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Editing:

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Graphics:

Arch.student Adelina Dima

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Foreword

Bet on family for a better world!

“Living in a better world” should become an important goal for each of us and a constant common effort needs to be done in this direction. People are concerned about the future and what legacy they leave their children.

The United Nations has developed an ambitious set of eight millenium development goals which aim to address the most important vulnerabilities of today’s world: eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality, improve maternal health, combate HIV/AIDS, malaria and other diseases, ensure environmental sustainability and build a global partnership for development. Now it’s time to evaluate our achievements and think to the future and what will be next for 2015.

In my opinion, two goals should garner more attention : ensuring environmental sustainability and building a global partnership for development in order to ensure better living conditions in a better world for our future generations.

Human development must be based "on the satisfaction of fundamental human needs, on growing self-reliance, on the construction of organic articulations of people with nature and technology, of global processes with local activity, of the personal with the social, of planning with autonomy, and of civil society with the state" (Max-Neef, 1991)

The truth is that we live in a far from perfect world. Poverty, disease, a lack of education, environmental destruction – the problems are all too obvious. But the real question is, can we do something about it? The answer I think is yes, together we can and we can do so starting with our own family. Let’s educate our children with respect to the environment, let us make them aware of those less fortunate around them and more importantly, let us stimulate their desire to become active in helping people in need. It’s time to enhance our children’s creativity in order to improve their capacity of generating wealth for themselves and for others, and we can do this by translating our wisdom to them in using creativity for generating good and durable things for society.

United Nations officials were using this year’s International Family Day to highlight the vital role these critical social units, found in every society, play in achieving globally agreed upon development goals and in advancing towards a better world for all.

“We need to rethink social development and how it relates to climate change, how it impacts migration, how it contributes to social cohesion [...] Strengthening of social pillar in the work of the United Nations is vital for the well-being of families and societies,” says Daniela Bas, head of UN DESA’s Division for Social Policy and Development, and I fully agree.

It is vital to strengthen the family as a social unit, keeping in mind that human beings are social beings and that they can act not only for their own good but for that of human welfare. Today, united efforts can change things on a small scale, but the next generation can make a real difference for a better world.



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Sustainable Environment and in the Context of Environment Economy Necessary and an Analyze

Gunes UNAL¹, M. Sakir Bařaran², Selcuk KENDIRLI³

¹Turkish Court of Accounts, Ankara, 06520, Turkey

² Turkish Court of Accounts, Ankara, 06520, Turkey

³Hitit University FEAS Banking and Finance, Akkent 3. Cadde No:3, Corum,19100 , Turkey

Abstract. *In global world, the environment has become a scarce resource. Since economics is about how to deal with scarce resources, environment and economics are interrelated with each other. On the other hand it is also clear that economics which creates both positive and negative externalities, affects the environment. For this reason, it is not possible to except environmental problems from the economics. Today some socio-economic activities like increasing consumption based on shopping malls, urban regeneration, fast population growth and etc. have being created environmental cost.*

One way of using economics is to ensure that the costs and the benefits of environmental measures are well balanced. Although it is difficult to estimate costs and benefits, there is an increasing demand that this is should be done before the economical activity.

Economic and environmental objectives are often perceived as being contradictory. It is believed that a choice must be made between one and the other and that cannot be achieved concurrently. To change this perception, some measures should be taken on both national and international level. At this point, an efficient environmental auditing is being important day by day to ensure environmental economics.

In this study we will research what was done in the world in terms of environmental economics. In this context, we will examine what will have to do in Turkey in terms of legislation?

Key Words: Environment, Sustainable Environment, Environmental Economy

JEL Codes: Q00, Q50

¹ Turkish Court of Account, İnönü Bulvari (Eskisehir Yolu) No:45 Balgat/Çankaya/Ankara, 06520, Turkey, Tel: +90 (312) 295 30 00, Fax: + 90 (312) 295 40 94, Email: selcukkendirli@hitit.edu.tr

² Turkish Court of Account, İnönü Bulvari (Eskisehir Yolu) No:45 Balgat/Çankaya/Ankara, 06520, Turkey, Tel: +90 (312) 295 30 00, Fax: + 90 (312) 295 40 94, Email: selcukkendirli@hitit.edu.tr

³ Hitit University FEAS Banking and Finance, Akkent 3. Cadde No:3, Corum,19100 , Turkey
Tel: +905423239238, Fax: + 903642257710, Email: selcukkendirli@hititedu.tr



1. The Relationship between Economics and the Environment

1.1. Concepts of Economy and the Environment

Economy is a complete activity which satisfies human needs. While economy maintains these activities, it has to ensure the usage of resources in the direction of unlimited needs. Because the man's needs are unlimited but goods and services which satisfy these needs are always scarce and limited. Since the disparity between "needs" and "goods services" which satisfies these needs exist in developed or underdeveloped, capitalist or socialist, all communities, this is called "Law of Scarcity". [[http:// bbs. bartin. edu. tr/ dosyalar/ Ders Materyal/44866u2ve3k%C4%B1t%C4%B1kkanunualternmalyt.pdf](http://bbs.bartin.edu.tr/dosyalar/Ders_Materyal/44866u2ve3k%C4%B1t%C4%B1kkanunualternmalyt.pdf), 25.06.2014] And while economy fulfills its main function which is to meet needs of human, it creates positive and negative externalities.

While, environment is a component which creates inputs of economy with its resources, it is also integrity of systems affected by negative externalities of the economy. Therefore, the close relationship between economy and the environment makes economy manage the environment which has a **limited source**.

In a general meaning, environment is a place, which human communities and the other lives continue their lives and make use of natural resources. A different identification for environment is as flows; environment is the sum of physical, chemical and social factors which has an immediate or direct or indirect effect on human activities and live assets in a particular time. [Kaya, 2006]

No matter in which context environment is used, the concept of environment usually emphasizes, "to be at the center and to be out of the center". Therefore, environment is defined at the opposite of a center and in this sense; it is an "external" phenomenon. [Özdek, 1993]

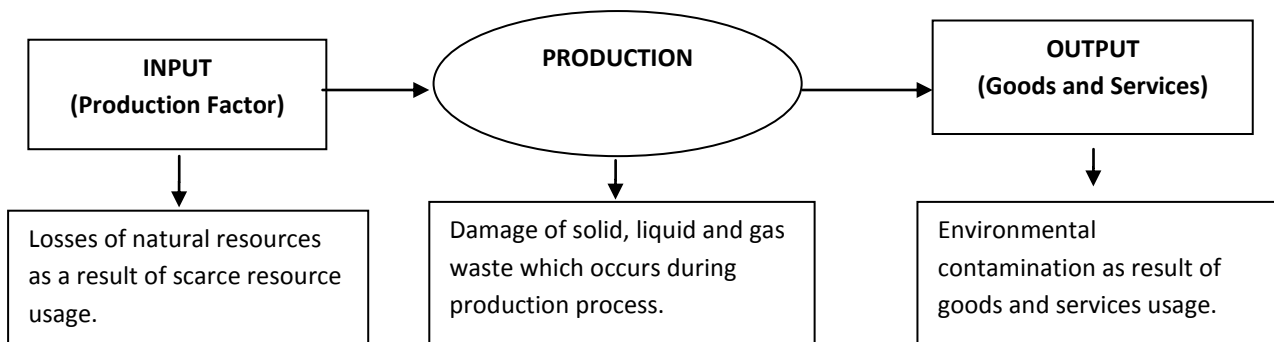


Fig. 1: Business – Natural Environment Relationship

Source: KAYA Uğur, (2006), İşletme-Doğal Çevre İlişkilerinin Mali Tablolar Aracılığıyla Raporlanması ve Denetimi, SPK Yayınları, p.31

While the environment is seen an external phenomenon affected by the output of the production process - goods and services -, it is also a large concept includes production factors –inputs-. In this sense,



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environment provides inputs to economy, as well as it is affected by the externalities created by economy. Today, both businesses and countries are in the discussion of unlimited natural resources which the environment provides as an input to economy. Therefore, environmental costs are currently being processed to minimize by both volunteer applications and legal regulations.

In this respect Environmental Economics can be defined as; “A specific sub-field of Economics, in which environmental issues is taken from an economic perspective, a contribution to economy with the protection of environment and natural resources , and also the way of the minimizing environmental pollution. [http://www.nedirnedemek. com/%C3%A7evre-ekonomisi-nedir-%C3%A7evre-ekonomisi-nedemek, 26.06.2014]

Today environmental economics has become more and more important comparing to the past in order to ensure the continuous activity of economy which is done through with scarce resources, and also as a result of the broad concept of environment including both affects economy with its factors of production and affected by the externalities of economy. So; as *Al Gore*, the vice-president of USA and also specialist on environmental problems says that “Holding on to the old argument that the environment and the economy are in conflict is really outdated”. [Press Release; “Sierra Club Endorses Gore”, 2000]

1.2. The History of Environmental Economics

There are differences between the conventional economics and neo-classic economics approaches on environmental issues. While quantity was considered in classic economics, quality was also taken into account in neo-classic economics. According to classical economists such as J.B. Say and Adam Smith, natural resources were characterized as free goods and excluded from the economic analysis. A. Pigou, a neo-classic economist, put environmental concept into the economic analysis, and so laid the foundations of environmental economics.

A. Marshall is the first name contributing economic analysis of environmental problems. According to Marshall, market economy’s inefficiency lies in back of the basic reason of environmental pollution. He spoke first time about the externalities in his work published in 1890. And Keynes who is one of the important economists in the last term, has created a discussion platform up to this day about the externalities of environmental pollution will be resolved/or not resolved by market mechanism. [Yıldırım & Marin, 2004]

2. Environmental Issues

Environmental cost of economy creates environmental problems. Too tight and bilateral relations are available between economic development and environmental issues. Economic development is a cause, and environmental issues are foregone conclusion of it. Environmental problem usually includes all cons which occur on environmental values (water, air, soil, etc.) as a result of human activities. In that context the first issue coming to mind is “pollution” problem. [Kaya, 2006]



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Environmental pollution is the deterioration which damages natural stability of environment and makes up catastrophic exposures on living beings as a result of dirty air, dirty water, and dirty wastes which are caused by the production process to satisfy human needs. [Özdek, 1993]

It has occurred major changes on natural balance of earth climate and evolution due to the usage of fossil fuels which is emitted into the atmosphere from gases that cause the greenhouse effect used from Industrial Revolution. So; **“Global Warming”** is a significant other environmental problem which is the natural result of economic activities, finding a place as an international concept and is defined as *“in the increase of average temperatures of the world’s lands, seas and air seen throughout the year.”* [http://tr.wikipedia.org/wiki/K%C3%BCresel_%C4%B1s%C4%B1ma, 26.06.2014]

2.1. Main Causes of Environmental Pollution

Environmental pollution is the specific term of the environmental issue. Although it is put forwarded so many factors causes of the environmental pollution, three basic titles are; population growth, urbanization and industrialization [Kaya, 2006]. In fact these three basic titles have a relationship with each other on a cause-effect base. For example, increasing population pressure creates illegal immigration and in that context creates urban growth, so with it industrialization occurs to ensure economic dynamic.

Today, rapid population growth and as a result of it urbanization and related to it urban transformation and constructions have been increasing environmental costs of economy. In particular, with the reasons of like urban transformation projects and change in consumer oriented approaches such as shopping malls, it has been in progress no return- construction buildings, so does the damage to the environment is increasing in the same or a higher rate. It is also questionable that the contribution of these constructions to the economy besides from their damage to the environment. Perhaps, one of the best examples of it is; the big stadiums which have been built for the World Football Cup 2014 in Brazil. It has been criticized because of their management on a **“use and throw”** base. In accordance with, the construction industry in 2014 Athens Olympic Games has become an economic downturn for Greece as well as its damage to the environment.

2.2. Approaches to Solve Environmental Problems

2.2.1. National Approaches

Developed countries are accepted which have already completed industrialization process, while developing countries have selected the industrialization path before performing transition process of farming to industry. So, this rapid and uncontrolled industrialization creates serious adverse effects on the environment. [<http://journal.dogus.edu.tr/ojs/index.php/duj/article/view/175/191>, 03.07.2014] Both in developed and in developing countries there is a pressure on environment created by economy, so in recent years environmental concept given priority among the topics.



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The most effective approach for solving environmental problems is to get rid of those elements that cause the problem. This solution is far from being “rational”; it is just “radical”. Rational solution approaches can be put in ordered as; *Sustainable Development, Cost-Benefit Analysis, Environmental Impact Assessment* and other approaches. [Kaya, 2006]

- **Sustainable Development -Sustainability**

Economy is required into the basis of “Sustainable Development” to get rid of the negative effect creates on the environment. It is possible to make the description of “Sustainable Development” as follows; The plan of today’s life and the future’s development with establishing a balance between man and nature by without the risk of damaging natural resources and ensuring the usage of resources consciously. [http://www.bilgiustam.com/surdurulebilir-kalkinma-nedir_25.06.2014] In addition a broad consensus exists that it means that economic activities should be consistent with: sustainable use of renewable natural resources, protection of ecosystem features and functions, preservation of biological diversity, a level of harmful emissions remaining below critical (assimilative) thresholds, and avoidance of irreversible damage to the environment and nature. [Mulder & Jeroen & Bergh, 2001]

Sustainability works both for minimizing the loss of environmental damage created by economy and also recycling this loss into economy again. In this sense, production technologies will be required compatible with nature, as well as having efficient and productive technologies. Therefore implementation of renewable energy sources has become essential in the natural part of production process to contribute to “**environmental sustainability**”.

One of the best examples has been Sweden, in the sense that environment has been returned to the economy on the subject of sustainable development. Sweden head of all countries about recycling, solar energy and many more sustainable practices and a country maintains large part of its heating-up needs from garbage, has started to import waste from its the nearest neighbor Norway. Even, it is about 80.000 tons of waste imported from Norway. [<http://www.ntvmsnbc.com/id/25436041>; İsveç’in çöpü bitti, 25.06.2014]

In this sense, sustainability is the concept which has to be implemented essentially day by day to create a coil in the economy and to hold a dynamic standing of environment. We also provide a sustainable development, while our environment can be converted back. Environmental economy more in case of ecological sense, the aim becomes; “...,to protect, to continue and to use again and again.” [Areuea Journal, 1978. Available at <http://web.a.ebscohost.com/ehost/pdfviewer>]



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- **Cost & Benefit Analysis**

Cost – Benefit Analysis is quite a well-developed method for determining the net returns to a Project over a period of time; the only necessary correction is the inclusion of environmental costs or benefits. [Dutta, 2003]

To use Cost and Benefit Analysis as a solution on the environmental issues, environmental impacts on investments should be used as a data. In other words, it should be calculated as a quota by summing up cash returning and positive impact of the investment, and as a denominator again by summing up the cash outflows of the investment and negative impact on environment by investment made and then agree that the ratio of quota to denominator will be the “*cost - benefit ratio*”. By using this ratio, both environmentally sound investments can be selected and also problems can be prevented at the planning stage.

However, although cash outflows (costs) regarding negotiations on the environment can be calculated to a degree, cash inflows regarding the positive effects on environment cannot be calculated. This makes the approach’s applicability quite difficult. [Kaya, 2006]

Despite its well-known limitations, benefit-cost analysis can be a key method for consistently assimilating the disparate information that is pertinent to sound decision making. If properly done, it can be of great help to public officials as they seek to identify environmental targets and goals.

- **Environmental Impact Assessment**

Environment has to be placed on a legal ground to lighten the pressure on it created by industrialization. So in order to increase both economic developments of countries and environmental quality, “**Environmental Impact Assessment**” is an international concept found a place.

Environmental Impact Assessment, is an approach which analyses the effects of an activity in which sense it affects the environment (directly or indirectly, positively or negatively) in the decision making phase of it. It is also an approach to identify the alternative solutions to minimize that may be made by the adverse effect of the activity. Known as Environmental Impact Assessment (EIA) approach, the report must be drawn up before the investment decisions for the prevention and seeing of possible effects on environment created by the investment. This is called; “*Environmental Impact Assessment Report*” or simply called EIA report. [Kaya, 2006]

While Environmental Impact Assessment approach resembles the other environmental problem solution approach – Cost Benefit Analysis- in the way of positive and negative aspects of the investments on the environment, it is a more comprehensive approach. In addition, in this approach as it is not compulsory to use numbers for all the data, it is also easier to use. [Kaya, 2006]



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- **Environmental Law**

With all of above, *Environmental Law's* popularity has also continued to increase in accordance with today's conditions. To protect and improve the environment, to establish rules for both preventing environmental pollution and compensating for damages, to create resources for all of these regulations and to recommend sanction are all in the field of Environmental Law. [<http://www.sayistay.gov.tr/yayin/yayinicerik/145.k1Cevsemtr.pdf>, 06.07.2014]

- **Government Policy**

Environmental pollution created by the negative externalities of an economy can be resolved in a well-functioning price system. If price system is installed, both less polluting technologies are encouraged and a fair distribution for the environmental pollution costs will be made.

