, operators in the underground economy find it difficult to comply with formal economy taxation and bureaucratic red tapes. They avoid these over-regulations by operating in the underground economy, thereby reducing costs and increasing wealth. It is suggested that government should do nothing but adopt a *laissez-faire* attitude to the underground economy which will die a natural death in the long run as the formal economy grows.

The voluntarist school of thought see underground economy as small and medium scale “entrepreneurs who deliberately seek to avoid” government regulation and taxation. Contrary to legalist school, it does not attribute growth of the underground economy to cumbersome bureaucratic red-tapism. The school maintains that underground economy “enterprises create unfair competition for” official “enterprises because they avoid formal regulations, taxes, and other costs of production” (Chen, 2012). In terms of macroeconomic policy it recommends the integration of the underground

economy with the formal economy under government. This will widen the tax base, increase tax productivity, reduce the unfair competition to formal businesses, and generate enough revenue for growth and development of the entire economy.

Thus, on the strength of these competing schools of thought it is not clear which one best explains the underground economy in Sierra Leone. Whereas the dualist maintains that there is no relationship between them, the structuralists favour subordination and dependence while the legalists insists on over-regulation. It is not at all clear which of these four competing schools of thought best explain the behaviour of the underground economy in Sierra Leone. Furthermore, given heterogeneity of the underground economy, there is merit to each of the perspectives. However, the Sierra Leone experience may be more heterogeneous and complex than any one perspectives would suggest. Besides the critical question is not just about integrating the two economies (i.e. formalizing the underground economy) since the underground economy has come to stay but rather that of decreasing the cost of working in the underground economy and increasing the benefits of working in the official economy (Chen, 2007).

## **UNDERGROUND ECONOMY IN SIERRA LEONE: NATURE AND COMPOSITION**

The underground economy in Sierra Leone is large and heterogeneous. It consists of small scale economic activities both in the urban and rural areas. Some of these include street vendors in Freetown, Kenema, Bo, Makeni, Pujehun, Koidu and Kallahun. Others include garbage collectors, roadside barbers, hair dressers, motor cycles and motor repairers (mechanics), tailoring, shoe repairers (cobblers), illegal artisinal mining (in gold and diamond), prostitution, drug trafficking (cocaine and marihuana). Other specific economic agents operating in the underground economy include, caterers, petty traders and blacksmiths. Other categories of operators include casual workers, restaurants and hotels, security guards, temporary office helpers, and small-scale agriculture ventures. Some others include illegal foreign exchange dealers (black market for foreign exchange), money lenders, smugglers of contraband goods, gold and diamonds across the porous Sierra Leone borders with Guinea and Liberia.

According to Partnership Africa Canada (2006) about "50% of Sierra Leone 's diamond were smuggled annually". Consequently, the government is losing revenue from smuggling in Gold. According to Bank of Sierra Leone (2009) there was a drop in gold production level in 2009 from 6150 Troy Ounces in 2008 to 5060 Troy Ounces in 2009 due partly "to drop in mining activity and partly to increased smuggling as the Government of Sierra Leone raised the duty higher than" its neighbours. According to Federico (2007) Sierra Leone has the potential of being one of the richest (from gold and diamond) countries in the world. Unfortunately "it remains one of the world's poorest countries". The revenue accruing from mining is not being redistributed to benefit the larger population in Sierra Leone.

The illegal foreign exchange market attracts a number of young men popularly called “dollar boys”. The dollar boys are part of a poorly paid army that trades foreign exchange in Sierra Leone where hard currency is scarce and labour is cheap. The underground trade in foreign exchange is one of the pillars of the state economy providing traders and companies with access to foreign exchange that the Bank of Sierra Leone cannot satisfy. One of the reasons the Sierra Leone economy has not collapsed is that the underground economy fills the gap, particularly the dollar boys who provide critical service to everyone from small-time traders to larger scale-importers. Indeed the underground economy has become a “reserve army of the unemployed”.

Table 1 shows the sectoral distribution of economic activity in Sierra Leone underground economy. The figures are adapted from Soltani-Koroma (2016) report of the informal economy in Sierra Leone. The report was based on “2004 Sierra Leone Population and Housing Census and the 2011 Sierra Leone Integrated Household Survey (SLIHS)”. The survey of the informal economy included unregistered establishment, households unincorporated enterprises and unregistered employment without social security. The economy was divided into four major sectors namely agriculture, industry, services and Financial Intermediation Services Indirectly Measured (FISIM). These are in turn sub-divided into 20 sub sectors (Agriculture 4, Industry 5, Services 11). Table 1 revealed that underground agricultural output was about 83 percent of formal economy GDP in 2013. This increased marginally to 83.3 percent in 2014. While the output of the services was 31.9 percent of formal economy services in 2014, the output of small scale industries was about 66.6 percent of formal economy industry GDP in 2014. Overall, the size of the underground economy was estimated at 60 percent of GDP in 2013 and 59.6% in 2014.

**Table 1:** Underground and formal economy GDP at current market prices (million leones)

Economic sectors	2013			2014		
	FGDP	UGDP	UGDP/FGDP	FGDP	UGDP	UGDP/FGDP
<b>1.Agriculture</b>	<b>5,588,797</b>	<b>4,639,988</b>	<b>0.830</b>	<b>6,133,399</b>	<b>5,110,058</b>	0.833
Crops	3,657,545	2,648,567	0.724	3,917,107	2,836,526	0.724
Others	1,931,252	1,991,421	1.031	2,216,292	2,273,532	1.026
<b>2.Industry</b>	<b>2,836,112</b>	<b>1,897,581</b>	<b>0.669</b>	<b>3,070,694</b>	<b>2,043,718</b>	0.666
Mining & Quarrying	2,478,408	1,652,272	0.667	2,697,101	1,798,067	0.667
Others	357,704	245,309	0.686	373,594	245,651	0.658
<b>3.Services</b>	<b>4,406,873</b>	<b>1,438,736</b>	<b>0.326</b>	<b>4,785,225</b>	<b>1,525,859</b>	0.319
Wholesale & Retail Trade	1,009,194	567,671	0.563	1,086,281	605,408	0.557
NPISH	140,609	52,080	0.370	147,686	54,634	0.370
Others	3,257,070	818,984	0.251	3,551,258	865,817	0.244
<b>4.FISIM</b>	<b>229,325</b>	<b>22,681</b>	<b>0.099</b>	<b>251,031</b>	<b>24,827</b>	0.099



5.Total value added	12,602,457	7,953,624	0.631	13,738,287	8,660,808	0.630
GDP	13,309,395	7,990,832	0.600	14,602,453	8,706,290	0.596

Notes: FISIM = Financial Intermediation Services Indirectly Measured; NPISH=Non-profit Institution Serving Household.

Source: Adapted from Soltani-Koroma (2016).

**Table 2:** Gender distribution of employment in underground economy 2011

Age	Male	Female	Total (A)	Formal (B)	% Formal (A/B)
15-19	78,823	94,777	173,600	131,459	132.0564
20-24	78,252	107,855	186,107	169,655	109.6973
25-29	100,795	195,697	296,492	288,517	102.7641
30-34	93,038	158,506	251,544	288,497	87.1912
35-39	133,618	178,455	312,073	303,302	102.8918
40-44	94,887	111,475	206,362	207,292	99.55136
45-49	99,790	78,980	178,770	179,933	99.35365
50-54	71,785	73,064	144,849	149,003	97.21214
55-59	50,958	38,313	89,271	84,729	105.3606
60-64	36,353	27,263	63,616	62,439	101.885
65+	73,307	42,167	115,474	104,610	110.3852
Total	911,606	1,106,552	2,018,158	1,969,436	102.4739

Source: Adapted from Soltani-Koroma (2016).

Table 2 shows the gender and age distribution of employment in the underground economy in 2011. Results from the Table indicate that more than 50 percent employment in the underground economy are youth in the age grade brackets 15-39. Although workers in the underground economy include both men and women, majority of the workers are women who constitute more than 55 percent of total workforce (SLIHS 2011). Women are the major actors in the underground economy in most of the age categories particularly age group 15-19, 20-24, 25-29 35-39, 55-59, 60-64 and 65+. With an estimated population of 5.6 million in 2008 and about 935,800 households, the underground economy accounts for about two-thirds of the total labour force, and 70 percent of urban labour force (GSO, 2005). About 65 percent of the labour force are rural and 80 percent of rural sector are engaged in subsistence agriculture. Because of the absence of employment in the formal economy the youths have “struggled to find viable sources of income” in the underground economy where there is only limited infrastructure (GSO 2005).

Ulandsskretariat (2014) observed that the underground economy of Sierra Leone only absorbs “9% of the labour force”. In 2014 it was estimated that the underground economy “employs 2 million people (92%) of the economically active population, about half of whom are women”. Consistent with findings in other developing countries, “Sierra Leone’s underground economy cuts across both the rural and urban informal ‘sectors’”. As seen in Table 1 the single largest sector employer of labour is agriculture. About

70% of the rural population are employed in the agricultural sector, followed by wholesale, retail, petty trading and artisans activities. From the above analysis it is obvious that the underground economy in Sierra Leone is large and increasing.

## **EMPIRICAL LITERATURE**

There some fairly recent studies that have attempted to identify the major drivers of the underground economy. It is observed that the underground economy is bound to grow in countries where rural communities suffer from high levels of inequality in income and political participation (De Ferranti et al., 2003; Perry et al., 2006). Perry et al. (2007) maintain that these countries are often plagued by elite capture “exercised by both elites and organised segments” of the middle class. Perry et al. (2007) points out that state capture leads to the generalised perception that the state is run for the benefit of the few, thus it reinforces a social norm of non-compliance with taxes and regulations, what might be dubbed a ‘culture of informality’.

This view is affirmed by Putzel et al. (2014) who maintain that elite capture of resources has severe repercussions for creating equitable and effective resource governance systems. The implication of Putzel et al. (2014) findings suggests the need for improve on the quality of government institutions in service delivery.

Cambwera et al. (2011) focus on regulation. According to them government laws and regulations may exclude certain economic agents from the formal economy due to high cost of registration, burdensome bureaucracy and corruption. Small scale entrepreneurs do not earn enough profit “to justify these costs”. Consequently, informality becomes a logical response for them (Perry et al., 2007). Del Pozo-Vergnes (2013) in Benson et al. (2014) introduced a new dimension to drivers of underground economy: ethnic political exclusion. He posits that exclusion takes place along class and ethnic lines, as “the ruling elites capture resource access regimes and systematically marginalise other groups”.

Perhaps, one of the most important driver of informality is poverty (and the ensuing desire to diversify income). Another is unemployment. Underground activities are regarded as possible escape route out of poverty (Barrett et al. 2001). According to Becker (2004), Palmer (2007) Jobseekers, particularly the rural youths, turn to the informal sector if they cannot find work in the formal labour market. The economy also provides a cushion for “employment during global downturns” (Chambwera et al., 2011). Availability of cheaper good is regarded as another important factor. Low-income consumers’ demand for affordable and cheap goods motivate informal production and trading of some products. Chambwera et al. (2011) reveal that rural operators and local communities frequently “capture higher economic benefits from informal activities as opposed to formal ones”.

There are some few studies on the underground economy in Africa. In Ghana, Ocran (2009) investigated the evolution of Ghanaian underground economy in the period 1960-2007. Using the currency demand analytical

framework the results revealed that the size of the underground economy increased from 14% in 1960 to 18% by 1977 and to about 30% during the period 2003-2004. The Ghanaian results are substantially higher than those obtained for South Africa by Saunders and Loots (2005). The South African results revealed that the size of the underground economy averaged about 9.5% during the period 1967-1993, fell to 7.2 percent during the period 1967-1993 and 8.4 of recorded GDP during the period 1994-2002. A related study by Saunders (2005) indicated an average relative size of the informal economy at 9.5 % of GDP.

In Tanzania Bagachwa and Naho (1995) estimated the size of the second economy to determine the extent to which the official GDP misrepresent or under-report total production of goods and services in the country. Their empirical estimates based on Tanzi currency demand approach indicate that the second economy is large and increasing and should not be ignored. The average relative size of the second economy to official economy was estimated at 36.93 % during the period 1968-1990.

Similarly, in Malawi Chipeta (2002) used "Tanzi currency demand approach" to estimate the size of Malawian underground economy in the period 1965-1990. The findings revealed a low size for the second economy at 7.2% in 1972 and rising to 39.1% by 1990. The overall average relative size was estimated at 15.87% during the period 1965-1995. Chipeta study further shows that tax evasion as percentage of actual total tax revenue rose from 9.54 percent in 1972 to 15.3 percent in 1981. By 1986 it has risen to 39.4 percent, more than twice its value in 1981. In 1990 the proportion of tax evasion to actual total tax revenue had risen to about 59.6%. A similar empirical study by Makochekanwa (2010) on Zimbabwe's second economy using the currency model produced much higher results than Malawi case. The results indicate an average relative size of the second economy of Zimbabwe at about 30.35 % of measured GDP during the period 1980-2009.

In Nigeria Ogbuagbor and Malaolu (2013) investigates the size and development in the informal economy of Nigeria using error correction multiple indicators multiple causes (MIMIC) or (EMIMIC) for the period 1970-2010. Their results revealed that the size of the informal economy averaged about 64.6 of GDP and that "unemployment, tax burden, government regulation and inflation were critical drivers of informality".

In Sierra Leone one can explicitly identify two main studies on the underground economy namely Korsu and Amaoh (2015) and Soltani-Koroma (2016). While Soltani-Koroma attempted to measure the size of the underground economy without any theory (i.e measurement without theory) and estimated the relative size of the underground economy at about 60 % in 2013, and 59.6 % in 2014, Korsu and Amaoh estimated the underground economy for 15 West African countries including Sierra Leone for the period 2000-2012 using annual data. The method used was the Arrelano and Bond (1991) dynamic panel generalised method of moments (GMM). The results indicate that the size of the underground economy of Sierra Leone during the period 2003-2012 varies between 23.2 percent to 41.0 percent of official GDP with a coefficient of variation of about 0.206 (standard deviation 5.395,

mean 26.20). In both cases the studies suffer from inadequate coverage. Only very few years are covered. Given the economic and political crisis that Sierra Leone suffered, the estimates are too low and unrealistic and need to be revisited. Furthermore, none of the two studies (Korsu, Amaoh, 2015; Soltani-Koroma, 2016) considered some critical macroeconomic policy questions: To what extent is the flight underground detrimental to the growth of the formal economy of Sierra Leone? What is the relationship between underground economy and official economy business cycles? What is the role of the quality of formal institutions on underground economy? Beyond the tax evasion arguments, the issues of direction of causality and cointegration are important for policy purposes.

## **ANALYTICAL METHODOLOGY**

Studies on underground economy have relied on one of four approaches. These include direct method, the indirect method, the indirect currency approach and the model or multiple indicators multiple causes (MIMIC) method. However, the problem with direct approach (survey and tax audit methods) is it provides only point estimates (Schneider, Enste, 2003). The indirect approach which is based on the discrepancy between the estimates of GDP using income approach and using expenditure approach assumes that the two approaches are independent. Unfortunately, in Sierra Leone the expenditure approach and the income approach are dependent. The monetary method of Guttmann (1977), Fiege (1979) and Tanzi (1980, 1982, 1983) assumes that cash is used predominantly in conducting business in the underground economy, and that “high taxes” and harsh “business regulatory framework are important causes of informality”. Unfortunately It rests on the questionable assumption “that the velocity of circulation of money in the underground economy” and formal economy are the same.