However even a well-functioning market system may be remained as inactive for diminishing the environmental pollution. For some reason, task begins to fall to the public economy as a solution for the prevention of environmental pollution which has a right to use fiscal policy tools and policies such as taxes and/or subsidies.

2.2.2. International Regulations

It is inevitable in terms of the work for countries resolving environmental problems. However, the work made globally, enforces countries a tighter co-operation and in the natural sense it would be more incentive. This co-operation around the world for the environmental protection has been doing by dual or multi-sided agreements on international environmental law.

In this respect the first global environmental policies created as UNEP (United Nations Environment Program) followed by a meeting in Stockholm in 1972 by the United Nations.

In addition Kyoto Protocol in 1997, a single-frame to ensure the fight both for global warming and climate change which are one of the main problems of today is also an important international regulation on environment.

Some major policy options were set in the process of which starts with UNEP and continues along Kyoto Protocol, including reduction of fossil fuel usage, development of renewable energy sources to ensure the energy needed and also efficient use of energy. The use of new technologies and particularly technology has been another policy options to help the countries which have not yet been completed development processes. [Yıldırım &Marin, 2004]



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3. Contribution of Environmental Auditing on Environmental Economics

Environmental controls which will make a contribution on environmental economics must also be taken into consideration. The basic distinctive feature of environmental controls of course focuses on environmental issues and aims at improving the environment which is both today's and the future's basic public supply for all of humanity and ensuring sustainable use of it. [<http://www.sayistay.gov.tr/yayin/yayinicerik/145.k1Cevsemtr.pdf>, 06.07.2014]

From this point of view, countries' external audit component that is Court of Accounts' have to perform important tasks to assess the use of public source.

3.1. Types of Environmental Auditing

As it is known that the management of resolving environmental issues has been regularized which both in national and international laws and agreements, Court of Accounts can be given as part of the service of "**Legality Audit**" for the protection and development of the environment. In this sense, Court of Accounts' can follow the conformity in accordance with laws and international environment contracts as a public source.

If the use of environmental resources (air, water, soil, etc.) and its usage effects are recorded correctly, a "**Financial Audit**" may also be possible for environmental affairs. [<http://www.sayistay.gov.tr/yayin/yayinicerik/145.k1Cevsemtr.pdf>, 06.07.2014]

With the path of "**Performance Audit**", it is carried out by monitoring in environmental programs, the environmental impact of other programs, environmental management systems, and/or environmental agreements. [http://www.sayistay.gov.tr/yayin/_yayinicerik/145.k1Cevsemtr.pdf, 06.07.2014] So a new concept has occurred called "4 E" which includes economy, efficiency, effectiveness and environment also the base of "Performance Audit".

Conclusion

Economy and the environment have been seen as two dynamic concepts which replaces on the same plane within difficulty. It is believed that a choice must be made between one and the other and that cannot be achieved concurrently. But the importance of the both national and international works to change this approach is increasing.

In this regard, it should be created protection – based environmental economies both nationally and internationally. In addition, it should be generated economic policies that doesn't see the environmental problems as a natural result of the economic activities and takes into account the environment and its value.



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A positive bilateral relationship between economy and the environment can be ensured by sustainable development. Therefore it should be aimed an environmentally sustainable economies - **Eco-Economies**. The cost of protecting the environment without polluting it is cheaper than bringing a contaminated environment back to its old one. As a result clean and nature-friendly technologies are preferred, and yet again, if there still any pollutants they have to be recycled. [<http://www.sayistay.gov.tr/yayin/yayinicerik/145.k1Cevsemtr.pdf>,06.07.2014]

Another point to make popular environmentally sustainable economies (eco-economy) is that; it is necessary to work with economists and ecologists. Only economists and ecologists who work together might build on its future continues today. [Uğur &, Marin, 2004]

Besides “Sustainable Development”, Cost - Benefit Analysis approach should be used to help for creating effective policies to protect environment from the negative externalities of economic activities.

However while population growth affects urbanization and industrialization and so both economic development and environmental problems in terms of countries, also causes an increase in global environmental issues. It is therefore; perhaps population control policies have to grow up globally as an example of today’s China. According to Gore; the world is expected to have more than 9 billion people by 2075, with much of that growth coming from developing countries in Africa. So; Gore argues an alarming point that **“Fertility Management”** is needed to address a whole slew of global development issues, including mitigating global warming. [<http://nation.foxnews.com/2014/01/28/al-gore-suggests-fertility-management-fight-global-warming> , 03.07.2014]

In addition an environmental damage occurs with urbanization and constructions caused by the natural result of population growth and internal migration. So, to reduce the effects of environmental damage, it has to be built up a healthy and a balanced urbanization policy and this policy should be performed by providing sustainability. All next-generation, neighbors, living creatures and the environment must be taken into account. [Akyel, 2013]

One of the important reasons which create environmental issues is that **“Efficiency”** isn’t given the importance in production and consumption activities as well as in resource allocation and technology usage. So technology helps to developing countries to be focused on a solution proposition.

In resolving environmental problems, environmental monitoring should also be seen as an effective instrument, so it requires co-operating of more than one country’s Court of Accounts. [<http://www.sayistay.gov.tr/yayin/yayinicerik/145.k1Cevsemtr.pdf> ,06.07.2014]

In addition, the importance of implementation of informative and conservative environmental policies is undeniable. While it is thought that **“Standards of Protection of the Environment”** make a positive contribution to economy by creating new business courses, it also may be incentive for the countries to



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What Change Can The New Developments In Energy Sector Bring Into the World`s Energy political and Geopolitical Order?[‡]

OnurTutulmaz¹⁺

¹Hitit University, Department of Economics

Abstract. *The recent developments bring US to a leading natural gas and oil producer position. The attempts in last 20 years to bring new horizontal drilling and hydraulic fracturing technologies together have developed a success in shale gas and oil production in US; the production volumes has reached to a position to redefine the market. Last estimations are bringing more information about the shale capacities of the major basins of the world. However, the estimates are based on a wide range of assumptions and consequently their results vary in a large scale. In any case, these developments have crucial economic, political and geopolitical consequences on the energy market, petroleum producer and consumer countries and regions. Despite the wide range of ambiguity of the estimated size of the resources, the estimations show US and North America has one of the biggest potential, already turning technology into the giant production numbers. Some of the estimations allege so big numbers can even mean to a new world order. The asymmetric nature of the potential, can also be said, increases some of the expected impacts too. In this study, basically, we want to supply an initial solid and economical evaluation to this ambiguity. We are trying to shape a frame for the new energy potential and to put it in a place in the current practice of the world. Secondly, in this context, we are underlying here some of the possible economic and geopolitical consequences each of which can constitute a subject of deeper study.*

Keywords: Energy, Fossil Fuel, Shale, Shale Oil, Shale Gas, Natural Gas, Oil, Shale Boom

JEL Codes: Q43, Q47, Q32, Q33, O13, L7I

1. Introduction

When the reports of a 'new gold rush' started to be aired in 2011 (Economist, 2013, p.59) it raised questions to what extent its size can reach. There are some voices that claim a big revolution for world economy with referencing the substantial oil and gas production rise has been experienced in USA (see,

[‡] The first version of this paper is presented at EECON-2014 (International Conference on Eurasian Economies, 1-3 July 2014, Skopje).

⁺ Corresponding author. Tel.: + 905325578027; fax: + 03642257711.

E-mail address: otytylmaz@gmail.com; onurtutulmaz@hitit.edu.tr.



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Morris, 2013; IEA, 2012). It is not easy to calculate how far the results of this new boom of energy production can be reach.

Energy has always been important for the economy and politics. There have been extensive political struggle for the energy reserves. The way of producing and consuming energy especially the fossil fuels which are highly dominant in the global economy and industry has been one of the important issues in this context. Economic development, technological innovations, industrialization and the new global issues (such as environmental issues) coming as its consequences have all mutual relationship with the energy concept; and make it more complicated and important for the current economic order of the planet.

Because the world economy is relying on mainly on the fossil fuels, the projection on its capacity or lifespan has been always important. Development and possible replacements of all other energy options, such as alternative and renewable energy, have been reckoned according to the availability and the capacity of the primary option.

Because of these reasons, any change in this structure will have butterfly effects to industries and economies. The production boom in US suggests that kind of change has been already happening right now. Its results are already started to change the energy structure in America. The projections show that USA is about to being the biggest oil producer in the world. This change came very fast. To that extend the ambiguity on the final shape of the changing picture is extremely large. For example, after seeing and evaluating the first years of the shale gas and oil boom, Lieber (2012) can foresee just a substantial reduction in oil imports of US; while, others such as EIA reports can mention about an energy independency or a net energy exporter status for US in near future (see, EIA, 2014). IER (2011) estimates even more excessive resources, extends this suggested energy independency up to the level of centuries. The one thing which is crystal clear is that the claims about the changing situation and its possible results need to be brought into academic discussion.

The mentioned estimates are not only to change the capacity profile of the primary energy source but also deem to change the whole energy perspective. To that extend it is expected to have most important effects on economic, political, geopolitical effects. In this paper, trying to draw a macro frame for the size of the new energy opportunity, we try to evaluate it in the present global energy picture and suggest or estimate an importance of it. Conducting this type of premier suggestion we also want to call for further studies on the very important sequential areas. Second section borders the global energy picture in which we will evaluate the importance of the new developments. Third section tries to give the notion on the origins of the new boom. Section four conducts the quantitative and economic evaluation. Fifth section concludes the paper.

2. Energy Structure of the World

The primal source of energy of the world comes from the sun. The total annual solar energy the earth is exposed to is approximately $5400 Q^1$. The estimations about the amount of carbon processed via

¹ Q (=quintillion Btu) = $1000 \times$ quadrillion Btu (quad-[q]) = 10^{18} Btu (SCC, 1979, p.14) $\approx 10^{21}$ J.



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photosynthesis show about 5×10^{10} tones which equal roughly to 20 Q energy. It equals roughly 0.4% of the earth's annual solar energy intake²(Bolton, 1978, p.181).

Total world proved natural gas reserves have almost tripled to 6793 tcf³ in last 30 years (OGJ, 2012). Similar discoveries have also happened for oil reserves updating the numbers upward in the history (for example US has so far consumed 2.5 times much of the oil that is predicted as its total reserves 30 years ago, see IER, 2011, p.1) Total world proved oil reserves are 1342 billion barrels⁴ (IER, 2011, p.2). We can add roughly 1000 billion short tons⁵ coal to this picture, almost half of the recoverable resources being in US. These reserves are predicted to have potential to enlarge from 2 to 70 times for the North America case (see, IER, 2011) using the new developing technologies; this last argument is rather disputable and is discussed in Section 4.

The world annual primary energy usage is over 500 quadrillion Btu⁶ for the year 2010 (EIA, 2012); with almost 1/5 of it belonging to US consumption alone. About a 4/5 of the primary energy consumption is met by fossil fuels.

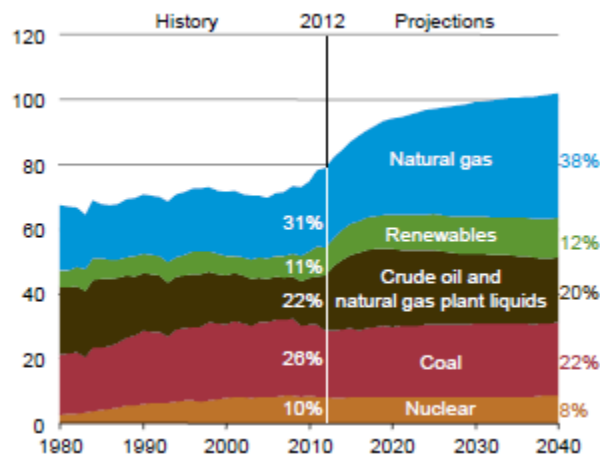


Fig. 2: Variety in energy production in US, 1960-2040 (quadrillion Btu) Source: EIA, 2014

²Although the solar energy excessive, it is intermittent, seasonal and therefore its efficiency is still low.

³Tcf: trillion cubic feet. The exact conversion rate is, 1 tcf= 1.027 quadrillion Btu (AGA, 2014). We use, however, rough conversion rate of 1 tcf= 1 quadrillion Btu ($=10^{15}$ Btu), for conformity reasons.

⁴ Barrel of oil equivalent, BOE, is used as energy unit itself. The conversion rate to Btu is: 1BOE= 5.8×10^6 Btu. It is also equal roughly 5800 cubic feet of natural gas; or 6000 cubic feet of typical natural gas (USGS, 2000, Table AR-1). For our case, we can use, 1BBOE (billion BOE)=5.8 quadrillion Btu.

⁵ 1 billion short ton (1000 lbs) coal=19530 quadrillion BTU

⁶ORNL (Oak Ridge National Laboratory) calculations for the year 2000 is giving around 410-15 quadrillion Btu global energy consumption (<https://bioenergy.ornl.gov/fags/index.html>). Another estimation gives 12-16 terawatt[hour] (ETC, 2011, p.79). 1TWh=293 quadrillion BTU.see ref 125 in ETC.



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As the numbers show that there is a big potential in terms of alternative energy resources. The environmental issues, national and international regulations will be the determining factor for this potential. On the top of that, there is the technological factor changing all parts of this equation. It is highly possible that the increasing usage of the alternative and renewable energy sources might trigger further new technological developments in these areas. However, as can be seen in Figure 2, a dramatic change is not expected in energy production scales in 30 years.

In this global picture, a quick macro level calculation will show that the world's proven reserves can supply energy roughly for 40-50 years⁷, without taking the new potential capacity into account. However, especially the short-term technical constraints and the 'peak oil' discussion on rising demand of oil shows the biggest pressure will be on oil supply part (for different views of discussion, see Hoong, 2012, pp.231-33; JFCOM, 2008, p.28; IEA, 2008). Regarding to that aspect, as Figure 2 and EIA predictions suggest, it can be expected a natural gas replacement to certain degree (see EIA, 2014, p.12-13)

3. Where Does Boom Come From?

Fossil fuels derive from decayed plant and animal matter trapped within the earth for hundreds of millions of years (Morris, 2013, pp. 18-19). Dead organic material accumulated under water and forms mud. Mud was compressed into sedimentary shale rock in time. This geologically slow process leads a transformation of the organic material to hydrocarbons⁸, chains of carbon and hydrogen atoms.

Conventional oil reservoirs form if the liquid or gaseous hydrocarbons pass, by time, from the shale to a reservoir medium⁹ (or in some cases directly to the surface of the world). Shale rocks have been, however, stayed as unfeasible to exploit so far because they are generally formed as thin layers situated very deep in the earth¹⁰.

The technological advancement to change this fact came by the private American engineering attempts¹¹ that unite the new technological developments of directional drilling and hydraulic fracturing into a replicable final engineering solution for shale well drilling. An important stimulus for this success can be proposed as the private mineral right ownership in America¹²: in America, different from the most of the

⁷ Any micro level constraints or other technical evaluations are not considered in this rough calculation.

⁸ The simplest hydrocarbon chain is CH₄, methane which contributes one of the most abundant organic compounds in the world. Heavier hydrocarbons including four to twelve carbon and multiple hydrogens atoms are used in formation of gasoline; even heavier ones are used for the diesel form.

⁹ Therefore the original shale that traps and transforms hydrocarbons is called as source rock; and the more reachable medium such as sands from where the oil is drilled is called as reservoir rock.

¹⁰ If thickness of the shale layer is thick enough it can be feasible even for the conventional drilling; on the other hand, hydrocarbons in the shale rock generally make up less than 6% of the rock weight (Morris, 2013, p.20). Given their usual thin layer thickness and deep depth occurrences, they have stayed out of the feasible scopes until the unconventional drilling methods developed.

¹¹ G.P. Michell of Mitchell Energy Co., investing on its technology for a decade, completed their first successful horizontal well in Texas in 1991; and with further technological improvement achieved the first commercial production of shale gas in 1998.

¹² Government did played a role in the development of the new technology. The importance of this role can be change from different perspectives (for a different perspective see, Trembath et al., 2012).



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other world countries, mineral rights are associated to the land and belong to landowners. As a result of this technology becoming available we have been experiencing a substantial increase in shale oil and gas production in America.

The similar technological developments also bring 3 other potential sources of unconventional gas and oil to the agenda: coal bed gases, oil sands and tight oil (oil shale). Some of them already started to be processed¹³; however, they are not consisting comparable volumes as shale gas and oil is. Therefore, they are not assumed to either to have capacity to change the general picture of the global energy, nor are they calculated in the forecasts regarding to reckoning the new potential.

4. Evaluations of Potential

How big units we are talking about? What can be the economic value of this new imminent energy production boom? Of course, these questions depend on the quantitative estimations about the geological reserves and the qualitative estimations of these reserves. The quantitative estimations are not consistent and give a very cloudy picture us for the moment. In this scarcity of reliable data, for example, US Energy Information Administration's (EIA) estimations in same year, 2012, could be %50 different from each other. Having this in mind, we need to draw a quantitative and economic borders for the new energy opportunity we are being faced.