The model approach (Giles, 1999a, 1999b; Frey, Schneider, 2000; Schneider, Enste; 2003) or MIMIC method maintains that the underground economy is “unobservable variable” which is affected by a host of factors including tax burden, regulation, unemployment and high transaction costs etc. This approach has been criticised on several grounds particularly with regards to its unsuitability for economic problems as it was designed for “psychometric application and to measuring intelligence seems far removed from measuring underground economy” (Breusch, 2005b). It is an “unconvincing framework for measuring the underground economy.” Furthermore, MIMIC approach, despite its sophistication, suffers from conceptual flaws, and apparent manipulations of results. According to Breusch the MIMIC approach should not be applied in estimating the size of the underground economy. Its use is therefore misguided. In this study we adopt a modified currency demand model of Tanzi and Guttmann as indicated in Giles (1999a, 1999b). It does not depend on the questionable assumption that the underground economy and the formal economy have the same velocity of circulation of money. Instead we assume

that the total demand for currency (CU) is the sum of the demand in the official economy (CUO) and demand in the underground economy (CUU).

$$CU_t = CUO_t + CUU_t$$

From the Keynesians and monetarist theories of the demand for money we have:

$$CUO_t = \Theta_0(Y_{ot})^{\Theta_1}(R)^{\Theta_3}(INF)^{\Theta_4}$$

But since the demand for money in the underground economy is for transaction purposes only we must have:

$$CUU_t = (Y_{ut})^{\Theta_2}$$

Combining above equations we obtained the total demand for currency:

$$CU_t = \Theta_0(Y_{ot})^{\Theta_1}(Y_{ut})^{\Theta_2}(R)^{\Theta_3}(INF)^{\Theta_4}$$

where  $Y_{ot}$  = measured official real output,  $Y_{ut}$  = underground real income,  $R$  = short term interest rate,  $INF$  = inflation rate. These are the usual variables in the conventional money demand function.

From the theories on the underground economy articulated in the previous section, we specify the ratio of output of underground economy to measured official output to be a function of tax rate (TAXY or ratio of tax revenue to GDP) reflecting tax burden, real income, ratio of government expenditure to GDP (GOY) or government size, real per capita income (PCI), openness to international trade (TOP), exchange rate depreciation (EXR) and quality of institutions (QI). The fiscal variable TAXY has been used by many studies as a critical factor inducing people to involve themselves in the underground economic activities (Saunders, 2005; Buehn, Schneider, 2008; Macias, 2008; Ogbuagbor, Malaolu 2013, Asiedu, Stengos, 2014; Korsu, Amaoh, 2015). Some others have used the marginal tax rate but non availability of data for this variable precludes its use in this study. We use government size (GOY) as an indicator of efficiency and bureaucracy. Excessive government regulation is said to encourage underground activities, "delaying procedures and services". It constitutes one of the basis for government corruption. Trade openness (TOP) encourages importation of contraband goods which are usually smuggled into the economy. This leads to an increase in the activities of the criminal elements of the underground economy. Quality of government institution and good governance (QI) is measured by contract intensive money ((M2-CU)/M2). It captures enforceability of contracts and security of property rights. QI indicates confidence and trust in dealing with other parties. If this trust exists then investment would be higher as a greater proportion of money would be held in financial institutions. Higher values of QI is indicative of greater respect for property rights and strong contract enforcement. The QI variable is expected to have a negative effect on the underground economy. Exchange rate (EXR) variable is another factor. In

expectation of exchange rate depreciation savers will tend to hold more stable foreign currency. Exchange rate depreciation weakens the domestic currency, stimulates underground market for foreign currencies and other illegal activities such as smuggling, under-invoicing of exports and over-invoicing of imports. The determinants of underground economy are specified as:

$$\frac{Y_{ut}}{Y_{ot}} = \psi_1 + \psi_2 \text{TAXY}_t + \psi_3 \text{LY}_{ot} + \psi_4 \text{LPCI} + \psi_5 \text{GOY} + \psi_6 \text{TOP}_t + \psi_7 \text{LEXR} + \psi_8 \text{DWAR} + \psi_9 \text{QI}_t,$$

where  $\psi_1, \psi_2, \psi_3, \psi_4, \psi_5, \psi_6, \psi_7, \psi_8, >0, \psi_9 <0$  and L before a variable means natural logarithm. A civil war dummy (DWAR) is added in view of the fact that during war time underground economic activities is expected to increase. All the variables are expected to have a positive sign except QI which is expected to carry a negative sign. Solving for  $Y_{ut}$ , putting the value into above equation and taking logarithm of the results we obtain:

$$\text{LCU} = \text{L}\Theta_0 + (\Theta_1 + \Theta_2) \text{LY}_{ot} + \Theta_2 \text{L}\{\psi_1 + \psi_2 \text{TAXY} + \psi_3 \text{LY}_{ot} + \psi_4 \text{LPCI} + \psi_5 \text{GOY} + \psi_6 \text{TOP}_t + \psi_7 \text{LEXR} + \psi_8 \text{DWAR} + \psi_9 \text{QI}\} + \Theta_3 \text{LnR}_t + \Theta_4 \text{LnINF}_t + \Theta_5 \text{DWAR} + e_t,$$

where  $\Theta_1, \Theta_2, \Theta_4, \Theta_5 >0, \Theta_3 <0$  and INF = inflation rate, GOY = government size measured by ratio of government expenditure to GDP, and DWAR = dummy variable to capture the civil war years 1991-2001. As earlier indicated we expect the war years to lead to greater underground activity. It should carry a positive sign. It takes the values of unity for each year during the civil war years and zero in any other years. The exchange rate variable (EXR) is the amount of Leone per \$1.00. The stochastic error term e is assumed to be white noise and unautocorrelated. The last equation is the nonlinear estimation equation. Estimated values for the parameters  $\psi_i, i=1,2,\dots,8$  are used to obtain estimates of the relative size of the underground economy indicated in the equation before for the period 1961-2015. The estimated value for  $\psi_1$  represents the equilibrium long-run average relative size of the underground economy. The absolute size of the underground economy is obtained by multiplying the relative size by the formal economy real GDP.

### Tax Revenue Loss

The size of tax revenue loss due to the underground economy is calculated as:

$$\text{TRUN}_t = \text{TAXY} * Y_{ut}$$

This is the potential tax revenue loss because the operators in the underground economy do not pay tax.

### **Cointegration and Causality Tests**

To determine if there is any long-run relationship between the underground economy and the formal economy we use Johansen and Juselius (1990), Johansen (1995) cointegration approach on  $Y_{ot}$  and  $Y_{ut}$  variables. This is done after determining the order of integration of the variables using augmented Dickey Fuller (ADF) test (Dickey-Fuller, 1979) and Phillip-Perron (PP) test (Phillip, Perron, 1988).

Cointegration test on long-run relationship between the formal and underground economy is carried out using Johansen and Juselius (1990) and Johansen (1995) approach. The direction of causality between  $Y_{ot}$  and  $Y_{ut}$  is determined using Toda and Yamamoto (1995) method which is superior to Granger (1969) causality approach. Whereas Granger causality is based on differencing leading one to run the risk of identifying wrong order of integration, Toda and Yamamoto is applicable, "irrespective of the order of integration and cointegration properties of the system".

According to Toda and Yamamoto (1995) this approach is valid provided  $k \geq d$ , where  $k$ =lag length,  $d$ =maximum order of integration. The estimates were performed using EVIEWS 9.0

Data were obtained from World Bank World Development Indicators (WDI), Bank of Sierra Leone Annual Report and Statement of Accounts (2009, 2012, 2015), World Economic Outlook (WEO), and International Financial Statistics yearbook (1980, 1999). The results of the empirical estimates are presented in the next section.

### **EMPIRICAL RESULTS AND ANALYSIS**

The empirical results are presented in Table 3 and 4. Table 3 presents the results from the nonlinear estimation of the currency demand equation using Gauss-Newton optimisation method with maximum iteration set at 500. The results are long-run estimates only. Attempt to include lagged dependent variable to estimate the short-run equation has not been successful. In any case the use of error correction models to estimate the short-run currency demand model is controversial (Thomas, 1998; Asiedu, Stengos, 2014). The results show that 92 percent of total variations in the currency demand in Sierra Leone during the period 1960-2015 was explained by the independent variables in the equation. This shows high goodness of fit. Most of the explanatory variables have the expected signs, are statistically significant at better than 10 percent level. Thus, the demand for currency in Sierra is sensitive to changes in income, tax rate, government size, exchange rate, quality of government institutions, and to dummy variable measuring civil war years.