4.1. Technical Evaluations

The primary energy consumption of US is 95 quadrillion BTU per year and is predicted to grow 12% by the year of 2040. 82% of that consumption is coming from the fossil fuels and this proportion is expected to change by only a 2% decrease in next 30 years (EIA, 2014). The world's total primary energy consumption in 2010 is over 500 quadrillion BTU and almost the half of this consumption belongs to OECD countries. This consumption is predicted to increase to 820 quadrillion BTU and about 85% of it comes non-OECD countries, specifically China consists 40% of the total increase of primary energy consumption (EIA, 2013, Table A1).

So far, the consumption predictions are stable and seem having reliable projections in a viable range. The problem part lies in the resources part: the new shale drilling and fracturing technology created a new opportunity but the size of this potential is highly ambiguous. Below, we gave some examples of that variety.

¹³ The most important oil sand production in the world is currently going on in Calgary, Canada. Out of Germany, coalbed gas production also recently started to be produced in various regions.

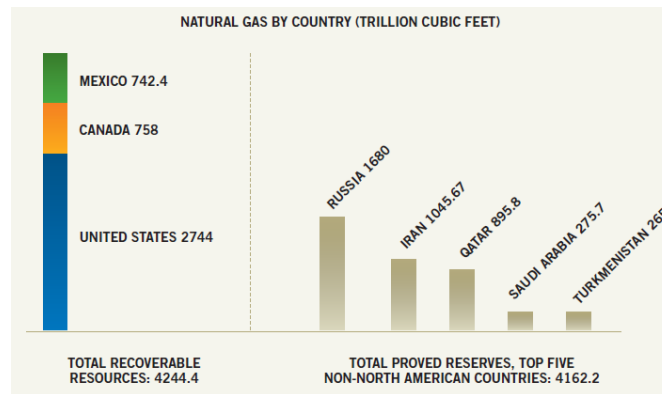


Fig. 3: Natural Gas by Country (trillion cubic feet) Source: IER, 2011

Starting with the global proven capacity we pictured in section 2, we see that the world proved natural gas and oil reserves have reached the level of 6793 tcf and 1342 billion barrels respectively (see Section 2; Figure 3 & 4). USA had a 20 billion barrel proven oil reserves until a few years ago. After the new technology comes into the scene, IER calculates that the technically recoverable natural gas and oil resources of US are 2744 tcf and 1442 billion barrel respectively. ARI (2011) estimated the world recoverable resources of shale natural gas as 5760 tcf; ARI (2013) updated it to 6634 tcf for natural gas and 335 billion barrels for shale oil. EIA (2013) estimated 7299 tcf of gas and 345 billion barrels of oil. ARI (2013) estimates the US will have biggest share for natural gas and second biggest share of oil in this total world potential: for shale natural gas and oil are 1161 tcf and 48 billion barrels¹⁴ respectively.

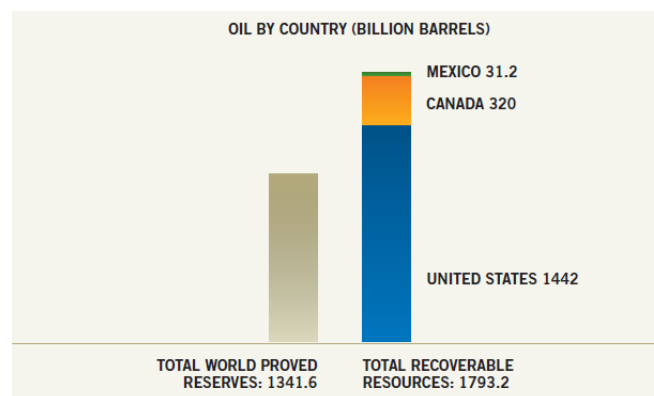


Fig. 4: Oil by Country (billion barrels) Source: IER, 2011

¹⁴ ARI (Advanced Research Institute) states 37 tcf of shale gas and modest volumes of shale oil/condensate have been already produced and not included in the resource numbers (ARI, 2013, Attachment-B).



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As we can see in a first glance, the capacity numbers for this new energy potential could be multiplied by a factor of 2.5-3 times for gas and 28-30 for oil. The estimates and predictions are based on various assumptions. Therefore, this difference causes from several assumptions that the institutions take to conduct the estimations and predictions. First of all, based on the basin information institutes make a total resource potential prediction mainly based on assumptions. Secondly, the institution has to make an assumption on the percentage of this potential can be recoverable. These critical points seem to cause this wide range of variation in predictions. EIA's another assumption depending on the current technology is also shaping the forecasts by giving the advantage on the gas production side. Therefore, it seems that unless another technological development changes the situation, the gas production with shale production will be the dominant component in the energy forecasts.

Over 72% of petroleum are used in transportation vehicles and heating. Coal, natural gas and petroleum are currently responsible for 67% of global electricity production (ETC, 2011, p.59). These a few numbers can show how the current structure of the economy is directly depended to the fossil fuels. To change this dependency is the most important motive for the research and development activities on the alternative energy issues. However, the quick shifting efforts needs tremendous human intellectual capacity and come with the huge financial costs. Therefore, related with the new developments, a possible change in the perception of the emergency level of the need of any structural transformation will be crucially important for the future of all energy sectors.

4.2. Economic and Political Consequences

We can expect that there will be important consequences of any major technological shift in an important sector of the economy, especially if it contributes to under-structures of other industries such as the energy sector. The most important results of the latest technological developments in the fracking and multidimensional drilling techniques can be pin down as economic, political and geopolitical. As for economic perspective, first of all, a huge economic potential has been revealed. It has already changed the macroeconomic calculations and predictions for USA economy. Just it was struggling the aftermath difficulties of the 2008 crisis, intellectual climate changed now calling to prepare itself to the next economic boom. This might continue in other geographies of the globe as the world's resources are being re-evaluated; and also the updates in the prediction of the future of the world's biggest economy will change the predictions and near future plans of the other economies.

Another important economic change has come in terms of a change in comparatives in the energy economics. It is well known the reason that why hydrocarbons are being used as primary resource is their comparative cost advantage (Figure 5). The stimulus and investment budgets for alternative energy production have been based on mainly the idea of imminent scarcity of the fossil fuels as well as their adverse effects on environment primarily as carbon emissions. Therefore, any change in this perspective will change the projection on the spectrum once again.



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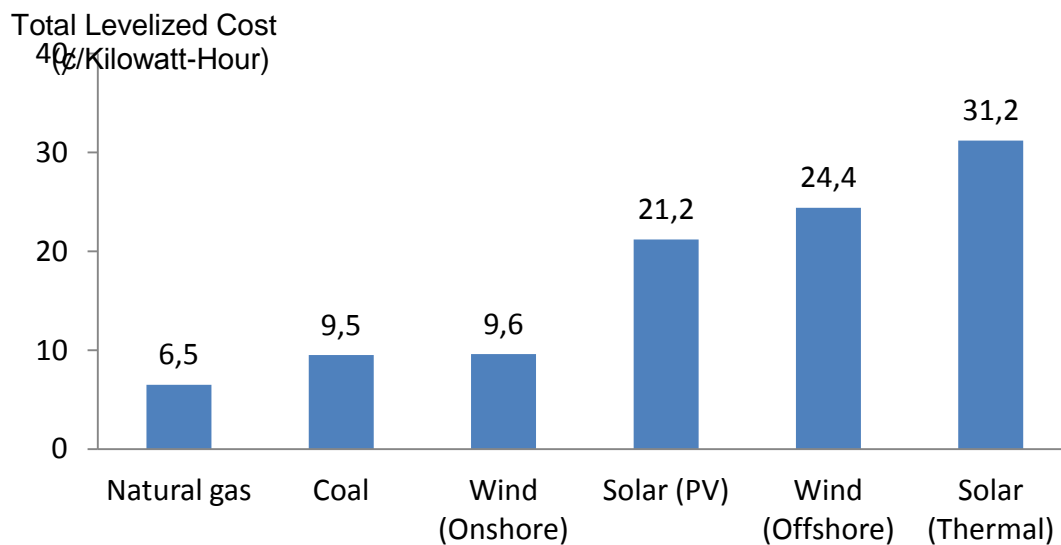


Fig 5: Total Levelized Cost by Energy Source: EIA, 2011

As the determination of energy spectrum is based on national and central decisions, the new projections on the primary energy resources will change the all plans and projections on the other energy tools. Because energy constitutes the main input of the manufacturing and transportation sectors, a change in energy macro-policies will also affect the investment decisions of these industries.

Another important effect can be classified as geopolitical change. The shale gas shift has not been obviously affect the other part of the world but even the changes have been happening (as well as the ones being projected) are enough to lead unprecedented changes in the international relations. America's imminent takeover the lead position in the energy production will make the continent energy independent. The shift of the world's biggest economy into the energy independent position means also a shift to political and geopolitical independencies because the relations of energy supply have been thought as the main factor in the geopolitics and international dependencies.

5. Conclusion

Some of the technological developments are brought together to shape this unconventional gas production boom we have been experiencing lately. The biggest effects so far have been in US energy production and US economy which was the start-off point itself; and it seems to continue growing. The predictions about the size of new potential vary from a capacity enough for few decades' consumption to one enough for more than century's annual energy consumption of US. It apparently implies that a big change is imminent in a lot of area starting from the energy economics and comparatives to energy politics and geopolitics.



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The wide range of the projections about its possible effects will be clearer with coming information. However, the situation especially in US seems the action speaks first, production numbers rise and the predictions come later following the new numbers and discovered potentials. In this situation, a possible cost-benefit evaluation for the other producers and potential investors stays ambiguous and not feasible forcing them to a waiting position in the reshaping market.

There is bigger uncertainty about the direct and indirect results of this new imminent boom on the other part of the globe. In this aspect, we can evaluate that the biggest effects will be on the Middle East and Central Asia that include the other main oil and gas producers.

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Regional Economic Growth; Socio-Economic Disparities among Counties

Salih Özgür SARICA¹

¹Hitit University, Akkent 3rdst. n.3, Çorum, Turkey

Abstract. *State level economy has always been relying on its major metropolitan area's economic success. So, such metropolitan agglomerations have been considered the only agents that can foster the state's economic standing as if other economic places do (or may) not have significant contribution to the regional economy. In contrast, as some major cities enhance their economic well-being and agglomerate in specialized sector, the rest of the region lose their economic grounds or stay constant by widening the economic gap among cities. Therefore, an institutional approach can help to establish new regional arrangements to substitute all economic places to coordinate each other and succeed the economic growth as part of state government by reducing the disparities. In this sense, this study builds upon the inquiry that seeks the impacts of some economic disparities among economic places (counties) on the performances of state level regional economy.*

Keywords: regional economic development, economic disparities, institutional approach

JEL classification: H10, H11

1. Introduction

It is crucial to recognize how economic well-being of a state is identical to sharp disparities among cities within particular socio-economic indicators. The focus has always been that cities can enhance their economic standing by different set of arrangements. Public choice theorists consider that the autonomy of a jurisdiction within the present of coercive force of competition among different locality give rise to the economic prosperity of the jurisdictions. On the other hand, regionalist scholars conceive more of a comprehensive entity which coordinates the regional economy and, by doing so, prospers the economy of particular region- mostly metropolitan area [Hooghe and Marks, 2003], because the spillover effect, coordination dilemma and spatial mismatches hidden the opportunity costs that the economic region has

¹Hitit University, Akkent 3rdst. n.3, Turkey, Tel: +90 (364) 225 7700, Fax: + 90 (364) 225 7710, Email: sozgursarica@hitit.edu.tr



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to bear [Barnes and Ledebur, 1992]. This empirical study intends to go through one step further of regionalist approach by posing the possible necessity of state level reforms that could foster the regional economic growth within political and structural coordination among different levels of economic regions.

The hypothesis of this study is that economic disparity among cities leads to a relatively less economic well-being of state level arrangements. Barnes and Ledebur [1992], in their analysis, point out that city and suburb together share the destiny of metropolitan area's economic standing in comparison to other metropolitan regions. In this manner, regionalist approach offers to deal with free-rider issues and to take advantage of economies of scale through relatively empowered comprehensive institutions [Savitch and Vogel, 2000]. Like other regionalists conceive that regional arrangements are not alternatives to the poly-centric set of jurisdictions but complements to existing institutions in which they have a chief role in prospering the sustainable economic growth of metropolitan areas [Hooghe and Marks, 2003]. This study has the same approach that state level regional reforms can enhance the economic standing within equal share among each jurisdiction by implementing critical programs for the same purpose. The space of agglomeration economies has always been thought as metropolitan area and this misleads to see the potential economic growth within the state level cooperation.

2. Literature Review

There are two main approaches about how government should be arranged in terms of contributing the economic growth of spatial arrangements by allocating the resources and designing the institutional structures. One approach is in favor of fiscal autonomy where the locality can compete with one another. It is also known as public choice perspective in which Tiebout [1956] offers multiple jurisdictions that their quasi-costumer residents can find their preferences of public goods. The basic assumption of this approach is that economic well-being can be obtained through the coercive force of competition among localities without overwhelming government interventions. On the other hand, the spillover effects, negative externalities, coordination dilemma and the lack of scale economy advantages lead some scholars to be skeptical about multiple jurisdiction based spatial arrangements. It is the regionalist approach that sets forth the set of public interventions designed to fulfill such tasks to relieve collective action problem by designating a comprehensive governmental entity [Savitch and Vogel, 2000]. These perspectives are directed to the failures of current situations which are called - market failure or institutional failure [Keating, 2004]. The efficiency and equity of resource allocation are the most socially desirable, and expected to be implemented otherwise the deviance from both purpose is mainly deemed as the market failure in the liberal politic economy.

Regional studies have usually been focusing on the metropolitan areas as constitutes of central city and its surrounding suburbs. The place of analysis, therefore, was to solve the collective action problem in fragmented metropolitan regions by offering a regional government entity. This unilateral regional perspective is important to inquiry the metropolitan areas' social problems. However, the regional



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approach should also see the state government as a political device, fiscal entity and coordinating structure in terms of whether it can foster the regional economic growth within the similar theoretical perspective directed to the metropolitan studies.

Michael Keating in his article “The Political Economy of Regionalism” clarifies how we should see the regionalist approach’s theoretical base;

“The term region takes different forms in different places and refers to a variety of spatial levels. Spatially, it exist somewhere between the national and the local and is the scene of intervention by actors from all levels, national, local, regional and now supranational...even though, the theme of regionalism is increasing in importance, it is often weakly institutionalized itself”.

As such, the regionalist approach attracts many scholars in the need of economic well-being of different level of spatial organizations. There are many arguments why interventionist arrangements are necessary and how it should form;

Olberding [2002] states that proponents of regionalism have asserted a more optimal outcome is achieved when local governments recognize their interdependencies and act in a coordinated way...Some scholars have found that large economic differences among cities in a region demonstrate a need for a regional approach; however, others have concluded that large differences in local economies make it more difficult to pursue a regional strategy.

David Rusk in his article “Growth Management: The Core Regional Issue” points out that growth management is rapidly emerging as the top regional issue of the next decade. There are two key targets: state legislatures, which control land-use rules, and federally required metropolitan planning, which shape the allocation of federal transportation grants... There are only twelve states that have enacted statewide growth management laws. They vary in effectiveness from strong (Oregon) to almost purely exhortatory (Georgia)...Maryland governor Parris Glendening’s Smart Growth Act strengthens a weak state planning law adopted in 1993...In some states existing regional planning organizations are likely to have their planning authority extended into housing policy, regional revenue sharing, and economic development policy. Some may also become vehicles for management of region-wide infrastructure programs formerly carried out by independent authorities.

Miller et al. [2000] pose the importance of regional consensus; “The hyper-complex nature of US federalism requires multilevel intervention, using state and federal powers to reinforce local moves in the direction of regional co-operation and consolidation...Luther Halsey Gulick [1962], *The Metropolitan Problem and American Ideas*, reflected the spirit of John Kennedy’s ‘New Frontier’. Gulick’s one of the main points was that: all levels of US government—especially the states—must be brought to bear on emerging urban problems... Top-down directives, though out of favor, are necessary for managing metropolitan development and ensuring fiscal equalization. These are increasingly unlikely in Canada and a long shot in



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the US. Nonpublic groups, a potential regional force, lack unity and coherence. Voluntary consensus building is nice but not enough to shape regional patterns”.

Keating [2004] criticizes that there could be an increase in inequality between regions and within those regions without a regional set of arrangements;

“Regional anti-disparity policies emerged in the postwar era as an extension of Keynesian macro-management within the aim of rectifying what were seen as market failures in the allocation of resources... The main instruments of diversionary policies were grants and incentives to private investors to locate in development regions; restrictions on investment in booming locations; the diversion of public sector investments into development regions; public infrastructure investment in advance of need, to create favorable conditions for growth...In many cases, regional policy was given inadequate administrative means, consisting of grants and incentives without the necessary coordination, monitoring and follow-up”.

Olberding [2002] indicates the weakness of multiple jurisdictions by quoting that “public administration traditionalists assert that fewer local governments result in economy-of scale benefits, greater political accountability, more equitable treatment of citizens, and greater opportunity to address significant problems”.

Hooghe and Marks [2003] points out that collective action problem arises among multiple jurisdictions since the free riding issue dominates the current view of governance structure. They offer how to deal with the coordination dilemma; “one strategy is to limit the number of autonomous actors who have to be coordinated by limiting the number of autonomous jurisdictions. The second is to limit interaction among actors by splicing competencies into functionally distinct units”. Likewise, Olberding [2002] states that “Scholars have long recognized the difficulty of achieving and sustaining voluntary cooperation among a large number of individuals with no central authority- the so-called “dilemma of collective action”.

Other scholars have concluded that cooperative norms-or something conceptually similar-are critical for shifting from competitive to cooperative behavior. For example, in her comprehensive review of the cooperation literature, Ostrom [1998] concludes that the key determinant of cooperation is "norms of reciprocity"-or the tendency of individuals "to react to the positive actions of others with positive responses and the negative actions of others with negative responses [Olberding, 2002].

3. Method and Data

In order to evaluate the economic disparity among counties of the states (not including Alaska and Hawaii), the units of analysis will be counties in each given state to find out the differences in terms of economic well-being. To deal with different factors that might affect the comparison analysis, it is crucial to classify them whether they are counted as MSA, micro statistical area or not in a metropolitan area by Census Bureau to control for urbanization and agglomeration effect. At the second step, the regional



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classification of the states will be important to rule out regional features such as historical or natural advantages. Furthermore, the number of counties can influence the diversity measurements since the large number of counties might result with a relatively big disparity and thus should be controlled. Another issue might be that some counties of a state can be located in a metropolitan area where its most part located in another state. Since the analysis compares the disparities among counties with state level economic performance, dropping such counties can result some important mismatches in the model equations where the values of state level economic indicators will overweight the variables of lacking counties in aggregate. Therefore, counties will be listed based on their state location.

To answer the hypothesis, economic performance of state governments will be modeled as a function of the disparity of income level, education and employment rates among their counties within other controlling factors. The model design will be used to compare relative importance of the state governments' economy with the variation among their counties. For 48 states, the disparity value of each independent variable for given set of counties are expected to be predictors of the economic standing of state governments. Independent variables are the differences of median household income, education level (percentage of population with associate, bachelor's, master's, professional, doctorate degree), employment rates (percentage of population in labor force -16 years and over) for each state's counties. Dependent variables are the rates of per capita income and the percentage of individuals above poverty level of state governments.

To find out the disparity among counties, generalized inequality index will be used for our inquiry. Each value will be divided by the mean value then the average deviation will be inequality level for the use of determinant independent variables. For example, there is perfect income equality when everyone's income equals the mean income but as the value deviates, the average of total deviation will be the inequality value for our set of independent variables.

A multicollinearity problem might appear since the inequality levels are based on the variables that might be highly correlated each other. We can expect the income, education and employment to show the similar tendency then it might affect the diversity value for each state. The expected result may not be statistically significant in that the sample size for each model will be 48 and 41 respectively. However, we can obtain some identical partial coefficients when other factors are controlled.

Model I: per capita income (state) = β (disparities of median household income, education level, employment rates in counties) + Controlling factors

Model II: the percentage of individuals above poverty level (state) = β (disparities of median household income, education level, employment rates in counties) + Controlling factors The data set is obtained from the US Census Bureau's 2000 Summary Files of The Decennial Census



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4. Results

The descriptive statistics show the range of disparities for each independent variable. From the general inequality index, each value indicates how it is deviating from the perfect equality which is 1. The widest disparity seems to be of education level for each model. The counties of Georgia, New Mexico, Tennessee and Virginia, which are located in MSA and MicroSA have the most inequality level of education among those of all states. On the other hand, the mean value of labor force disparity is relatively lower for both two models than other independent variables regardless of whether the counties are in MSA or not. Another noticeable finding is that the counties in Non-MSA and Non-MicroSA have lower range of disparity than the ones in MSA and MicroSA for independent variables except the labor force disparity. Finally, the states' economic indicators- per capita income and percentage of individuals above poverty level- have the highest value in Connecticut and New Hampshire respectively, the lowest in Mississippi.

The correlation values show that independent variables are positively related each other at 0.01 level. In other words, the inequality level of median income, education and labor force among counties have consistent tendency as it might be theorized. Besides, the dependent variables of the models- per capita income and percentage of individuals above poverty level- are also positively correlated (.704) at .01 significant level. At the same time, it is important to look at the correlation values of the number of counties within the independent variables. In fact, the reason why the number of counties is included in each model as controlling factor is that it might affect the disparity level since the inequality level is measured by the average deviation from perfect equality 1. In the tables, it is shown that the number of counties is positively correlated with income disparity (.34), education disparity (.51) and labor force disparity (.33) level in MSA, MicroSA counties at .05, .01 and .05 level respectively. For the disparity levels of counties in nonMSA and MicroSA, the number of counties is significantly correlated just with the labor force disparity (.33) at .05 level.

The states' per capita income and percentage of individuals above poverty level are regressed on the median income disparity, education disparity, labor force disparity and number of counties in MSA and MicroSA. Two models explain .26 and .22 (respectively) of the variation in the dependent variables at .001 and .01 levels. For all models, we expect the coefficients to be negative according to our hypothesis. Interestingly, the median income disparity among counties in MSA and MicroSA has a positive predictor on state's per capita income. In other words, the state whose counties have more inequality in income level is better off in terms of per capita income. This might be because the median income can be skewed since multi-national, high wage offering firms agglomerate at specific advantageous locations which foster the state's economic performance within a few economic places. On the other hand, education disparity has a deleterious impact on per capita income of a state at .05 level as the hypothesis expected. Finally, only significant partial coefficient is that of labor force disparity on state's percentage of individuals above



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poverty level. As labor force disparity increase one unit, the model predicts the percentage of individuals above poverty to decrease .38 at 0.1 significant level.

When we look at the disparities among counties in Non-MSA and Non MicroSa, median income disparity loses its significance on per capita income which indicates that the disparity is much more identical in agglomeration (or urbanization) effect. Surprisingly, the education disparity has positive predictors in each model at .01 level. The state's per capita income and percentage of individuals above poverty is expected to be better off where its nonMSA and nonMicroSA counties have more education inequality. One skeptical approach can be raised that the better off states can help their some Non-MSA counties' educational attainment to a particular level while others stay constant. Finally, in Table 6, the labor force disparity seems to have negative impact on the percentage of individuals above poverty at .05 level.

In last two tables, the range of predictors' effect is seen based on the regions. The weight of income and education disparity among MSA, MicroSA counties is greater in the West and Midwest than South and Northeast. It is similar in the second model for education disparities' positive impact of Non-MSA and Non MicroSA counties. On the other hand, in the Northeast and West, labor force disparity among Non-MSA and NonMicroSA counties has more deleterious effect on percentage of individuals above poverty level of the states.

5. Policy Implications

Case studies of regional partnerships for economic development have found that economic need is a key factor in the formation of regional partnership [Olberding, 2002]. In this manner, this empirical study seeks to answer how government organizations can stimulate sustainable economic development in efficient way by also reducing the economic disparity. Specifically, it offers to establish state level regional arrangements to implement such tasks through its institutionalizing opportunities.

As Hooghe and Marks [2003] implies, the regional approach may not necessarily mean that institutional arrangements are to be at the tradeoffs between public choice and regionalist perspectives. Some misspecifications might lead us to see narrowly the regionalist arguments as if they don't provide us a ground to account for Tiebout's model. Therefore, this study goes beyond the extreme theoretical arguments within the view of institutional necessity for the economic growth and equal distribution of the outcomes, even though the study seems to be built on regionalist perspective. In order to provide a better environment for economic growth, all possibilities should be taken into account through the mix of counter considerations

The empirical results explicitly show us that economic disparities especially in labor force and education level in metropolitan areas are identical to the state's economic performance in negative way. However, what makes difficult to accept the hypothesis is that education level and median income



disparities surprisingly have positive coefficients in the models. Thus, a further inquiry is necessary to see what the fact behind it actually is. Nevertheless, it partly supports the argument that the concentration of economic well-being at particular counties results with less successful economy at state level.

Under the state governments, an economic development commission, in which the representatives of counties can cooperate for stimulating economic growth within the state by accounting not only specific successful places but within all counties, should be established and empowered through federal funds. The policy outcomes of such regional commission must not only focus on the current agenda but it is crucial to discuss other substantial improvements such as education, employment and infrastructure.

6. Appendix

Table 1. Descriptive Statistics

	Min	Max	Mean	Std Dev.
Per Capita Income	15853	28766	20712	2892.9
Percentage of Individuals				
Above Poverty Level	.801	.935	.879	.031
Income Disparity Among				
Counties (MSA, MicroSA)	.095	.350	.180	.056
Education Disparity Among				
Counties (MSA, MicroSA)	.166	.445	.302	.069
Labor Force Disparity Among				
Counties (MSA, MicroSA)	.030	.140	.075	.024
Income Disparity Among				
Counties (Non-MSA, Non-MicroSA)	.063	.236	.128	.037
Education Disparity Among				
Counties (Non-MSA, Non-MicroSA)	.114	.393	.205	.063
Labor Force Disparity Among				
Counties (Non-MSA, Non-MicroSA)	.040	.161	.084	.029
Number of Counties	3	254	64.7	46.4



Table 2. Economic Disparities among Counties in MSAs and MicroSAs

Dependent Variable Above Poverty Level	Per Capita Income	Percentage of Individuals
Median Income Disparity	29307.4** (.573)	.068 (.122)
Education Disparity	-21021.8* (-.504)	-.129 (-.283)
Labor Force Disparity	-6848.5 (.057)	-.387‡ (-.296)
Number of Counties	-8.9 (-.143)	.000 (-.035)
Constant	22883.4***	.937***
F	3.877 ***	3.093**
R ²	.265	.223
Adjusted R ²	.197	.151
N	48	48

Notes: Unstandardized coefficients (standardized); significant predictors in **bold**.

‡ p<0.1 *p<0.05 **p<0.01 ***p<0.001

Table 3. Economic Disparities among Counties in Non-MSAs and Non-MicroSAs

Dependent Variable Above Poverty Level	Per Capita Income	Percentage of Individuals
Median Income Disparity	-12448.5 (-.194)	-.054 (-.065)
Education Disparity	20213.1** (.542)	.249** (.513)
Labor Force Disparity	-13034.5 (-.162)	-.545* (-.520)
Number of Counties	3.992 (.074)	.000 (.029)
Constant	18332.4***	.876***
F	2.225‡	3.045*
R ²	.198	.253
Adjusted R ²	.109	.170
N	41	41

Notes: Unstandardized coefficients (standardized); significant predictors in **bold**.

‡ p<0.1 *p<0.05 **p<0.01 ***p<0.001



Table 4. Economic Disparities among Counties in MSAs and MicroSAs

Dependent Variable	Per Capita Income			
	Northeast	Midwest	South	West
Median Income Disparity	24487.2* (.479)	29388.6** (.574)	28988.4** (.567)	29810.2** (.583)
Education Disparity	-18183.7* (-.436)	-20916.2* (-.501)	-20642.0* (-.495)	-21096.6* (-.506)
Labor Force Disparity (.058) (-.052) (-.048) (.005)	6909.3	-6286.1	-5806.2	627.0
Number of Counties	-4.5 (-.073)	-9.4 (-.151)	-8.6 (-.139)	-14.3 (-.231)
Northeast	1920.9 (.273)			
Midwest		106.6 (.016)		
South			-150.5 (-.024)	
West				-1356.2 (-.199)
Constant	21168.0***	22800.1***	22778.8***	22911.2***
F	3.793**	3.033*	3.035*	3.543**
R ²	.311	.265	.265	.297
Adjusted R ²	.229	.178	.178	.213
N	48	48	48	48

Notes: Unstandardized coefficients (standardized); significant predictors in **bold**.

‡ p<0.1 *p<0.05 **p<0.01 ***p<0.001



Table 5. Economic Disparities among Counties in Non-MSAs and Non-MicroSAs

Dependent Variable	Percentage of Individuals Above Poverty Level			
	Northeast	Midwest	South	West
Median Income Disparity (-.067)(-.094)(-.048)(-.075)	-.055-.078-.040-.062			
Education Disparity	.247** (.509)	.325*** (.671)	.229** (.473)	.274** (.565)
Labor Force Disparity (-.537) (-.404)	-.562* (-.409)	-.423* (-.509)	-.428‡	-.532*
Number of Counties	.000 (.016)	.000 (-.145)	.000 (.158)	.000 (-.034)
Northeast	-.007 (-.077)			
Midwest		.040*** (.593)		
South			-.028** (-.440)	
West				-.009 (-.122)
Constant	.879***	.850***	.871***	.876***
F	2.433‡	8.304***	4.842**	2.485‡
R ²	.258	.543	.409	.262
Adjusted R ²	.152	.477	.324	.157
N	41	41	41	41

Notes: Unstandardized coefficients (standardized); significant predictors in **bold**.

‡ p<0.1 *p<0.05 **p<0.01 ***p<0.001



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Food Quality Certificates and Research on Effect of Food Quality Certificates to Determinate Ignored Level of Buying Behavioral: A Case Study in Hitit University Feas Business Department

Hülya ÇAĞIRAN KENDİRLİ¹, Gürkan ULUSOY²

¹Faculty of Economics and Administrative Sciences, Hitit University, Çorum, Turkey

²Institute of Social Sciences, Hitit University, Çorum, Turkey,

Abstract. *Nowadays, food and food industry has become one of the most important sectors for manufacturers and consumers. Many countries of the world including Turkey have been developed and implemented many standards for food safety and presentation of food to ensure safe consumption. In this study, we studied on the most common of these standards through HACCP and ISO 22000 standards. The purpose of this study is, to determine students' awareness and ignores of level of food quality and food quality certification during their food shopping. This research has conducted with survey in the Hittite University, Faculty of Economics and Administrative Sciences, Business Administration by 256 students are attending to this department. Department student number is 775 in totally. We have determined some hypotheses in the context of research and we applied cluster analysis, chi-square analysis and correlation analysis to the research. According to results of a significant relationship was found between hypotheses. We considered 260 students. After calculating with 0,95 confidence interval and 0,05 tolerance we have to reach 258 students. We used the Cronbach's Alfa for testing the reliability of survey. Cronbach's Alfa is settled between 0 and 1 and for reliability of scale and it must be over 0,60 for acceptance to survey. Our survey's scale has been 0,79 and we can said that, it is a reliable scale for this survey study. According to result of research, there is no relationship between demographic specialties of students and ignored of food and quality legislation. But there is relationship between sexuality and ignored of food and quality legislation.*

Keywords: Quality, Food Safety, Food Quality Certificates, HACCP, ISO 22000.

JEL classification: M31, M39

¹ Corresponding author. Tel.: + 90 364 225 77 00; fax: +90 364 225 77 00;

E-mail address: hulyacagirankendirli@hitit.edu.tr

² Corresponding author. Tel.: +90 368 30 61; fax: +90 36830 61; Email address: gurkan.ulusoym@windowslive.com



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Introduction

Quality stems etymologically from the word 'qualis' in Latin. The first information about the quality prevails in the laws of Hammurabi. Accordingly, in Turkish history, it begins to appear in the activities of 'Ahi' community and municipal laws.

The concept of standard, with its most basic sense, is a way that is repeatable and agreed on doing something. Under today's conditions, it is quite difficult to make a generic definition of quality. Developing technology, personal-cultural differences and changing consumer demands are some of the underlying reasons of that difficulty.

In Turkey and other countries of the World, food industry is leading among the industries in which quality is given much significance. Because food is an primary affordable resource for people to sustain their biological and physiological assets. Therefore, the protection of quality in the food products is a necessity in our era.

This study aims to determine consumers' awareness of the food quality certificates and the levels of noticing the food quality certificates in their food shopping.

1. Food Quality Certificates

In the last quarter of 1990s, food safety and quality gained importance to a great extent. Consumers paid more attention to the fact that the food, which they buy or consume, be produced in accordance with certain standards [Koç & Bolluk, 2008]. Today's consumers demands potentially highest quality from the producers, food companies and retailers [Alpay, 2001].

Law, by-law and regulations implemented to provide food quality are defined as food legislations [Halaç, 2002]. There are many national and international standards in the areas of food safety and quality. In the study, the primary focus will be on HACCP and ISO 22000 standards which are the most known and applied among those national and international standards.