The results also support Keynesian and monetarist theory of the demand for money where the principal factors namely income (transaction and

precautionary motives), interest rate (opportunity cost of holding financial assets) and inflation (opportunity cost of holding real goods) have the expected signs. Income is highly elastic with an income elasticity of holding currency at 46.64 percent. The statistical significance of the estimated elasticity ( $c(3)=\Theta_2$ ) confirms the existence of a significant underground economy in Sierra Leone. The results also show that the Sierra Leone civil war years led to significant hoarding of cash and hence to increase underground economic activity. The savings deposit rate variable is not significant probably because of the inclusion of underground economy in the currency demand model of Sierra Leone.

Overall, the model is well specified and the estimated parameters are reliable. There is no evidence of autocorrelation, heteroskedasticity, or non normality of the residual errors. The values for Durbin Watson (DW) Statistic, White heteroskedasticity F – Ratio and the Jarque Bera statistic are suggestive. The regression results are not spurious because the value for DW at 2.0249 is far higher than the adjusted  $R^2(0.915)$ . The DW is within the vicinity of no autocorrelation as is the Breusch-Godfrey serial correlation Lagrange multiplier (LM) statistic at 2.103. All the F-statistic for test of heteroskedasticity Breusch-Pagan-Godfrey(1.016), Harvey(1.7555), Glejser(1.455) and ARCH(0.185) show no evidence of heteroskedasticity.

**Table 3:** Parameter estimates of the demand for currency

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	281.9202	533.442	0.5060	0.6154
C(2)	-3.5501	7.165238	2.4782	0.0171
C(3)	46.6428	20.0208	2.3297	0.0219
C(4)	0.6497	0.2138	3.0388	0.0013
C(5)	0.5887	0.3436	1.7131	0.0937
C(6)	2.1832	1.8045	1.2126	0.2317
C(7)	1.1124	0.4732	2.3465	0.0235
C(8)	-0.4368	0.2496	-1.7504	0.0871
C(9)	1.1633	.49207	2.3645	0.0225
C(10)	8.4823	2.2323	4.0210	0.0005
C(11)	-0.4735	0.2233	2.1205	0.0326
C(12)	-0.0617	0.0594	-1.0388	0.3045
C(13)	-0.0648	0.0269	-2.4083	0.0203
C(14)	0.1495	0.0719	2.0793	0.0441
Adjusted $R^2$	0.915042	S.D. dependent var		4.21816
S.E. of regression	0.130579	Akaike info criterion		-1.04626
F-statistic	5213.549	Durbin-Watson stat		2.02487
Prob(F-statistic)	0.000000	Schwarz criter		-0.61226

Jarque - Bera Statistic : 0.346

Breusch –Godfrey Serial Correlation LM test: F-ratio 2.103 Prob. F(2,42) 0.135

Breusch-Pagan-Godfrey heteroskedasticity test: F-ratio 1.016 Prob. F(9,46) 0.442

Harvey Heteroskedasticity test: F- ratio 1.7555 Prob., F(9, 46) 0.103

Glejser Heteroskedasticity test: F-ratio 1.4559 Prob. F(9, 46) 0.193



ARCH Heteroskedasticity test: F-ratio 0.1885 Prob. F(1,53) 0.668

Source: Own calculations.

From the results presented in Table 3 three important facts of general interest emerged. First, the underground economy in Sierra Leone is driven by regulation and taxation (taxy and goy). This is consistent with the views expressed by the legalist and voluntarist schools of thought. Second, the quality of institutions and good governance (QI) is important in reducing the size of the underground economy. Thus, policies to promote good governance, quality of government institutions and trimming the size of government are critical in reducing the size of the underground economy. Third, during the war time much underground economic activity took place in Sierra Leone. Finally, the long – run average size of the underground economy relative to the formal economy is estimated at 64.97 percent ( $\psi_1 = c(4)$ ) during the period 1960 – 2015.

From the foregoing results the relative size of the underground economy to formal economy is estimated and presented in Table 4. The results show that the relative size of the underground economy rose from 58.8% in 1960 to 62.86% in 1968, fell to 58.18% in 1980, rose to 64.40% in 1990. By 2001 when the civil war ended the relative size of the underground economy has risen rapidly to 73.7% . It rose marginally to 73.91% in 2015. The relative size varies between 56.25% on the low side in 1983 to 74.11% on the high side in 2013. The mean value of the relative size of underground economy is estimated at 64.97% with a coefficient of variation of about 0.094. Similarly, the mean value of the extent of tax evasion at 4.44% is large and cannot be ignored given that the mean value of actual tax rate is about 11.36%.

Table 5 highlights the dynamics of the underground economy. There are three troughs during which the relative size of the underground economy fell significantly, 1975 (57.78%), 1983 (56.25%) and 2002 (65.23%). The first two periods occur during the period of relative peace and stability in Sierra Leone under president Siaka Stephen, and the third trough occurred when the country was emerging from the civil war Whereas the average size of the underground economy was only 59.8% during the period 1960-1970, it rose significantly to 71.89% during the period 1991-2001 when civil war occurred. This reveals that underground economic activities in Sierra Leone was at its highest during the civil war years, was marginal during the period 1960-1970 and on the rise again during the period 2002-2015.

**Table 4:** Relative size of the underground economy and extent of tax evasion

Year	Relative Size of Underground (%)	Extent of Tax Evasion (% GDP)	Actual Tax Revenue (% GDP or TAXY)
1960	58.770	4.855	13.116
1961	58.787	5.051	13.642
1962	58.639	5.020	13.581
1963	59.245	5.543	14.899
1964	58.636	4.919	13.309

1965	58.926	4.421	11.923
1966	60.069	5.150	13.724
1967	60.120	5.782	15.400
1968	62.052	6.743	17.609
1969	61.860	5.498	14.386
1970	60.696	4.742	12.555
1971	60.971	5.868	15.492
1972	60.602	6.037	16.000
1973	60.302	4.940	13.131
1974	60.516	6.022	15.973
1975	57.784	5.527	15.093
1976	58.691	5.153	13.934
1977	59.713	5.451	14.579
1978	59.287	5.754	15.459
1979	58.582	5.526	14.958
1980	58.185	5.923	16.102
1981	60.159	6.889	18.339
1982	59.108	4.308	11.596
1983	56.251	2.782	7.728
1984	60.297	3.377	8.977
1985	59.254	1.722	4.628
1986	60.793	2.385	6.308
1987	63.191	6.266	16.183
1988	62.684	2.764	7.172
1989	61.120	1.178	3.105
1990	64.396	2.083	5.317
1991	72.844	3.148	7.470
1992	73.302	4.284	10.128
1993	74.219	5.042	11.834
1994	74.091	5.163	12.132
1995	73.563	3.833	9.042
1996	74.075	3.260	7.661
1997	73.770	4.208	9.911
1998	73.206	3.043	7.200
1999	72.271	2.641	6.294
2000	75.016	4.355	10.160
2001	73.737	3.812	8.982

2002	65.231	3.392	8.593
2003	65.933	3.307	8.322
2004	66.474	3.298	8.258
2005	66.859	3.285	8.197
2006	67.985	3.413	8.434
2007	69.612	3.232	7.876
2008	68.789	3.347	8.213
2009	68.467	3.419	8.412
2010	68.237	3.751	9.247
2011	69.057	4.464	10.928
2012	69.982	4.485	10.895
2013	74.108	5.690	13.367
2014	73.819	6.124	14.419
2015	73.910	6.749	15.881
<b>Mean</b>	<b>64.969</b>	<b>4.436</b>	<b>11.359</b>
<b>STD</b>	<b>6.098</b>	<b>1.349</b>	<b>3.655</b>
<b>CV</b>	<b>0.094</b>	<b>0.304</b>	<b>0.322</b>

Note: Data on actual tax revenue (% GDP) were computed from International Financial Statistics Yearbook (1981, 1986, 1998), World Economic Outlook(WEO), Bank of Sierra Leone Annual Report and Statement of Accounts (2000, 2012, 2015). STD=Standard deviation, CV= Coefficient of variation.

Source: Own calculations.

**Table 5: Growth of the underground economy**

Period	Relative Size of Under-ground Economy (%)	Average Tax Evasion (%)
1960 – 1970	59.80	5.25
1971-1989	60.09	4.50
1990 – 2001	71.89	3.80
2002 -2015	69.18	4.14

Source: Own calculations.