- **Hazard Analysis and Critical Control Point (HACCP)**

HACCP is a systematic approach to be formed for the purpose of identifying hazards, determining and controlling pests [Aran, 1993]. HACCP, firstly, was developed by a group in the Pillsbury company which produces healthy food for the space programme named 'Apollo' in USA [Boyacıoğlu, 1993].

HACCP focuses on the control of producing process, and it is essentially a quality control system. Known widely in the food industry, HACCP aims to control or eliminate hazards to food safety [Unnevehr and Jensen, 1998]. However, HACCP applications between those who produce the same group of product and even the businesses producing the same product may differ, because critical control points are determined by in-house experts, but not universal.



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- **ISO 22000 Food Safety Management System**

Prepared by ISO and released in 2005, ISO 22000 standard is the first international standard to be released as 'Food Safety Management System'. ISO 22000 standard has been developed to meet some needs such as giving consumers necessary information as result of enhancing of the traceability concept, and increasing pressure of all commercial organizations and supreme board, also known as non-commercial organizations, on producing companies to ensure food safety. On the other hand, another reason is that it is compulsory to get HACCP certificate from different sources for HACCP certificates used in foreign trade, and as a consequence of this, the firms' costs have increased [Frost, 2005].

While HACCP standards are used generally by food producers, ISO 22000 standards are aimed to be used with the intention of being applied and certified by the firms in food chain (supplier, storing, distributor, and etc.) as well as food producers [Frost, 2005]. That is, ISO 22000 standard is a programme applied to all units being in relation with agricultural production and food production. With this aspect, it differs from HACCP standard having similar aim.

1.1. A Research On Determining The Level Of Caring Food Quality Certificates in Food Shopping

In this section of the study, the results of a field research will be present, having been applied to the students who study in the Department of Business Administration, Faculty of Economics and Administrative Sciences, Hitit University.

The main purpose of the study is to determine the awareness of consumers on the quality legislations and the levels of consumers' noticing the food quality certificates in their food shopping. In this sense the field research was carried out with 260 students, who study in the Department of Business Administration, by using face-to-face questionnaire technique.

The most appropriate model has been developed in accordance with the study's purpose. The hypotheses have been determined relating to the model developed. In the study, there are 6 hypotheses. In this sense, the hypotheses determined are as follows:

H₁: There is a significant correlation between the students' demographic characteristics and their awareness of the food quality legislations.

H_{1a}: There is a significant correlation between the students' gender and their awareness of the food quality legislations.

H_{1b}: There is a significant correlation between the students' ages and their awareness of the food quality legislations.

H_{1c}: There is a significant correlation between the students' food expense groups and their awareness of the food quality legislations.



H₂: There is a significant correlation between the students' demographic characteristics and the levels of noticing the food quality certificates in their food shopping.

H_{2a}: There is a significant correlation between the students' gender and the level of noticing the food quality certificates in their food shopping.

H_{2b}: There is a significant correlation between the students' age groups and the levels of noticing the food quality certificates in their food shopping.

H₃: There is a significant correlation between the students' levels of awareness of the food quality legislations and their level of noticing the food quality certificates in their food shopping.

1.1.1. Methodology

The questionnaire form has been developed by being inspired from the scale that Asoglu (2009) used in his study. A preliminary test has been done on 25 people before applying items in the questionnaire, and the questionnaire has taken its final shape after removing shortcomings.

In order to conduct research, 760 students who study in the Department of Business Administration is based on. For 760 students, the sample size is 260, which is calculated in the confidence interval of 95% and has margin of error of 0.05.

In this section of the study, the results of the questionnaire which is applied to the students are present. 256 questionnaires have been evaluated after removing the faulty ones out of the questionnaires applied 260 people via face-to-face questionnaire technique.

- **Cronbach's Alfa Analysis**

Cronbach's alpha coefficient has been used in testing scale reliability. According to Cronbach's alpha analysis, the reliability value of the variable of the level of the food quality legislations awareness is 0.69. The reliability analysis results of the variable of the level of noticing the food quality certificates in food shopping is calculated as 0,75. Based on Cronbach Alpha analysis results, it can be inferred that the scaled has high reliability.

Table 1: The Scale's Cronbach's Alpha Analysis

Cronbach's Alfa Analysis	The Scale's General Reliability	0,79
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- **Cluster Analysis**

Cluster analysis is a multivariate statistical analysis that aims for individuals or objects to be collected in groups or clusters according to their similarities [Kurtuluş, 1998]. So it aims to classify the answers, which individuals in the research sample give to the items of questionnaire, according to their similarities.



The clusters relating to the variable of the students' levels of the food quality legislations awareness has been calculated as 51,9% for high level of awareness; 48,1% for low level of awareness. Whereas there are 133 students in the cluster of High Level Awareness, there are 123 students in the cluster of Low Level Awareness.

Table 2: Levels Of The Food Quality Legislations Awareness

Clusters	High Level Of Awareness	Low Level Of Awareness	Anova P
	51,9%	48,1%	0,001

3 clusters have been formed relating to the variable of the level of noticing the food quality certificates in food shopping. 36,7% of the students are at a high level of noticing; 50,8% at a mid level of noticing; 12,5% at a low level of noticing.

Table 3: Levels of Noticing the Food Quality Certificates

Clusters	High Level of Noticing	Mid Level of Noticing	Low Level of Noticing	Anova p
	36,7%	50,8%	12,5%	0,000

Anova values relating to all clusters are less than 0,05. It has been determined that the clusters are different from each other.

1.2. Testing Research Hypotheses

In this section, hypotheses and the presence-absence of correlation between variables will be analyzed by chi-square test. Research hypotheses and test results are as follows:

1.2.1. Hypotheses 1:

H₁: There is a significant correlation between the students' demographic characteristics and their awareness of the food quality legislations.

- **Hypotheses 1a sub-Hypotheses**

H_{1a}: There is a significant correlation between the students' gender and their awareness of the food quality legislations.

Related to the variables, Chi-square test results are included in Table 4. Chi-square value is 2,957, which is calculated at a significance level of 0,01 and degree of freedom of 1. On the other hand, the critical value is 58.14, which is calculated again at a significance level of 0,01 and degree of freedom of 1.

Chi-square sig. value is, however, calculated as 0,085. Since the value is more than 0,05, it will be accepted as an absence hypothesis. In this context, H_{1a} sub-hypothesis will be rejected. It means that there is not any significant difference between the students' gender and their level of noticing the food quality certificates.



Table 4: Correlation Between The Students' Gender And The Awareness Level Of Food Quality Legislations

			Awareness Level		Total
			High Level of Awareness	Low Level Of Awareness	
GENDER	Women	Number	56	65	121
	Men	Number	77	58	135
Total		Number	133	123	
Expected value is not less than 5 in any cell.			D.F: 1	Chi Square χ^2 : 2,957	

- **Hypotheses 1b and 1c**

H_{1b}: There is a significant correlation between the students' ages and their awareness of the food quality legislations.

H_{1c}: There is a significant correlation between the students' food expense groups and their awareness of the food quality legislations.

In addition, the correlation between age groups and the ranges of monthly food expense which are the students' other demographic characteristics, have been tested. Relating to the age group, chi-square value is 0,65. However, related to the ranges of monthly food expense, chi-square sig. value is 0,32. Since both of values are more than 0,05, the absence hypothesis has been accepted; but H_{1b} and H_{1c} hypotheses have been rejected.

1.2.2. Hypotheses 2

H₂: There is a significant correlation between the students' demographic characteristics and the levels of noticing the food quality certificates in their food shopping.

- **Hypotheses 2a sub-Hypotheses**

H_{2a}: There is a significant correlation between the students' gender and the level of noticing the food quality certificates in their food shopping.

Chi-square analysis results related to the variables are included in Table 5. Calculated at a significance level of 0,01 and degree of freedom of 2, chi-square value is 60.759; however, expected chi-square value is 15.13. On the other side, Chi-square sig. value is 0.00, that is, less than 0,05. Therefore, the absence hypothesis has been rejected; the hypothesis asserting that there is difference has been accepted. In other words, it has been determined that there is a significant correlation between the students' gender and their level of noticing the food quality certificates in their food shopping, and H_{2a} sub-hypothesis has been accepted.



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Table 5: Correlation Between The Students' Gender And The Level Of Noticing Food Quality Certificates.

			Noticing Level			Total
			Low Level	Normal Level	High Level	
GENDER	Women	Number	11	92	18	121
	Men	Number	21	38	76	135
Total		Number	32	130	94	256
Expected value is not less than 5 in any cell.			D.F: 2		Chi Square χ^2 : 60,759	

- **Hypotheses 2b sub-Hypotheses**

Belonging to the variables of the students' age group, another demographic characteristics in the questionnaire, and level of noticing the food quality certificates, chi-square sig. value is 0,00. As it is less than 0,05, H2b sub-hypothesis has been accepted.

1.2.3. Hypotheses 3

H3: There is a significant correlation between the students' levels of awareness of the food quality legislations and their level of noticing the food quality certificates in their food shopping.

Chi square analysis results related to the variables are included in T6. Calculated at a significance level of 0,01, and degree of freedom of 0,01, chi square value is 11,441. Chi square sig. value is 0,003, as well. Since chi square sig. value is less than 0,05, the absence hypothesis has been rejected; but the hypothesis asserting that there is difference has been accepted. In this way, it can be said that there is a significant correlation between the students' level of the food quality awareness and their level of noticing the food quality certificates. So H3 hypothesis has been accepted.

Table 6: Correlation between the food quality legislations and the level of noticing the food quality certificates

			Noticing Level			Total
			Low Level	Normal Level	High Level	
Awareness Level	High Level	Number	10	63	60	133
	Low Level	Number	22	67	34	123
Total		Number	32	130	94	256
Expected value is not less than 5 in any cell.			D.F: 2		Chi Square χ^2 : 11,441	



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1.2.4. Correlation Analysis

Correlation is referred as 'r', and its value changes between -1 and +1. Here the direction of correlation is determined by the mark of 'r', and its degree is determined by magnitude of coefficient. Minus value shows that a variable decreases as the other increases; however, plus values shows that both variables' value increase or decrease together [Damodar, 2001].

- **Correlation 1**

In this section, the results of correlation analysis used in the research are given. Belonging to the variables between genders and opinions about the quality certificated products' being expensive, 'r' value has been calculated as 0,396 at a significance level of 0,01. That is, there is a positive correlation in the mid-degree between genders and expensiveness of the quality certificated products. On the other hand, there is not a clear cause and effect relation, but it can be commented that males, rather than females, think that the quality certificated products are expensive.

- **Correlation 2**

The correlation between those not caring the writings on the food products and those caring quality, not price of the product is 0,646. Accordingly, there is a high correlation in a linear direction between variables.

- **Correlation 3**

The correlation between the level of food and quality legislations awareness and the level of noticing the food quality certificates in food shopping has been calculated as -0,211 at a significance level of 0,01. Therefore, it can be inferred that there is a low correlation in negative direction between variables.

Conclusion

To sum up the results obtained in the research:

- 51,9% of the students in the research have a high level of the food legislations awareness. However, 48,1% has a low level of the food legislations awareness.
- The expressions that form the level of noticing the food quality certificates on participants' purchasing attitudes have been categorized by a cluster analysis. According to that, 36,7% of the students have high level; 50,8% have mid-level; 12,5 % have low level of noticing.
- The rate of those who know HACCP- ISO 22000 standards is 40,7% .
- 59,4 % of the participants know the concept of Quality Standards.
- 56,2% of the participants don't prefer the products that don't have a quality certificate.
- 62,5% of the students have stated that a quality certificate is the main reason while preferring the product.
- The awareness level of Halal Food Certificate is 80,5%. On the other hand, 76,6% of the participants cares this certificate on buying meat and meat products.



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Variables and hypotheses determined in the research have been analyzed by chi square test. According to the analysis results, significant correlations have not been found between the demographic characteristics of the students, who study in the department of Business Administration, and their awareness level of food quality legislations. H1 hypothesis has been rejected with its all sub hypotheses.

Statistically significant correlations have been determined between the students' demographic characteristics and the level of noticing the food quality certificates on buying behaviours. Accordingly the hypothesis(H2) asserting that there is a significant correlation between the students' demographic characteristics and the level of noticing the food quality certificates on buying behaviours has been accepted with its all sub-hypotheses.

The relations has been tested between the students' level of food and quality legislations awareness and the level of noticing the quality certificates on their food shopping, and significant correlation has been determined. According to the analysis results, significant correlations have been found between the level of food and quality legislations awareness and the level of noticing the food quality certificates in food shopping, and H3 hypothesis has been accepted.

The relations between the two variables have been examined by a correlation analysis. A correlation in a negative direction and low degree has been found between the level of food and quality legislations awareness and the level of noticing the food quality certificates on buying behaviours. In brief, individuals' level of noticing the quality certificates on buying decreases while the level of the food and quality legislations awareness increases. In this situation, it is clear that the students, who study in the Department of Business Administration, Faculty of Economics and Administrative Sciences, Hitit University, are aware of the food quality legislations, but don't care the food quality certification on buying. So it can be inferred that the level of noticing the food quality certificates in food shopping decreases as the food and quality legislations awareness increases.

In the future studies on the subject, it will be suitable to conduct surveys and establish models which reveal the cause and effects of the negative correlation between the food quality legislations and the level of noticing quality certificates.



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Are Greeks' Unconcerned about Ethical Market Choices?

Antonia Delistavrou¹ and Irene Tilikidou¹

¹Alexander Technological Educational Institute of Thessaloniki, P.O. Box 141, 57400, Greece

Abstract. *An Ethical Unconcern (EthU) scale was constructed and its impact on Positive Ethical Consumption was examined. The procedure of EthU included literature search, brainstorming and discussion groups to generate the preliminary pool of 99 items, refinement of the scale via a students' survey by the employment of item-to-total correlation and alpha-if-item deleted techniques. The initial scale was tested in a consumer survey conducted in the urban area of Thessaloniki, Greece. Item-to-total correlation and alpha-if-item deleted techniques were applied again, followed by Exploratory Factor Analysis (EFA) by the employment of PCA. The procedure left 21 items in five factors with eigenvalues greater than 1 explaining 61.34% of the variance. The five factors were named Boycott/ Discursive, Fair-Trade, Scepticism, Powerlessness and Ineffectiveness. The AMOS SPSS was then used to conduct confirmatory factor analysis. Goodness-of-fit results indicated that the measurement model fit the data well ($\chi^2=594.226$, $p<0.000$, CFI=0.926, NFI=0.899, TLI=0.910, RMSEA=0.066). The examination of the Positive Ethical Consumption indicated rare to occasional ethical buying choices among Greek consumers. The inhibiting role of Ethical Unconcern on Positive Ethical Consumption was found to be rather low.*

Keywords: Ethical Consumption; Ethical Unconcern; Measure Development

JEL Codes: M31 Marketing

1. Introduction

Ethical Unconcern is a suggested term that aims to represent negative attitudes towards Ethical Consumption. The usual approach in consumer research is to examine which attitudes are able to motivate, to influence specific consumer behaviours positively. With reference to socially desirable behaviours, such as ethical behaviours, the usual approach has been to investigate those concerns that drive consumers to act pro-socially. Although Nielsen (2012) still defines the "socially-conscious consumer" as those who say they would be willing to pay a premium for the ethical products, academic research indicates a considerable gap between what people feel, think and believe and what people actually do (Cowe and Williams, 2000; Bray *et al.*, 2011, Delistavrou and Tilikidou, 2012, Tilikidou, 2013). Nevertheless, it would be worthwhile to wonder what prohibits people to act upon their feelings and beliefs. In an effort to understand better a subset of ethical consumption, that of ecological behaviour, Tilikidou and Delistavrou (2005) examined which negative attitudes might inhibit pro-environmental actual behaviours, instead of examining those attitudes that might enhance them.

⁺Corresponding author. Tel.: + 302310013242; fax: +302310791180 E-mail address: delistavrou@yahoo.com



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Following this direction of research, this study aimed to construct a reliable and valid scale to measure negative ethical attitudes, namely ethical unconcern and also explore its inhibiting role on ethical purchasing choices.

2. Ethical Consumption

Ethical consumption does not concern merely individual satisfaction of needs and wants, as it simultaneously aims at the overall social welfare (Crane, 2001; Tallontire *et al.*, 2001). It might be rationally argued that the economic crisis would not assist any shifts towards ethical consumption patterns in the European market. On the other hand, the Ethical Consumer Markets Report in U.K. indicated that markets for ethical goods and services have remained resilient throughout the economic downturn. (The Co-operative Bank, 2012).

Ethical consumption is a relatively new topic within the marketing academic community. Although its roots might be found back in the seventies, it cannot be considered as a topic of the mainstream within the marketing academic community yet.

There are three types of ethical consumption: a) the positive type (choose eco-friendly and fair products, prefer firms that take care of fair labour conditions) b) the negative type (boycotting unethical products or firms) as suggested by Tallontire *et al.* (2001) c) the discursive type (digital communication about consumption issues) as suggested by Michelletti *et al.* (2005).