**Table 6: Augmented Dickey-Fuller and Phillip Perron unit root tests**

Variable	ADF			PP		
	Level	First difference	Decision	Level	First difference	Decision
RGDP	3.943	-4.416*	I(1)	3.089	-4.446*	(1)
URGDP	3.873	-4.967*	I(1)	3.873	-5.033*	I(1)

Notes: \* significant at 1 % level.

Critical values ADF : 1% -3.555 5% -2.916 10% -2.596  
 PP : 1% -3.555 5% -2.916 10% -2.596

Source: Own calculations.

**Table 7: Unrestricted cointegration rank test (trace)**

Hypothesized	Trace	0.05	
No. of CE(s)	Statistic	Critical Value	Prob**

None	16.7434*	15.4947	0.04696
At most 1	2.7518	3.8417	0.1549

Source: Own calculations.

**Table 8:** Unrestricted cointegration rank test (maximum eigenvalue)

Hypothesized No. of CE(s)	Max-Eigen Statistic	0.05 Critical Value	Prob**
None	9.9852	14.2646	0.2129
At most 1	2.7582	3.8415	0.1849

Source: Own calculations.

**Table 9:** VAR lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2921.629	NA	2.13e+47	114.6521	114.7279	114.6811
1	-2789.008	249.6391	1.37e+45	109.6081	109.8354*	109.6950
2	-2783.411	10.09642*	1.29e+45*	109.5455*	109.9243	109.6903*
3	-2780.850	4.418147	1.37e+45	109.6020	110.1323	109.8046
4	-2780.341	0.838922	1.57e+45	109.7389	110.4207	109.9994
5	-2775.903	6.961009	1.56e+45	109.7217	110.5550	110.0401

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Own calculations.

**Table 10:** Toda and Yamamoto causality test (wald tests)

VAR Granger Causality/Block Exogeneity Wald Tests

Dependent variable: RUGDP

Excluded	Chi-sq	df	Prob.
RGDP	11.36698	2	0.0034
All	11.36698	2	0.0034

Dependent variable: RGDP

Excluded	Chi-sq	df	Prob.
RUGDP	8.137333	2	0.0171

All	8.137333	2	0.0171
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Source: Own calculations.

**Table 11:** Vector autoregression estimates

	RUGDP	RGDP
RUGDP(-1)	0.108656 (0.35726) [ 0.30414]	-1.198284** (0.42973) [-2.78849]
RUGDP(-2)	0.443277 (0.53880) [ 0.82271]	0.901969 (0.64809) [ 1.39174]
RGDP(-1)	0.861540* (0.29911) [ 2.88037]	2.143936* (0.35978) [ 5.95910]
RGDP(-2)	-0.482507 (0.49411) [-0.97652]	-0.778424 (0.59433) [-1.30976]
C	-3.70E+11** (1.6E+11) [-2.26234]	-2.86E+11 (2.0E+11) [-1.45296]
RUGDP(-3)	0.419067 (0.42431) [ 0.98765]	0.377608 (0.51037) [ 0.73987]
RGDP(-3)	-0.250181 (0.34219) [-0.73112]	-0.324912 (0.41160) [-0.78939]
Adj. R-squared	0.969781	0.973527
F-statistic	279.1240	319.7145
Log likelihood	-1463.804	-1473.592
Akaike AIC	55.50203	55.87138
Schwarz SC	55.76225	56.13161

Notes:\*\* Significant at 1%, \* Significant at 5%.

Source: Own calculations.

### Cointegration and Causality Tests

Table 6 provides the results of the unit root test on real  $Y_{ot}$  ( $RGDP_t$ ) and real  $Y_{ut}$  ( $URGDP_t$ ). The results reveal that both variables are integrated of order one. With this results we proceeded to test for cointegration between them using Johansen and Juselius (1990) and Johansen (1995) method.

The results are presented in Table 7 and 8. The Trace test indicates one cointegrating relationship at better than 5 percent level while the maximum eigenvalue test indicate absence of any long-run equilibrium relationship. We next proceeded to test for direction of causality between the underground economy and the formal economy using Toda and Yamamoto (1995) approach. From the information criterion we selected an optimal lag length of 2 and  $d_{max} = 1$  from the ADF and PP unit root tests. We estimated the 2-equation vector autoregression (VAR) system and applied the Wald test to determine if the coefficients of the lagged RGDP variables (excluding the extra ones) are jointly zero in the URGDP equation and also if the coefficients of the lagged URGDP variables (excluding the extra ones) in the RGDP are jointly zero. The results are presented in Table 10 while the full VAR regression results are presented in Table 11.

From the results (Table 9) we find causality between the formal economy and the underground economy in Sierra Leone and that causality is bi-directional. We reject the hypothesis that RGDP does not granger cause URGDP at better than 1% and reject the hypothesis that URGDP does not granger cause RGDP at better than 1.7%. Growth in the formal economy stimulates growth in the formal economy and vice-versa. Thus, our results are inconsistent with the dualist school of thought that insists that there is no linkage between them but consistent with the structural school of thought that maintains that both economies are inter-related and dependent. From the VAR regression results (Table 11) it is clear that the coefficient of lagged RGDP in the URGDP equation is positive. This implies that increases in formal economy GDP may induce variations in underground economic activity. In the same way the negative coefficient of lagged URGDP in the RGDP equation implies that increase in underground economic activity induces a negative variation in the formal economy GDP.

### **Macroeconomic Policy concerns**

There are eight significant macroeconomic policy implications suggested from the findings of this study. First, the findings of large underground economy in Sierra Leone suggest that government has been under-stating the total production of goods and services in Sierra Leone economy. The Sierra Leonean economy is larger than what is reported in official national account series and efforts must be made to integrate the formal and underground economy.

Second, it is meaningless to carry out a robust macroeconomic policy for development planning and programme formulation without considering the underground economy. Third, innovative strategies need to be developed to collect some of the tax lost to underground economy to promote fiscal balance.

Fourth, expansionary fiscal policy (through reduction in effective tax rate) to promote formal economy RGDP growth will also have expansionary effect on the size of the underground economy. Both the relative size of the underground economy ( $Y_{ut}/Y_{ot}$  or URGDP/RGDP) may increase or it may decrease. It has been shown (Giles and Tedds 2000) that a tax cut may lead

to a fall in URGDP/RGDP ratio and therefore that the size of the underground economy falls while the formal economy RGDP increases. The increase is due to direct stimulation of this fiscal policy and partly to recording of some of the previously unrecorded output in the underground economy. Government revenue may even rise due to the tax cut by virtue of increase in the tax base. This, of course will depend on the extent of the tax cut, "and the initial effective tax rate" ( Giles, Tedds and Werkneh 1999). There is need for the government to experiment on tax cut.

Fifth, given that inflation is one of the drivers of the underground economic activity, Bank of Sierra Leone monetary policy aimed at combating inflation will also have an indirect effect on the underground economy GDP.

Sixth, the findings of cointegration between formal economy and underground economy suggest that the two economies move together, and hence that there is an equilibrating mechanism that brings them together when there is a shock. Thus, any adverse economic effect that propels economic agents to "go underground" are temporary, and not permanent.

Seventh, the formal economy and underground economy are integrally linked and they contribute to the overall economy of Sierra Leone. "Supporting the working poor in the" underground economy is one of the important pathways to attacking poverty and fighting inequality.

Eight, the quality of institutions in Sierra Leone is an important driver of underground economy. This variable is not usually considered in previous studies. Government should endeavour to strengthen the quality of its institutions for good governance and confidence building.

## **CONCLUDING REMARKS**

An important challenge to development policy making and macroeconomic management in Sierra Leone is the conspicuous absence of credible statistic and systematic evidence on the underground economy. Despite the wide ranging underground economic activities and processes in Sierra Leone, knowledge of the size, trends and dynamics of the underground activity are scanty and remain inadequate. In this study an attempt has been made to estimate the size of the underground economy of Sierra Leone in the period 1960-2015, and examine the implications for macroeconomic policy. The results revealed that the relative size of the underground rose from 58.8% in 1960 to 62.05% in 1968, fell slightly to 58.2 in 1980, rose sharply to 75% in 2000 and fell moderately to 73.9% in 2015. The mean size of the underground economy was estimated at 64.97%.

The results showed that the relative size of the underground economy was fairly stable at 60% between 1960-1989, rose rapidly to 71.9% on average during the civil war years 1990 -2001 and fell marginally to 69.2% during the period 2002-2015. The mean tax evasion was estimated at 4.34% of GDP. The estimated value for extent of tax evasion is large and should not be ignored given that the actual mean tax revenue during the period was about 11.36% of GDP.

The results revealed cointegration between formal GDP and underground economy GDP. Causality test between the formal economy and the underground economy indicates bi-directionality with causality running from both ways (from RGDP and URGDP).

The policy implications are straightforward. The total size of the Sierra Leone economy is larger than what is given in official government reports. Government Economic Statistic Division must make conscious efforts to collate data on the underground economy. Given the large size of the underground economy, policies on national economic development that does not incorporate the underground economy will be unrepresentative of the entire economy. Therefore, it is misleading and misguided.

Expansionary fiscal policy to promote growth and development of the formal sector will affect the underground economy given the existence of bi-directional causality between formal and underground GDP. The underground economy and formal economy are integrally linked. Both contribute to the overall economy. Consequently, "supporting the working poor in the underground economy is one of the important pathways to attacking poverty and fighting inequality".

Overall, the estimates for the underground economy in Sierra Leone are considerably larger than those obtained for other African countries (Zimbabwe 30.35% 1980-2009, Tanzania 36.93% 1968-1990, South Africa 9.5 % 1966-2002, Ghana 40% 1983-2003). This is not surprising given the collapse of infrastructure and other formal support services in Sierra Leone arising from more than a decade of civil war in the country.

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## THE ISLAND OF PAG AND ITS CULINARY RICHES

**Pave Ivić\***

*University of Applied Sciences  
Baltazar Zaprrešić,  
Croatia  
[pave.ivic@bak.hr](mailto:pave.ivic@bak.hr)*

**Ivan Protega**

*University of Applied Sciences  
Baltazar Zaprrešić,  
Croatia  
[ivan.protega@bak.hr](mailto:ivan.protega@bak.hr)*

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### Abstract

Gastronomy is an important form of cultural distinctiveness of a country. In the age of selective forms of tourism, more attention is paid to emphasising a country's indigenous gastronomic offer. The island of Pag is since long ago known as an island of sheep breeding. Due to its geographic location directly beneath the Velebit mountain, agroecological factors for pasture are quite unique. North wind from the Velebit mountain ("bura") spreads sea salt all over pasturages, and as a result, both sheep milk and cheese from Pag have distinctive traits. The signs "Croatian Quality" and "Croatian" on these products from the island of Pag imply Croatian autochthonous tradition. Besides the well-known and renowned Pag cheese, gastronomic offer also includes lamb, cottage cheese and other produces, which makes this island an exceptional and rich gastro-destination. The purpose and result of this research on the island of Pag is to obtain the guidelines for development. Research method includes the direct visit of all participants and data analysis.

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### Key Words

Gatronomy; Island of Pag, Croatia.

## **INTRODUCTION**

In marketing literature, the authors define the price as one of the four instruments that enable comprehensive marketing management. Moreover, it is important that the change in one instrument without regulation of other instruments generally does not give an optimal result.

One such "trademark " of our country is Pag cheese, which is actually a side product of sheep on the island of Pag and the basics food of the poor shepherds on the island, now it stands side by side with one of the most famous French and Swiss cheeses, and is of respected and well-known specialty, and one of the most famous indigenous gastronomic products of our country.

The island of Pag is one of the largest Croatian island. Because of its location, below the Velebit mountain, exposed to frequent salty winds that cause specific vegetation on the island. Given that only sheep could take advantage of the small grass and lack of it on the island, during centuries sheep breeding was developed. Today, the island of Pag is famous for its breeding of sheep and goat meat and dairy products.

Pag cheese production has changed much in the last 30 years. Monopoly over its production took over three cheese factories, while production in households has drop to minimum, and slowly falling into past. Now Pag cheese production are investing more resources, adopting new technologies and new knowledge, and more effort and resources are invested in its convergence to masses of consumers.

A key role in bringing the product to masses has promotion, which is a form of mass communication that can be considered as vital marketing function, although the promotion is only one phase of marketing which aims to inform potential customers about the product in order to obtain higher demand for that product. Promotion is the sum of the activities through which the company seeks to familiarize consumers with its products with the help of communicative media and personal and impersonal persuasion.

Promotion effect on demand because it turns need into a desire that with the purchasing power exceeds to demand. Successful promotion often makes the difference between successful and unsuccessful products companies, directly or indirectly facilitates the exchange of convincing the target group to accept certain product. This work has the theme of promoting indigenous gastronomy, on the example of Pag cheese, and will show what kind of attitude towards the promotion have three existing cheese manufacturers on the island, how to invest in the promotion, and which promotion instruments most used, as well as point out potential flaws .

## **ISLAND PAG AND HIS CULINARY RICHES**

The island of Pag is one of the largest Croatian island. He is the fifth largest island in Croatia, a long coastline of 302,47km is the most coast developed island in Croatia. The appearance of the island is one of its specialties. That island is very long, more than 60km, and very narrow, 2 to 9.5km.

**Picture 1:** Geographical location of the island of Pag



Source: [www.tzkolan-mandre.hr](http://www.tzkolan-mandre.hr)

The first records of Pag are from the Roman era. The earliest name for the island, Cissa (Kiss), was recorded in the works of the Roman writer Pliny in the first century, and probably the Illyrian origin. Later, the Croats changed name to Caska, and the settlement still exists in the Pag Bay. Today's name for the island originated from the Latin word "pagus" which means "village". Thanks to its position just below the Velebit mountain, throughout the year there is a supply of fresh and clean continental air, which is beneficial to the development of agriculture on the island as well as the growth of low vegetation, which is the basic food for sheep.

The inhabitants of island Pag has highest revenue income from tourism, followed by agriculture. As the foundation of agricultural activities on the island, farming stands out, especially sheeps. Sheep production is based on high quality, selected, alternative to mass production of meat and dairy products. The most famous island specialties are lamb, cheese, cottage cheese and ham.

Lamb has always been a brand of the island. Due to its special taste and high quality, today we can find it in all the restaurants around the Croatian and the world. With the lamb, far more famous is cheese, which has a prominent high among the world cheese. Less known are dairy product made from sheep's milk like curd.

## **GASTRONOMY – RESEARCH**

Gastronomy can be defined as

1. culinary profession, knowledge of different foods and ways of
2. preparation; or the cult of selected food and culinary skills.

Another definition says that gastronomy is knowledge of food, preparing meals, select beverages and serving guests.

Catering in a broader sense means the relationship between culture and food, as well as the art of preparing, serving and consumption of food. Concept of catering covers all issues related quality, quantity and methods of food preparation. In a narrow sense, it is the art of eating, which in itself

includes many arts such as creative adaptation or invention of culinary recipes choice of foods and ways of cooking and serving. It can also be considered and applied as art and falls in service activities.

Given that the concept of a good meal varies according to geographical regions and social classes, excellent catering can be considered as an interdisciplinary science that encompasses anthropology, biology, agronomy, history, psychology, sociology and philosophy.

The basic elements of cooking and crafts are:

- Culture dishes and flavours
- Culture - looking dishes
- Culture taste
- Cultivating environment where food is served

The gastronomic offer of some country today is celebrated as one of the key elements of preserving the cultural identity of the country, so many efforts are being done to preserve and promote indigenous gastronomic products.

Croatian gastronomy is heterogeneous and is known as the gastronomy of various regions. Its modern roots date back to Proto-Slavic and ancient times. The differences in the choice of ingredients and preparation methods are most obvious on the mainland and coastal regions. The continental gastronomy is characterized by the earlier Proto-Slavic and the more recent contacts with the more famous gastronomic orders of today - Hungarian, Viennese and Turkish. The coastal region is characterized by the influence of the Greeks, Romans, Illyrians and later Mediterranean gastronomy - Italian and French.