The first type is the most interesting one of course, in terms of a marketing viewpoint. The positive ethical consumption has been suggested as a rather broad concept, including buying, eco-friendly and fair products (Tallontire *et al.*, 2001), recycling, repair, reuse as well as donate, volunteer etc. (Tilikidou and Delistavrou, 2012). The part of the ecologically related consumer research has obviously gained most of the researchers' attention the last three or four decades, while examination of the overall concept of ethical consumption has been rather neglected so far.

Nonetheless, there is already a small but dynamic academic stream addressing the challenge to understand this type of consumption better. Cowe and Williams (2000, p. 2) asserted that, "shoppers are highly aware of ethical issues and many are ready to put their money where their morals are". De Ferran and Grunert (2007) also believe that moral values will be a significant driving force of the buying and/or not-buying behaviours among consumers of the western societies in the near future.

There have been some studies (e.g. Creyer and Ross, 1997; Mohr *et al.*, 2001; Fernandez-Kranz and Merino-Castello, 2005; Delistavrou and Tilikidou, 2012), which indicated a considerable segment of consumers ready to prefer firms that are socially responsible towards the natural and the human environment. In fact, the overall, global actual market share for these products is much more limited than what the studies suggested (Boulstridge and Carrigan, 2000; Cowe and Williams, 2000; Carrigan and Attalla, 2001; Tilikidou, 2013). Cowe and Williams (2000) more than a decade ago, underlined that although most surveys reveal that around 30% of the population is particularly motivated to buy ethical products, these products make up only fewer than 3% of their individual markets. This phenomenon has been named the "30:3 syndrome" in ethical consumption (30% of population reported ready to buy ethically featured products, but ethically featured products typically account for 3% of the market share).

3. Ethical Attitudes

With regards to the antecedents of positive ethical consumption, of course attitudes (plus demographics) have attracted the greatest part of the researchers' attention so far. Nevertheless, in the



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consumer research context there has always been a debate as to whether attitudes can be considered a valid predictor of an individual's behaviour, as attitudes are often not translated into action (Carrigan and Attalla, 2001; Sheeran, 2002; Papaoikonomou *et al.*, 2011; Delistavrou and Tilikidou, 2014). This phenomenon is even more obvious when the behaviours under examination are socially desirable (Peattie, 1995, p. 154; Shrum *et al.*, 1995; Thørgensen and Ölander, 2003; Tilikidou, 2013). Therefore, the emergence of the attitude - behaviour gap was expected in the ethical consumer research (Boulstridge and Carrigan, 2000; Carrigan and Attalla, 2001; Auger *et al.*, 2004; Chatzidakis *et al.*, 2007; Papaoikonomou *et al.*, 2011). Papaoikonomou *et al.* (2011) commented that all relevant studies explain the existence of word/deed inconsistencies, merely to an extent. On the other hand, the assumption that attitudes are able, at least to an extent, to describe and/or predict behaviour cannot be taken for granted, as the attitude - behaviour link can provide important implications for the marketers of ethical products (Papaoikonomou *et al.*, 2011). In fact, explaining and/or eliminating the attitudes-behaviour gap might be considered as one of the most important challenges ethical consumption should face in the future.

Which attitudes to examine is another part of the debate, however. There is a list of issues, relevant to the attitudes investigation. For example, the response-scale in an attitudinal measure, the positive or negative sign of the attitudes under measurement, the components of the measure etc. are some of the issues that should be addressed.

To begin with the response-scale, the employment of a semantic differential scale (Han *et al.*, 2010) to examine attitudes towards green hotels (namely choices between two opposite perceptions, such as favourable-unfavourable, positive-negative etc.) has been discussed as rather unsatisfactory (Tilikidou *et al.*, 2013). Suggestions have been previously made that there is a need to develop more reliable and valid instruments to investigate ethical attitudes, measured on the typical Likert scale Tilikidou *et al.* (2013).

With regards to the ecologically related attitudes, Tilikidou and Delistavrou (2005) pointed out that most of the scales, which have been used to measure attitudes, had been designed to estimate positive "pro-environmental concern" scores (e.g. among others Bohlen *et al.*, 1993; Tilikidou, 2001, p. 64; Fotopoulos and Krystallis, 2002; Carrus *et al.*, 2008). It has been observed (Tilikidou and Delistavrou, 2005) that the attitudinal scores have been always significantly higher than the behavioural scores. Eventually it was claimed that the social desirability effect must have been extremely remarkable in the attitudes measurement. Therefore, it might be argued that the examination of negative attitudes might hopefully be found more efficient in capturing more sincere beliefs; those beliefs that in overall express indifference, disinterest, recklessness about environmental issues. The above mentioned authors indeed developed the Environmental Unconcern scale which provided lower attitudinal scores and better evidence of correlation with pro-environmental purchasing behaviour (see: Tilikidou and Delistavrou, 2005).

Moreover, with reference to the broader topic of ethical consumption, it has been previously suggested that there is a need to employ both qualitative and quantitative research approaches in order to understand more deeply the complexity in the antecedents of the ethical decision making (Papaoikonomou *et al.*, 2011; Newholm and Shaw 2007; Bray *et al.* 2011).

The above mentioned issues, among others, clearly indicate definite voids with relevance to a reliable and valid measure of ethical unconcern, which might capture more deep, more sincere beliefs and feelings of consumers and hopefully indicate a more truthful relationship with positive ethical consumption.

4. Research Objectives

- to develop a reliable and valid measure of Ethical Unconcern



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- to examine its impact on Positive Ethical Consumption

5. Methodology

The methodology of this study consisted of two stages: a) a measure development procedure to construct a scale of Ethical Unconcern (EthU) and b) an exploratory field research to test the impact of EthU on Positive Ethical Consumption (PEC).

5.1. The measure development

The measure development procedure incorporated the following steps: domain definition, literature search, focus group, brain storming, items generation, a preliminary survey to students, item analysis, reliability estimation and factor analysis (PCA) following the suggestions of Churchill (1979), Spector (1992) and Robinson *et al.* (1991).

Domain definition: Fishbein and Ajzen (1975, p. 6) wrote that attitudes are “a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object”. Hawkins *et al.* (1998, p. 396) suggested that “attitude is an enduring organization of motivational, emotional, perceptual and cognitive process with respect to some aspect of our environment”. For the requirements of this study we defined Ethical Unconcern as “negative feelings, thoughts, ideas and beliefs with respect to Ethical Consumption”. An effort was made to ensure that the under construction measure would have incorporated attitudes towards all three types of Ethical Consumption, as well as items capturing all components of the domain definition.

Literature search: Previous research papers (qualitative and quantitative) on the topic of ethical attitudes were collected and the relevant scales and qualitative findings were reviewed. (John and Klein, 2001; Klein *et al.*, 2004; Uusitalo and Oksanen, 2004; Shaw *et al.*, 2005; Fraj and Martinez, 2006; Freestone and McGoldrick, 2007; Tilikidou, 2007; Delistavrou and Tilikidou, 2009; among others)

Brainstorming: two different groups were organised, one of academics (5 persons) and another one of students (9 persons). Considering that both groups were from the Marketing Department of the Thessaloniki TEI, just a brief presentation of the aim of the meeting was considered necessary. After that they were just asked, which items an ethical attitudes scale should include according to their point of view.

Discussion group: A discussion group of 7 consumers was organised. The consumers were asked to discuss and express their thoughts, feelings, ideas about the three types of ethical consumption namely Positive, Negative and Discursive Ethical Consumption, through a semi-structured procedure. The procedure was videotaped. A thorough study of the records provided fruitful information as to each one of the above types of ethical consumption. Based on the information provided, the components of the under construction scale were decided to be the following 5: ethical concerns, ecological concerns, fair-trade concerns, attitudes towards boycotting and discursive actions.

Item generation pool and pre-testing: Editing and re-editing followed to gain the initial items generation pool. In an effort to cover all the components 99 items in total were generated and measured on a 7-point Likert scale. A students’ survey was then conducted in order to pre-test the initial measure of Ethical Unconcern. A cluster sample of 290 students of the TEI of Thessaloniki was used and the data were input in the analysis.

Refinement of the scale: Item analysis was conducted by the employment of the item-to-total correlation and alpha-if-item-deleted techniques. Item analysis indicated that 25 items obtained



coefficients greater than 0.45 and the initial scale indicated a Cronbach’ alpha value of 0.903. Contributions to the journal are welcome from throughout the world.

5.2. The consumers’ survey

The newly constructed Ethical Unconcern (EthU) scale was included in a structured questionnaire together with the scale of Positive Ethical Consumption (PEC) adopted from Delistavrou and Tilikidou (2012). The PEC consists of 19 items, measured on a 7-point frequency scale from 1= Never to 7=Always; in this study it provided a Cronbach’s alpha of 0.905.

The sample size was set at 600 households of the urban area of Thessaloniki. The sampling method was a combination of the two stage area sampling and the systematic method (Tull and Hawkins 1993; p. 544; Zikmund 1991, p. 471) and resulted in 565 useable questionnaires.

6. Results

6.1. Item Analysis

Item-to-total correlation and alpha-if-item deleted were applied in the consumer sample and the results indicated that all items obtained coefficients greater than 0.30.

Exploratory factor analysis (EFA) was conducted with the employment of PCA to explore if there are any possible factors in the measure of EthU. Five factors with Eigenvalues greater than 1 were found to explain 61.34% of the variance. The factor loadings indicated 4 items (EthU05, EthU13, EthU14 and EthU25) that should be eliminated. Two of them (EthU05 and EthU25) did not indicate factor loadings above 0.50, while the other two (EthU13 and EthU14) were double loaded. The remaining 21 items in EthU provided Cronbach’s alpha of 0.923, which indicates exemplary level of internal consistency.

Table 1: Item analysis results

		Mean	Std. Dev.	Alpha if Item Deleted	Item-Total Cor.	Factor loadings				
						1	2	3	4	5
EthU1	The relevant to ethical consumption information require time and effort, which is difficult for me	4.02	1.664	0.936	0.357	0.045	0.086	0.035	0.750	0.083
EthU2	I do not believe that consumers are able to get united and fight against “unethical” business practices	3.45	1.748	0.934	0.527	0.214	0.066	0.014	0.616	0.439
		Mean	Std. Dev.	Alpha if Item Deleted	Item-Total Cor.	Factor loadings				
EthU3	It is rather impossible for us to find products and services provided by firms that are responsible towards the natural and the human environment	3.78	1.778	0.935	0.470	0.152	0.183	0.136	0.698	0.052
EthU4	I do not think that we could stop buy products from business that have been accused about unethical practices	3.40	1.664	0.933	0.604	0.336	0.282	0.175	0.540	0.121
EthU5	I would never be able to judge if the products I buy cause trouble to somebody else	2.53	1.583	0.933	0.616	0.425	0.087	0.134	0.384	0.422



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EthU6	I think that ethical consumption is just temporarily on fashion	3.35	1.807	0.932	0.635	0.308	0.068	0.607	0.335	0.237
EthU7	I am more concerned with my own financial problems than with the elimination of poverty in the under-developed countries of the so-called Third World	3.84	1.729	0.933	0.589	0.163	0.631	0.160	0.233	0.298
EthU8	It is useless to buy Fair Trade products if there are not many consumers doing the same	2.94	1.559	0.933	0.588	0.281	0.246	0.121	0.294	0.511
EthU9	I am exclusively interested in the economic problems of my own country; problems in the economically weaker countries are not my concern	3.73	1.787	0.933	0.600	0.173	0.761	0.121	0.179	0.263
EthU10	There are other problems that bother me more than environmental destruction	3.63	1.790	0.933	0.599	0.223	0.760	0.043	0.128	0.315
EthU11	I don't believe that the environment would be protected if we used less water, electricity and oil	2.93	1.722	0.934	0.539	0.176	0.156	0.177	0.178	0.699
EthU12	I do not think we should sacrifice economic development just to protect the environment	3.23	1.635	0.933	0.580	0.201	0.276	0.234	0.074	0.670
EthU13	More money to the natural environment means less money to jobs	3.23	1.579	0.934	0.553	0.294	0.226	0.485	-0.104	0.429
EthU14	I am not willing to pay more in order to buy ecological products	3.78	1.694	0.934	0.531	0.243	0.653	0.426	0.109	-0.153
EthU15	Most ethical products are of lower quality	3.27	1.572	0.934	0.517	0.167	0.160	0.721	0.061	0.205
EthU16	I think that the so called ecological products is another advertisement trick	3.33	1.700	0.933	0.619	0.309	0.158	0.768	0.132	0.133
EthU17	If a boycotting is successful my participation is not necessary	3.04	1.620	0.932	0.652	0.574	0.173	0.222	0.116	0.356
EthU18	It is impossible for me to participate in a boycotting against my favourite brands	3.30	1.700	0.932	0.660	0.522	0.311	0.186	0.249	0.213
EthU19	Boycotting of products or firms is always useless	3.13	1.636	0.931	0.705	0.604	0.246	0.283	0.194	0.223
EthU20	I think that marches, demonstrations and other events against the so – called "unethical" business practices are all meaningless	3.20	1.698	0.933	0.616	0.743	0.092	0.196	0.029	0.196
EthU21	I would never be interested to get to know and evaluate activities of a firm in order to make a judgment about its ethics	2.89	1.611	0.932	0.696	0.730	0.228	0.123	0.232	0.140
EthU22	There is no personal responsibility of mine, as a consumer, about profiteering or labour rights removal	3.12	1.636	0.932	0.646	0.741	0.260	0.019	0.167	0.137
EthU23	Petition gathering have never been effective to any issue	3.34	1.686	0.933	0.599	0.726	-0.012	0.218	0.073	0.224
EthU24	Fair Trade claims are nothing more that advertisement tricks	3.38	1.638	0.932	0.655	0.660	0.128	0.417	0.131	0.055
EthU25	It is hard to search and find ecological products	3.27	1.764	0.934	0.522	0.486	0.280	0.268	0.323	-0.209

Taking a close look at the items entered in each factor, it was observed that the first factor includes eight items expressing consumers' refusal to care about boycotting and discursive actions and it was named



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Boycott/Discursive. The second factor contains three items expressing consumers' objections to fair-trade and it was named Fair-trade. The third factor included three items expressing the consumers' reservations towards ethical products with regard to their quality, price and ethical claims and it was named Scepticism. The fourth factor includes four items expressing the consumers' lack of empowerment with regards to their impact on business' unethical practices and it was named Powerlessness. The fifth factor contains three items expressing the consumers' sense of ineffectiveness regarding economic conservation and adoption of ethical choices and it was named Ineffectiveness.

The AMOS SPSS (Table 2) was then used to conduct confirmatory factor analysis (CFA). Goodness-of-fit results indicated that the measurement model fit the data well ($\chi^2=594.226$, $p<0.000$, CFI=0.926, NFI=0.899, TLI=0.910, RMSEA=0.066).

Table 2: Confirmatory Factor Results

	1 Boycotting/Discursive	2 Fair Trade	3 Scepticism	4 Powerlessness	5 Ineffectiveness
EthU17	0.722				
EthU18	0.699				
EthU19	0.775				
EthU20	0.697				
EthU21	0.760				
EthU22	0.726				
EthU23	0.665				
EthU24	0.696				
EthU07		0.734			
EthU09		0.820			
EthU10		0.789			
EthU06			0.736		
EthU15			0.807		
EthU16			0.626		
EthU01				0.518	
EthU02				0.685	
EthU03				0.628	
EthU04				0.689	
EthU11					0.712
EthU12					0.715
EthU8					0.681
Construct Reliability	0.895	0.825	0.769	0.726	0.745



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It is observed that the construct reliability of each factor is satisfactory enough (above 0.70).

6.2. Descriptives

The Positive Ethical Consumption (PEC) scale (range 19-133, Mean 66.15), indicated “Rare” to “Occasional” engagement of consumers in PEC. The Ethical Unconcern (EthU) scale (range 21-147, Mean 70.30) indicated that consumers “Somewhat Disagree” to ethical unconcern in overall. It is to be further discussed if this finding could be interpreted that consumers are at least somewhat concerned about ethical issues.

6.3. ANOVA One-way

The ANOVA One-way was applied to explore the mean differences in EthU across demographical categories. Statistically significant differences ($p < 0.05$) were found of Ethical Unconcern with gender (women less unconcerned than men), education (graduates less unconcerned than their counterparts).

6.4. Pearson’s Correlation

The Pearson’s parametric correlation indicated statistically significant ($p < 0.01$) negative and weak relationships between EthU and PEC ($r = -0.169$). With regards to each one of EthU factors, the results indicated the following: Scepticism and PEC ($r = -0.179$), Fair-Trade and PEC ($r = -0.162$), Ineffectiveness and PEC ($r = -0.158$), Boycotting/Discursive and PEC ($r = -0.125$) and ($p < 0.05$) between Powerlessness and PEC ($r = -0.083$).