Many Croatian traditional festivities are associated with food, regardless of whether they relate to labour (crop harvesting or threshing, grape harvest and christening of wine, the completion of houses), religion (mostly catholic christmas, easter, pilgrimages, celebration days of local patron saints ) or at significant moments in an individual's life (baptism, wedding, birthday, etc.). Some festivities are public, such as the Dionysian St. Martin, who is celebrated on farms, in wine cellars and restaurants, while others are almost exclusively in the family (weddings, christenings, Christmas, new year, Easter, etc.).

Every holiday is characterized by a specific dish. A stew of pork and potatoes eaten on pilgrimages and fairs, cod is prepared for Christmas eve and big friday, pork is eaten on new year's eve, donuts are an inseparable part of carnival festivities, and in the south they prepare a similar cake, "hrostule". Ham and boiled eggs with green vegetables are served at Easter, while desserts comprise traditional cakes (eg. pinca), goose on St. Martin, while turkey and other poultry, and cabbage served at Christmas.

## **TERM AUTOCHTHONY IN GASTRONOMY**

The term "autochthony" in gastronomy is used for traditional foods, those that are made from ingredients that are traditionally found in an area from where a particular dish originated. For meals that are prepared by exact

recipes and served in a certain way and in accordance with the customs of the region.

### PAG LAMB

The island of Pag is known for its sheep farming, which thanks to the specific (scarce) diet have a distinct taste. Pag sheep never live indoors. All their short life is spent outdoors. Shortly after the lambs are brought forth their food is combined with young grass salted with "bora", very strong wind. On Pag lawns grass is varied, but usually not characterized by an abundance of water as much as nutrients. Pasko herbs and low shrubs smell good, is often curative, such as sage (nightingale), Helichrysum, routes, "bršake", "mliča", "Zelenice", Tusc and many others, small leaves and growth. Because of this way of eating, lamb has a distinct taste, put in the words of connoisseurs and gastronomes, reason that makes the best lamb in Croatia.

### PAG CHEESE

Because of the centuries - old way of making cheese, it is a trademark of the island Pag, specialty known not only in Croatia but also throughout Europe and the world. The specialty cheese is the basic raw material - milk sheep. This milk has a special flavour because it contains ingredients that sheep milk from other areas have not. The island of Pag is a rugged, stony grass and covered with layers of salt that wind throws during the winter storms. Because of this mix of grass variety of flavours with the addition of sea salt, which sheep graze, their milk taste highly and specifically.

Cheese production on the island of Pag is dating from the time of development of sheep on the island of Pag. Still in 1774. the travel writer Alberto Fortis in his Journey through Dalmatia wrote that the most important Pag products: sea salt, sage honey, wool and cheese. The traditional way of producing this cheese has remained to this day almost unchanged. The only difference is extinction of making cheese "on hand" and the introduction of the mold, and use of pasteurization in industrial production Pag cheese. Cottage cheese can be purchased during the winter and spring months. Due to high demand, old cheese is rarely found. Cottage cheese is much softer and lighter than the mature (old) cheese.

### PAG CURD

Since the sheep milk is rich in milk fat, after making cheese from "surotva" that remained after heating while stirring gently till boiling occurs allocations other second cheese, which is called the Pag curd. It is soft and soluble and eaten as a spread or topping cakes and pancakes. "Surotva" in which the fringe left was used as a beverage, and surotvom without skirts were fed pigs that gave special Pag ham, another food specialty of the island. Another product from sheep's milk and butter, which is a rule corn mashing smote curd which had been added to the water. After a long preparation of curd on the surface swam to the finest butter smearing on bread. It is obtained by boiling butter cake, spice porridge or rice and other dishes of Pag. Today, the butter is no longer true because the traditional way of making cheese in



households is declining. Most of the production of cheese and curd have taken three major production manufacturers on the island .

**PROSCIUTTO**

In addition to lamb, cheese and sheep products, Pag is also known for Prosciutto. Production of indigenous dishes is in decline because fewer people are farming pigs. Pork production on the island of Pag, by the end of the 19th century has had an important role. Now with ham production are mainly dealing the inhabitants of the southern part of the island, in the villages Dinjiška and Vlačići. Rarely it can be found in the other places. Pag prosciutto is considered a very high quality, mostly because of its used of home salting, island salt and dried in the strong winter storm. Pag prosciutto, due to extreme salinity, is rarely used alone as a food, and today has become a delicacy that is served on special occasions, usually with cheese.

**RESEARCH OF TOURISTS REVIEWS**

As part of the research for attitude of tourists toward gastro offer of the island, using a sample of 100 respondents who were stopped at the exit from the island, in particular, the bridge. The survey questions led to the results and attitude of tourists towards gastronomic offer.

**Table 1:** Questions for tourists on the island of Pag (year 2012, sample of 100 tourists)

Is this your first time on Pag?	Are you familiar with the gastronomic offer Pag has?	Did you consume Pag cheese?	Did you consume local lamb?	Did you consume Pag curd?	How would you describe the cuisine of island Pag?	Will you visit Pag again?
YES 35%	YES 62%	YES 85%	YES 58%	YES 25%	EXCEPTIONAL 87%	YES 86%
NO 65%	NO 38%	NO 15%	NO 42%	NO 75%	GOOD 13%	NO 14%

Source: Own survey.

The result of the survey shows that tourists experienced great pleasure from the island gastronomic offer, in relation to autochthony and specificity.

**CONCLUSION**

One of the basic cultural characteristics of any country or region is also its culinary wealth and as such should be nurtured. Croatia as a country has a diverse gastronomy that varies from region to region. And within each region there are also differences and special features that indicate a specific local environment.

Thus the island of Pag has long been known as an island of sheep. Due to its geographical position, just below the Velebit mountain, where special conditions for sheep grazing were developed. Exposed to frequent and severe shocks from Velebit "bora" island is covered with low vegetation, is rugged and sprinkle with salt storm that scatters through the winter. Precisely because such a diet Pag sheep is special. Lamb has always been an attribute of the best and highest quality meat in Croatia.

For the same reason, and milk of sheep in particular. This milk provides the basis for making the best known and most esteemed culinary specialties of the island, and you could say one of the most respected specialty of entire Croatian - Pag cheese.

This cheese was being done in households across the island, but only in the last 15 years is driven by serious industrial cheese production in the three larger islands Cheesemakers. It has started to invest in new technologies based on new knowledge. Today, the cheese itself is relatively high, and the demand for this delicacy is certainly there.

Although awareness and importance of promotion is there, she herself is underrepresented in the cheesemakers business, with the exception of "Gligora" that used every element of promotion and invest a lot of effort and capital into the promotion. The remaining two cheese manufacturers exploit some elements of promotion while other elements were neglected, and seems to consider the reputation of the cheese itself as sufficient promotion. Although the Pag cheese delicacy is known throughout the Republic of Croatian territory from the time when production was limited to private households and as such is unique today in the time of increasing competition in the market, there is an existential need for promotion as a means of survival in a saturated market.

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## THE IMPACT OF COLOR ON PRICE PERCEPTION

**Ajda Fošner**  
GEA College,  
Faculty of Entrepreneurship,  
Slovenia  
[ajda.fosner@gea-college.si](mailto:ajda.fosner@gea-college.si)

**Jani Ivan Toroš\***  
GEA College,  
Faculty of Entrepreneurship,  
Slovenia  
[jani.toros@gea-college.si](mailto:jani.toros@gea-college.si)

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### Abstract

Although the use of color in promotional advertisements is ubiquitous in the market, little is known about the impact of color on price perception. The aim of this paper is to present the results of a study made in Slovenia which assessed the impact of four colors on consumers' perceptions (blue, red, green, and black). We collected data with specially designed questionnaire in October 2018. We used the choice based conjoint analysis to evaluate the influence of price color on consumers. We found out that prices written in blue have the highest preference. We also expected that red prices are more attractive. However, the results of our research showed the opposite. At the end, theoretical and practical implications are discussed.

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### Key Words

Pricing; price perception; color.

## INTRODUCTION

In marketing literature, the authors define the price as one of the four instruments that enable comprehensive marketing management. In the definition of the price, there are series of interpretations and dilemmas. We can define a price (Kotler, Armstrong, 2004) as the sole component of the marketing net that brings revenue and, thus, opens the space for discussion in two directions: Is it true that only a price makes a profit? The price itself cannot guarantee success. Increasing the price without other measures related to other elements of the marketing will most likely reduce sales and consequently profit. However, sales can be increased by the appropriate positioning of the product by selecting the appropriate marketing channels and, in particular, by targeted market communication. On the other hand, what is actually a price? Does it have a wider definition? A wider aspect of the concept of a price means that in addition to the price level, we also consider other elements like payment terms, the method of payment, and the loan. An even broader concept involves non-monetary inputs needed to purchase a product. If the price is the amount or the transfer of a certain value to be paid by the buyer in order to obtain a certain tender (Solomon, Marshall, Stuart, 2016), then it can be considered as a measuring instrument that denotes the value, as a rule, in cash.

Besides the price of the product, there are many other factors that influence how and what consumers buy. The aim of this paper is to investigate the impact of color with which the price is written on the customer's decision. We were motivated by the color psychology which is widely used in marketing and branding (see also Jabbar, Baldwin, 2010; Puccinelli, Chandrashekar, Grewal, Suri, 2013; Shin, Westland, Moore, Cheung, 2012). More precisely, colors are all around us and they affect us in everyday life. Colors influence perceptions that are not obvious, such as the taste of food. Colors can also enhance the effectiveness of placebos. Moreover, colors can be used to influence consumers' emotions and perceptions of goods and services. Each color has a different impact. For instance:

**BLACK** inspires power, class, elegance, grief, and prestige (used by: Johnnie Walker, Chanel, Nike)

**GREEN** inspires nature, money, balance, energy, and health (used by: Starbucks, Animal Planet, John Deere)

**RED** inspires passion, anger, danger, energy, and attention (used by: Coca-Cola, Canon, Levi's, Virgin)

**BLUE** inspires trust, responsibility, security, and friendliness (used by: Facebook, PayPal, Skype, Ford)

In our research we created a 'Price Table' using specific colors to grab the customer's attention. We used four main colors for our price table: black, green, red, and blue. In the next section we presented the empirical part of the research. In the third section we discuss the results. At the end we summarize the obtained information and write some open problems.

## EMPIRICAL RESEARCH

Current research was based upon structured questionnaire as one of the most valuable method of collecting a wide range of information from a large number of individuals. The questionnaire was carefully prepared to achieve goals of our research. Moreover, the questionnaire was pre-tested prior to the start of the official implementation on a pilot sample of students of GEA College - to make sure that questions accurately capture the intended information. We use Choice Based Conjoint (CBC) analysis as one of the most frequently used method for pricing decisions. The market simulators that resulted from CBC analysis enable us to test numerous product formulations and competitive scenarios.

The survey was conducted in October 2018. Potential respondents were Slovenian customers. 250 respondents were recruited to participate in the study (the structure of the respondents is shown in Tables 1–3). SSI WEB version 7.0.30 was used to collect data. We analysed the collected data with the statistical program IBM SPSS Statistics 22 and Excel 2013. In the next section we illustrate and discuss the most prominent findings.

**Table 1: Gender**

		Frequency	Percent	Cumulative Percent
Valid	female	146	58,4	58,4
	male	104	41,6	100,0
	Total	250	100,0	

Source: Own survey.

**Table 2: Age**

		Frequency	Percent	Cumulative Percent
Valid	To 25 year	2	,8	,8
	More than 25 to 50 yare	86	34,4	35,2
	More than 50 year	162	64,8	100,0
	Total	250	100,0	

Source: Own survey.

**Table 3: Monthly Earnings**

		Frequency	Percent	Cumulative Percent
Valid	Les than average	101	40,4	40,4
	Approssimately average	68	27,2	67,6
	More than average	73	29,2	96,8

A don have incam	8	3,2	100,0
Total	250	100,0	

Source: Own survey.

The survey was based on three attributes:

- brand (four different brands for woman and four different brands for man);
- price (1€, 2€, 3€);
- price color (black, blue, green, red).

Each price was shown in all four above mentioned colors and each respondent answered ten times on the question: *Which product I would choose if I had the choice of displayed options?* In addition to the four options shown in Figure 1, there was also one more possibility of a response: *NONE, I wouldn't choose any of these options.*

**Figure 1:** Four options



Source: Own survey.

## RESULTS

As already mentioned, we firstly used Choice Based Conjoint (CBC) analysis which is used for discrete choice modelling and it is the most popular conjoint-related technique in use today (Orme, 2013). The main characteristic distinguishing choice-based from other types of conjoint analysis is that the respondent expresses preferences by choosing from sets of concepts, rather than by rating or ranking them. In our research a CBC question was referred to as a task. Respondents were shown multiple product concepts (and an optional "None" alternative) and were simply asked which one they would choose. Results for each chosen attribute (brand, color, price) are presented in Tables 4-6.

**Table 4: Brand**

Brand	BRAND 1	BRAND 2	BRAND 3	BRAND 4
% of respondents*	11%	34%	23%	44%

\* Percentage of respondents that chose the brand  
 Source: Own survey.

**Table 5: Color**

Brand	BLACK	GREEN	RED	BLUE
% of respondents*	29,98%	27,70%	26,69%	27,28%

\* Percentage of respondents that chose the color  
 Source: Own survey.

**Table 6: Price**

Brand	1 €	2 €	3 €
% of respondents*	33%	29%	21%

\* Percentage of respondents that chose the brand  
 Source: Own survey.

In the next step we used CBC/HB tool for estimating individual-level results of our CBC experiment. The generally preferred method for analysing CBC data is hierarchical Bayes (HB) estimation which develops individual-level part worth from choice data (Orme, 2000). This improves the accuracy of our simulations.

**Table 7: CBC Hierarchical Bayes Module**

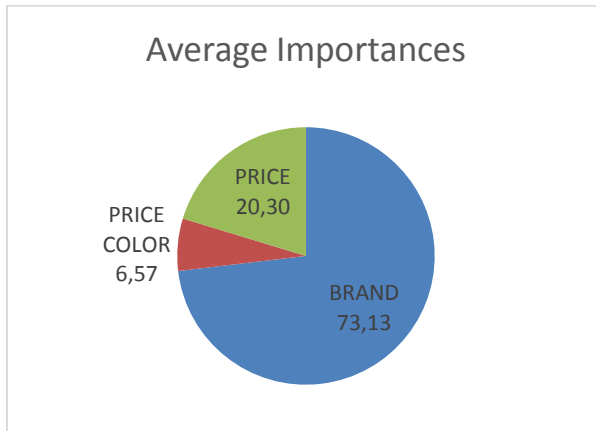
Total Respondents	
Total Respondents	Total 250
Average Utility Values	
Rescaling Method: Zero-Centered Diff	
	Total
Brand 1	-67,10
Brand 2	19,22
Brand 3	-10,97
Brand 4	58,85
black	1,50
gren	-0,08
red	-6,06
blue	4,64
price 1€	19,10
price 2€	9,38
price 3€	-28,47
None	-68,39

Source: Own survey.

According to our results, the most suitable price color is blue followed by black. Less suitable for showing prices are green and red.

Moreover, we also analysed the impact of the three attributes on the product selection: price, brand and price color. The results are showed in Graph 1.

**Graph 1:** Price, brand and price color



Source: Own survey.

At the end, we created four concepts and compute in market simulator. They all involved Brand 4 and had the price 2€. Results are in Table 8. Most prefers color was blue with 31,79%.

**Table 8:** Four concept simulation

CONCEPT	BRAND	COLOR OF PRICE	PRICE	SHARE OF PREFERENCE
Concept 1	Brand 4	Black	2€	27,39 %
Concept 2	Brand 4	Red	2€	23,84 %
Concept 3	Brand 4	Green	2€	16,97 %
Concept 4	Brand 4	Blue	2€	31,79 %

Source: Own survey.

## DISCUSSION

From the above results, it is obvious that the price color has an impact on the consumer's choice. However, this impact is very small. The greatest impact on the consumer's choice has brand, followed by price. in this research we used price promotions as are presented routinely in store flyers and newspaper inserts. Given growth of the online and mobile media, additional research needs to examine. Moreover, we should also examine the format in which price information in product advertisements is displayed. There are also other open problems, for example, the color effects on different type of products and the detection of color on low and high prices.



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