7. Discussion and Limitations

A preliminary effort to construct a scale of Ethical Unconcern was undertaken in this study, which should be followed by further validity and stability evaluations of the newly constructed scale in as many as possible different samples across time and place. There are certain phrasing amendments that might be attempted in the future, as improvement of a scale never ends as Spector (1992) pointed out. For example, the considerable disagreement scores indicated in items EthU5 and EthU 21 (Table 1) might be very well driven by the words “judge/judgment”. No Greek would be willing to confess that he is not capable of judging/evaluating a certain phenomenon or occurrence.

Further, the results indicate (Table 1) that consumers are inhibited to adopt ethical choices mostly by their perceptions that they need time and effort in order to obtain relevant information (EthU1). Finding and evaluating, which firms are ethical, seems to be equally difficult for the consumers (EthU3). Moreover, as the fourth factor indicates, consumers feel rather powerless towards unethical business practices (EthU2, EthU4). As expected, consumers were found highly concerned with the problems that economic crisis caused to their lives and thus less interested into what happens in the Third World country, what the Fair Trade movement is, etc. (EthU7, EthU9). In addition, as the second factor indicates, their own problems diminish their concerns about global environmental destruction (EthU10). These findings are at least to an extent in contrast to UK findings (The Co-operative Bank, 2012). The fact that Greeks seem more concerned about water, energy and oil conservation would not be safely interpreted as ethical attitudes; these attitudes may very well be driven by financial motives (EthU11). Also, as factor five indicated, this issue is associated with two other consumers’ attitudes: perceived ineffectiveness of Fair Trade and overall consumption reduction (EthU8 and EthU12 respectively). It has to be taken into consideration that the distribution and promotion of Fair Trade products are much limited in comparison to UK. Most of all, it is to



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be mentioned that due to economic crisis, Greek economy functions under a Memorandum of E.U. and International Monetary Fund; drastic spending cuts in households have been imposed increasing people's resistance in further consumption reduction in favour of the natural environment or any other ethical cause.

8. Conclusions and Further Research Suggestions

In this study, an effort to develop and test an Ethical Unconcern scale was attempted following the assumption that the examination of negative rather than positive attitudes, might provide more truthful outcomes in a topic such as ethical consumption, which is expected to be highly socially desirable.

The newly developed scale consists of 21 items indicating an exemplary lever of internal consistency. It provided five factors that reflected all aspects of negative consumers' perceptions, feelings and attitudes towards ethical issues in the consumption field. Of course, there is much more to be further pursued in order to increase validation of Ethical Unconcern and/or examine its impact on all types of ethical consumption, namely positive (ethical preferences), negative and discursive (boycotting and digital societal action).

In this study, the positive ethical consumption was also examined and the results indicated that Greeks merely occasionally take into consideration ethical criteria when buying. In addition the prohibiting role of ethical unconcern seems to be rather low in this regard.

It has been previously claimed that ethical consumer behaviour is more complex and heterogeneous than may at first be apparent (Shaw and Clarke 1999; Cherrier 2007; Newholm and Shaw 2007). Ongoing research effort is needed in order to understand better each and every link in consumers' decision making chain and subsequently provide relevant implications.

With respect to implications that can be extracted by the results of this study, it is to be noted that firms - interested in adopting and implementing ethical strategies and claim a relevant strategic advantage - should concentrate on improving consumers' perceptions about the cost, in terms of money and time, included in ethical market choices.

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Expansion for Who, Markets or The Poor?

Sedat KUSGOZOGLU¹, M. Sakir Başaran², Selcuk KENDIRLI³

¹Turkish Court of Accounts, Ankara, 06520, Turkey

² Turkish Court of Accounts, Ankara, 06520, Turkey

³Hitit University FEAS Banking and Finance, Akkent 3. Cadde No:3, Corum,19100 , Turkey

Abstract. *In this study we examine the impacts of expansionary monetary policies executed by the Federal Reserve on poverty in the United States of America. It has been discussed in various studies that the Fed's expansionary monetary policies create a less positive impact on economy as a whole than financial sector. In this study, the expansionary effects of expansionary policies on the poor living in America will be discussed. The main thesis of the study is that the poor living in the United States benefited less from expansionary monetary policies than either financial sector or the US economy as a whole. When discussing the thesis of the study both employed and unemployed poor will be discussed. Therefore, it will be questioned that the decrease in the unemployment rate is the indicator of the fight against poverty. Indicators such as indices and interest rates in the financial markets, and indicators such as growth rates and unemployment rates in the overall economy are regarded as essential indicators but as for poverty it's hard to find such regarded indicators. Unfortunately, there are not too many statistics about the poor living in the United States in the reports of the international organizations. Thus the main trouble of the study is that international comparisons are almost impossible. Therefore, various indicators produced by the U.S. government agencies of various indicators will be used in this study.*

Keywords: Quantitative Easing, Federal Reserve, Poverty, The Poor

JEL classification: E58, I32

¹ Turkish Court of Account, İnönü Bulvarı (Eskisehir Yolu) No:45 Balgat/Çankaya/Ankara, 06520, Turkey, Tel: +90 (312) 295 30 00, Fax: + 90 (312) 295 40 94, Email: selcukkendirli@hitit.edu.tr

² Turkish Court of Account, İnönü Bulvarı (Eskisehir Yolu) No:45 Balgat/Çankaya/Ankara, 06520, Turkey, Tel: +90 (312) 295 30 00, Fax: + 90 (312) 295 40 94, Email: selcukkendirli@hitit.edu.tr

³ Hitit University FEAS Banking and Finance, Akkent 3. Cadde No:3, Corum,19100 , Turkey

Tel: +905423239238, Fax: + 903642257710, Email: selcukkendirli@hititedu.tr



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1. Quantitative Easing Policy

Many measures were taken after the subprime mortgage crisis which starts in late 2007 in United States of America (USA) and still has effects present day. These measures can be roughly classified as follows;

- Tax incentives,
- Bailouts,
- Bond purchases,
- Interest rate cuts,
- Other measures.

The scope of study is limited with quantitative easing (QE) which is classified under bond purchases.

Quantitative easing is a non-traditional policy which include large-scale asset purchases of, for example, mortgage-backed securities and Treasury securities⁴.

The main objective in implementing the policy of quantitative easing is raising the prices of assets through purchasing assets from banks. Bond purchases which operated under QE lead to increase the price of bonds and decrease interest rates. Lower interest rates makes investors direct their funds from low yielding bonds to stock markets in expectation of higher returns. As a result, thanks to rising asset prices, asset owners will have a portfolio which is more valuable and more liquid. If they feel wealthier and have more money immediately available, then they are likely to increase their spending which boosts the economy directly, or else to take on more risk by increasing their lending to consumers and businesses⁵. Fed explains the effecting process of QE on economy as “when the Fed makes such purchases, the demand for those assets and their prices increase, driving down interest rates. As interest rates fall, the cost to businesses for financing capital investments, such as new equipment, decreases. Over time, new business investment should bolster economic activity, create new jobs, and reduce the unemployment rate⁶”.

The first round of QE began in March 2009 and concluded in March 2010. Fed purchased \$1.25 trillion in mortgage-backed securities and \$200 billion in federal agency debt (i.e., debt issued by Fannie Mae, Freddie Mac, and Ginnie Mae to fund the purchase of mortgage loans). To help lower interest rates in

⁴Quantitative Easing Explained, <http://research.stlouisfed.org/pageone-economics/uploads/newsletter/2011/201104.pdf>

⁵Bank of England, Target 2.0, http://www.bankofengland.co.uk/education/Documents/targettwopointzero/t2p0_qe_supplement.pdf, page 1.

⁶Quantitative Easing Explained, April 2011, http://research.stlouisfed.org/pageone-economics/uploads/newsletter/2011/201104_ClassroomEdition.pdf, page 1.



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general (and thaw the frozen private credit market), the Fed also purchased \$300 billion in long-term Treasury securities⁷.

The second round of QE, widely called QE2, began in November 2010 and is scheduled to conclude by the end of the second quarter of 2011. QE2 works toward both of these objectives by fostering economic growth through lower interest rates intended to spur consumer spending and business investment. During QE2, the Fed will purchase up to \$600 billion in long-term Treasury securities⁸.

The third round of QE, widely called QE3, began in September 2012. Federal Open Market Committee (FOMC) will continue purchasing additional agency mortgage-backed securities at a pace of \$40 billion per month⁹. At the following meeting amount of the bond purchases increased to \$85 billion per month. FOMC announced that decision as “The Committee also will purchase longer-term Treasury securities after its program to extend the average maturity of its holdings of Treasury securities is completed at the end of the year, initially at a pace of \$45 billion per month¹⁰”. This decision applied to a period longer than one year and then at the FOMC meeting in December 2013 it was decided two separate kind of bond purchases to reduce both \$5 billion per month¹¹. Amount of purchased bond has reduced at following meetings.

2. Effects of the QE on the overall economy

The expected impact of raising effect on asset prices of the QE on the overall economy is, as mentioned earlier, achieve economic growth by the increase in investments. While there are several methods of measuring this effect, we will use unemployment and GDP as indicator as they are also accepted by Fed. Along with these two indicators, gross domestic investment statistics are taken into account in order to test the step of transforming raising asset prices to investment which is the most important step in achieving the objectives of QE.

⁷Quantitative Easing Explained, April 2011, http://research.stlouisfed.org/pageone-economics/uploads/newsletter/2011/201104_ClassroomEdition.pdf, page 2.

⁸Quantitative Easing Explained, April 2011, http://research.stlouisfed.org/pageone-economics/uploads/newsletter/2011/201104_ClassroomEdition.pdf, page 2.

⁹<http://www.federalreserve.gov/newsevents/press/monetary/20121024a.htm>

¹⁰<http://www.federalreserve.gov/newsevents/press/monetary/20121212a.htm>

¹¹<http://www.federalreserve.gov/newsevents/press/monetary/20131218a.htm>



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Fig. 1: Gross Domestic Product

As can be seen from the GDP figures, QE policy has reached its objective of overall economic growth.

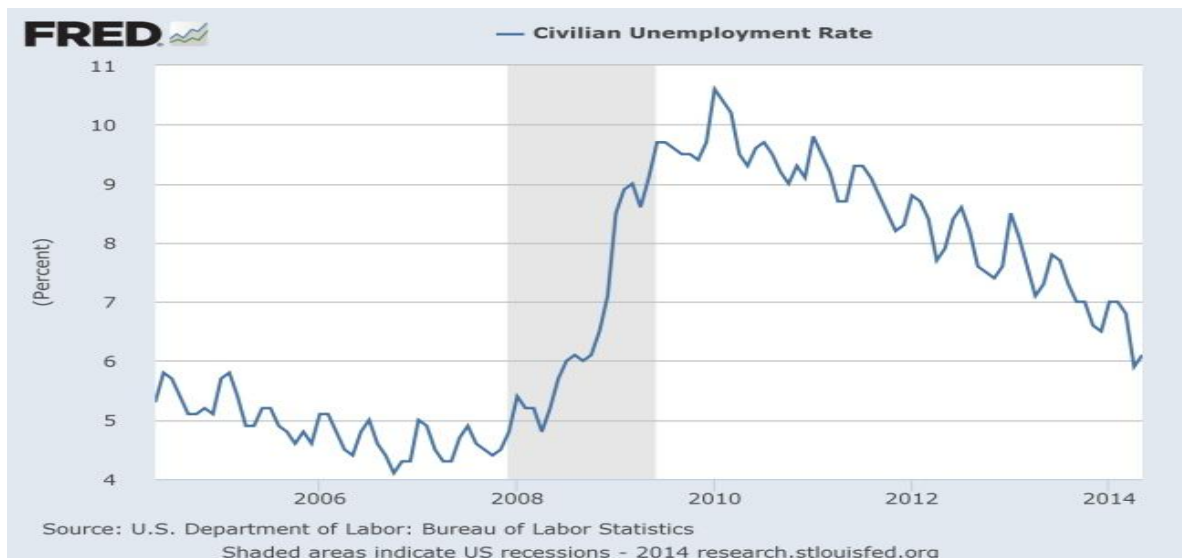


Fig. 2: Civilian Unemployment Rate

Unemployment figures have improved later than GDP figures. The unemployment rate peaked in January of 2010, in the later period of steadily falling QE policy has reached its objective.



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Fig. 3: Gross Domestic Investment

The theoretical background of the EQ, increase in asset prices to encourage investment proposition in terms of gross domestic investment, also has been shown to reach the goal. Bottomed in the third quarter of 2009, gross domestic investment has increased steadily since then.

3. Effects of the QE on financial markets

As mentioned earlier, central banks aim at boosting investments in the economy through raising the price of assets. It is clear that QE passes through various channels to reach this goal. The initial effect of the Fed's bond purchasing is falling interest rates through raising price of bonds. To measure the fall of the interest rates 10-year U.S. Treasury bond prices will be accepted as indicator. As mentioned earlier, the rise in price of bonds means a fall in interest rates. As can be seen in the graph below, although, it is not possible to mention about the 10- year U.S. Treasury bond rate has steady movement, from 2009 when QE started to be implemented to the beginning of 2014 it seems to fall.



Fig. 4: 10- Year Treasury Constant Maturity Rate



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The impact of the decline in interest rates naturally causes increase prices of assets other than bonds too. In the scope of study we will accept S&P 500 index as a sample of financial markets because of its inclusiveness on global economy and its role as a international indicator of economic activity.

As can be seen from the chart given below, after each QE policy application a remarkable rise in the S & P 500 index was observed. If observed at the long term, thanks to QE policy, S&P 500 successively rises to historic levels.



Fig. 5: S&P 500

Experiencing the lowest point of GDP in the second quarter of 2009 when it was \$14,342 billion rose to \$17,016 billion in the first quarter of 2014, an increase of 18% has been realized. From the perspective of the S & P 500 index value of 915.5 in the same period to 1864, an increase of 103% points, performing much higher than the overall economy.

4. Effects of the QE on the poor

From the perspective of financial markets and the general economy, it can be seen that QE reached its goal. However, the main question of the study is that how much of the effect of QE really was reflected to the poor. In this final section of the study will seek to answer this question.

The impact of the QE on poverty is not possible to measure with a single indicator. Therefore, these impacts will be discussed by using different indicators.

One of the main indicators related to poverty, Gini coefficient is an important indicator to measure the fair distribution of income. As seen from the chart given below, Gini coefficient for households was 0,466 in 2008, and rose to 0,468 in the first year QE policy began, and in 2012 it raised to 0,477. Thus, from the beginning of the crisis the income distribution from 2008 to 2012 has deteriorated against the poor.

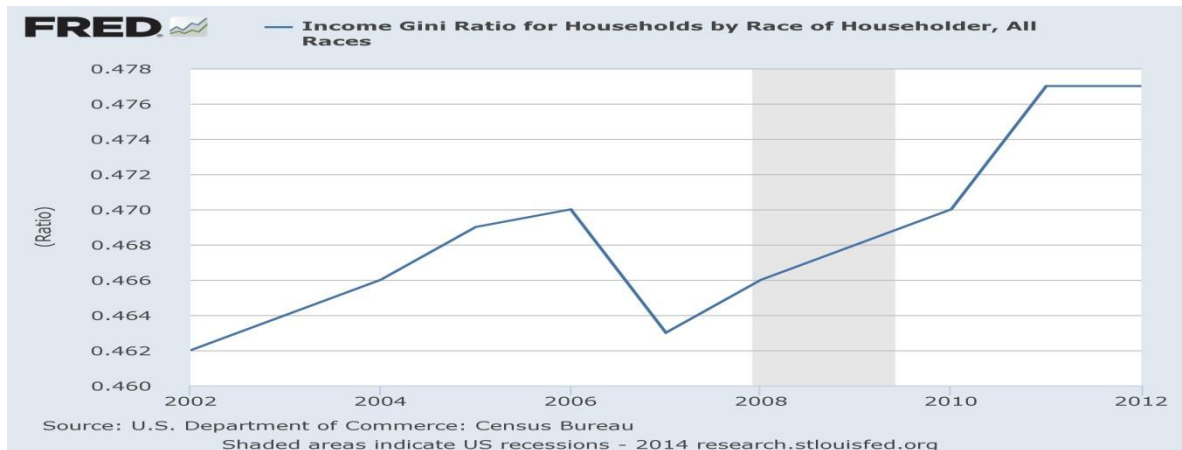


Fig. 6: Income Gini Ratio for Households by Race of Householder, All Races

Another indicator relevant to poverty is food insecurity rate. In the figure below, food insecurity, very low food insecurity rates and also unemployment rate has shown. As a natural consequence of downturn, increase in the food insecurity and very low food insecurity rates was expected. Despite QE and other measures taken in the years following the crisis, in food insecurity rate and particularly in the very low rate of food insecurity, a significant decrease was not observed. Another important aspect shown on the chart, fall in the unemployment rate fail to have a significant effect on food insecurity and very low food insecurity rate.

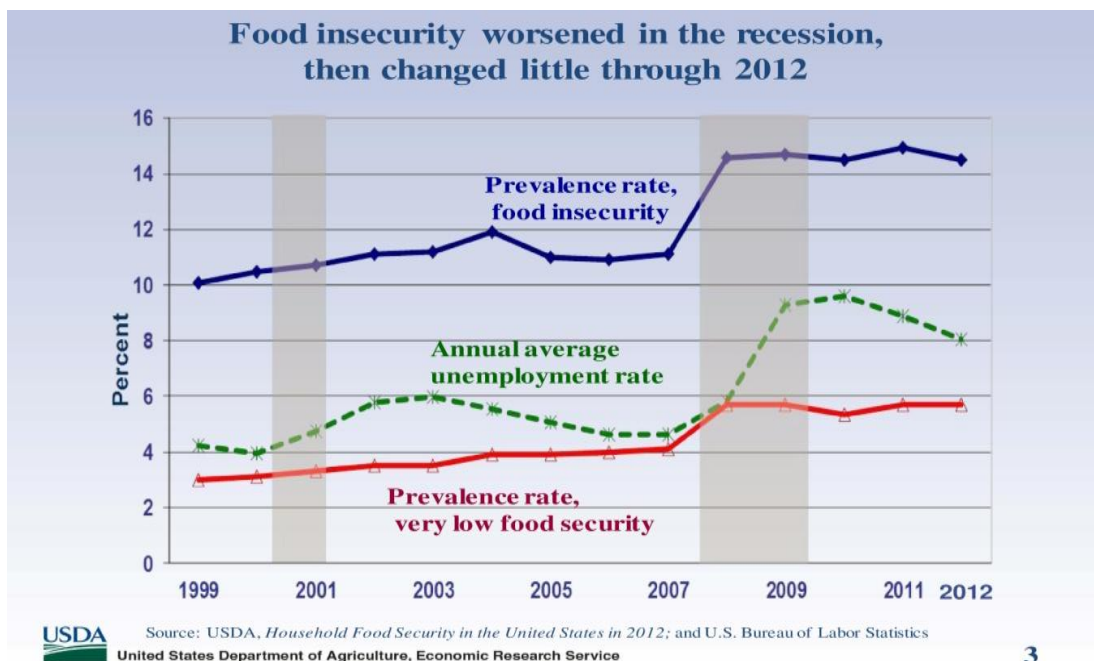


Fig. 7: Food insecurity worsened in the recession then changed little through 2012



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Another important indicator on poverty is the number of participants in Supplemental Nutrition Assistance Program. As seen in the chart below, in the years following the beginning of the crisis, the number of people benefiting from the program bounces dramatically. It is noteworthy that in the years following the crisis the number of participants in program did not decline; in fact it has continued to increase in 2013.

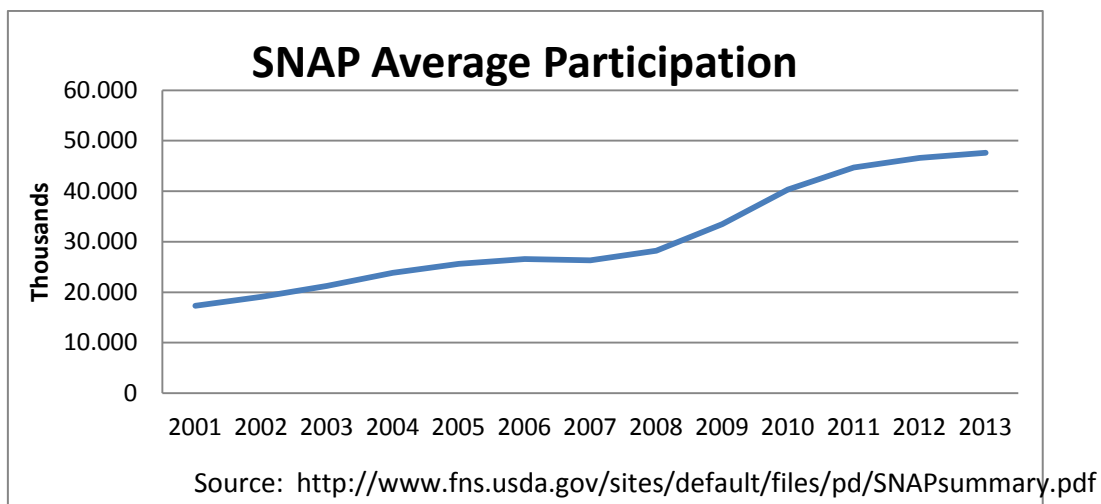


Fig. 8: SNAP Average Participation

Percentage of people below the poverty rate is the most important indicator for the study. As can be seen in the chart below, the rate bounced in 2008 and never has a significant decline after that year.

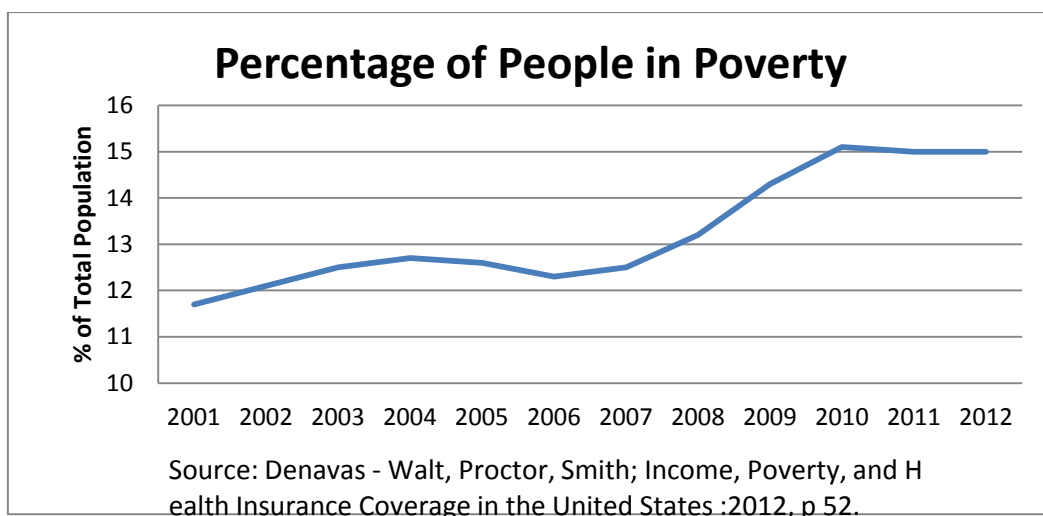


Fig. 9: Percentage of People in Poverty



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As can be understood from those described heretofore, QE policy has a significant impact on stock markets and a less significant impact on the overall economy. From the point of the poor, one cannot say QE has favour consequences. As there is not seen any improvement in poverty indicators from the year the QE policy started in 2009 until 2013, in contrast there is an undeniable deterioration in poverty indicators since 2009.

Although all these positive improvements experienced in the overall economy and stock markets, the poor could not benefit from these improvements. Reasons can be described as followings.

It is clear that the most benefited sector from QE policy is that the stock markets. And stock owners are the ones that have the higher savings rate, the rich. So if stock prices increase, it simply causes the rich get richer. The poor who has low rate of savings are unable to benefit from the stock market rally. The increase in the gini coefficient confirms that suggestion.

As noted in the charts mentioned above, the decline in the unemployment rate did not cause a significant decrease in the poverty rate. This can be explained with between the third quarter of 2009 and first quarter of 2014 employment cost index increased %7,8¹², but in the same period consumer price index increased %9,3¹³. While asset prices increases, price of labour increase less than other assets. And that causes increase in the number of the poor in the working class.

It is actually requirement of the definition of the QE policy not to benefit the poor. As mentioned before, QE has effects first on the banks, then on companies and finally on working class. It is an expected result that the banks will use this low cost resource to make their balance sheets less risky. In various statements made by Fed, this result is counted as one of the purposes of the QE policy. The next stage after banks is companies where QE funds should have converted into investments. However, in real life companies transferred the funds that came from banks to developing country bonds and stock markets which provide higher return with less risk. This suggestion confirmed with developing country stock and foreign exchange markets collapses after the Fed's decision to end both former QE policies and the decision to reduce current QE3 policy's monthly bond purchase amount.

Therefore, it can be said that only a limited part of the resources created by the Federal Reserve turn into investment. However, as mentioned earlier, new investments and the decrease in the unemployment rate could not be effective in reducing poverty.

As a result, QE policy has tremendous effects on stock markets. However, it can be observed that QE policy has less positive effects on the overall economy and almost no positive effect on poverty. The point to note is that these results did not occur in practice, they are designed in this way from the beginning.

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¹² <http://research.stlouisfed.org/fred2/series/ECIWAG>

¹³ <http://research.stlouisfed.org/fred2/series/CPIAUCSL>



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Factors Affecting Mobile Tagging Awareness; A Research on Social Media Consumers

Kübra Müge DALDAL¹, Sabiha KILIÇ²

¹ Hitit University, Faculty of Economics and Administrative Sciences, Corum, Turkey

² Hitit University, Faculty of Economics and Administrative Sciences, Corum, Turkey

Abstract. *The purpose of the study is to identify the factors affecting awareness of mobile tagging on social media. The study assumes that the mobile tagging awareness levels of social media consumers are high. As a result of the literature review made in the scope of the purpose and assumption of the study, it was identified that the variables used in the measurement of brand awareness levels are recognition, remembering, being first in remembering, brand dominance, brand knowledge and brand opinion. A conceptual model showing the relation between these variables and mobile tagging awareness levels of social media consumers and hypotheses connected to this model were developed and a survey form, loyal to the relevant literature, was prepared in order to obtain the data necessary for the analyses. The universe of the study covers the consumers who are members of social media sites Facebook, Twitter and Linked In. For the analysis of the data obtained as a result of the survey conducted, descriptive statistics containing percentages and frequencies, factor analysis and Pearson's Correlation Coefficient was used in the analysis of the hypotheses.*

Keywords: Mobile marketing, mobile tagging, social media, brand awareness.

JEL Classification: M31

Introduction

Together with the technological developments taking place in our day, many competitive applications are seen which create opportunities in the field of marketing. Thanks to the innovative developments in mobile telephone technology, marketers are able to reach prospective customers through new communication channels (Muk, 2007). Television is the first screen through which consumers could get information from the marketers. The internet is the second screen through which the consumers can get

¹ Hitit University, Faculty of Economics and Administrative Sciences, Corum, Turkey Tel: +90 0364 225 77 00, Fax: +90 0364 225 77 00, e-mail: kmugedaldal@hitit.edu.tr

² Hitit University Faculty of Economics and Administrative Sciences, Corum, Turkey Tel: +90 0364 225 77 00, Fax: +90 0364 225 77 00, e-mail: sabihakilic@hitit.edu.tr



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necessary information about the products and services. The emergence of e-commerce introduced a new marketing channel known as mobile marketing or the third screen of communication. According to Leppaniemi, Sinisalo and Karjaluoto (2006), mobile marketing is the use of mobile environment as a marketing communication tool. The keywords in this definition can be expressed as mobile tool (such as mobile phone) and marketing communication (information, promotions, competitions, etc). Enterprises are constantly in search of new ways and methods to retain and expand their market shares. According to Pousttchi (2006), marketing experts see mobile devices as an extremely promising marketing tool to overcome an important challenge as attracting times and attentions of the consumers. The mobile device at the same time provides the opportunity to transmit target messages to consumers with more effective methods than mass media (Barwise and Strong, 2002). The marketers have absolutely recognised the importance of the mobile phones of the end users. Such that, mobile phones are a communication channel with great potential (Kavassalis et al., 2003; Norris, 2007; Nysveen et al., 2005). The purpose of the study is to identify the characteristics and the areas of use of mobile tagging, a mobile marketing application as a new generation marketing tool and to assess mobile tagging awareness of social media consumers. It is assumed that the mobile tagging awareness levels of social media consumers are high. In the following sections, social media, brand awareness and mobile tagging concepts are studied in detail in accordance with the purpose of the study and the model established.

1. Social Media

In the process that started with the telegram and continued with the inclusion of film, telephone, radio and television in the world of communication, communication gained a new dimension and a simultaneous character. The developments that came along with the joining of the internet in the communication process removed the borders and made knowledge, reason and technology indispensable elements of life. In the light of all these developments experienced, the concept of media that oriented the lives of the people underwent change and the conventional media was replaced by a new communication environment, the social media, to a great extent (Özgen and Kara, 2012: 4).

The social media is expressed as “a group of internet-based applications enabling creation and circulation of user-created content, established on the foundations of web 2.0 design and technology” (Kaplan and Haenlein, 2010: 61). Social media can be defined as the internet sites established for the purposes of meeting of internet users, sharing of content, making contacts, creating an environment for discussion, establishing groups according to common areas of interest (Kurumsalhaberler, n.d.). Setting off from the definitions for the concept of social media, it is possible to state that the social media is linked with the content created by the user. According to OECD (Organisation for Economic Co-operation and Development), for the contents in the virtual world to be considered as user resources, they have to have three characteristics. These characteristics are listed as:

- 1- The content must be on the internet and accessible by everyone,
- 2- Users must be content creators,
- 3- To have content created out of professional routines and applications (OECD, 2007).

Social media, compared to conventional media, is in an advantageous position thanks to its many characteristics. The leading characteristics that make the social media strong are being fast and having low costs. It is possible to list the strong points of the social media that ensure that it is preferred by the



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enterprises and individuals as being fast and up-to-date, cost, sincerity, knowing the target group, measurability, closeness and reliability (Kaya,2011:33; Zafarmand,2010:20, Bostancı:2010,45).

Considering the social media environments based on their functions; we can divide them into three main groups as communication focused social media environments (blogs, micro blogging, social network services), social media environments ensuring cooperation and sharing of information (Wiki sites, social bookmarking sites) and social media environments where content is shared (photograph and arts works sharing sites, video music audio files sharing sites, presentation sharing sites, virtual reality sites) (Erdem,2011: 110). In this study, Facebook, Twitter and LinkedIn social media sites were preferred on the grounds that they are intensively used, they have great numbers of users and they work with membership systems. As identifying the mobile tagging awareness levels of social media consumers is the main purpose of the study, the concept of brand awareness is addressed in detail in the next section.

2. Brand Awareness

The word “awareness” derived from being aware expresses being aware of the existence of a situation, fact or object through the information acquired in the brain and the mind. Awareness is a situation that can be told within mental processes where virtual or abstract thinking is necessary (Yıldırım, 2010: 98). There are a great variety of definitions in the literature of brand awareness. Brand awareness is defined as the prospective customers knowing and remembering a brand in a certain product category (İslamoğlu and Fırat, 2011:58). According to another definition, it is the power of the existence of a brand in the minds of the consumers (Erdil and Uzun, 2010: 221). According to another definition, brand awareness is expressed as “being aware of the brand, the place of the brand in the memory of the consumer comparative to the competitors” (Uztuğ, 2003: 8).

Creating brand awareness is one of the most important stages of the activities undertaken for the brand. The main purpose in brand awareness is, as mentioned before, to reach the highest level of perception at the highest step of the awareness pyramid. By identifying at what level an existing brand is in the awareness pyramid, it is aimed to reach the highest level of the pyramid. If the product is new, the first thing to do is to create awareness. There are four main elements of creating awareness. These elements can be listed as link with other corporate facts, familiarity-affection, and reflection of the essence-commitment and thinking of the brand. (Elitok, 2003: 105).

The concept of brand awareness is concerned with whether there is information about the brand in the consumer's memory or how strong this information is and basically includes brand recognition and brand remembrance. Besides, for the consumers to have an opinion about the brand, awareness has to be created. In studies made on awareness, various awareness levels have been put forward and awareness was tried to be measured. These awareness levels used in the measurement of awareness levels are listed as recognition; remembering, being first in remembering, brand dominance, brand knowledge and brand opinion (Uztuğ, 2003: 29-30). In the next section of the study, mobile tagging concept, one of the mobile marketing practices, the awareness level of which is desired to the identified, is described in detail.



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3. Mobile Marketing And Mobile Tagging

Mobile marketing, a new concept in marketing, is used to describe all marketing activities associated with a mobile device. The fact that mobile phones have become a tool which people cannot be without in their daily lives has made mobile phones an opportunity to be used by marketers. Mobile Marketing is generally known as the use of written messages through the mobile phones in marketing communication (Mozat, n.d.). According to another definition, Mobile Marketing can be expressed as the performance of various communication and promotion activities through mobile phones (Pazarlamadunyasi, n.d.). According to another definition, Mobile Marketing is the process of performing all marketing campaigns through mobile devices (İşgüder, 2007:57). In this sense, we can define Mobile Marketing as a marketing practice in which the promotion process of ideas, goods and services is performed through wireless interactive tools to benefit all interest groups of the enterprise via mobile telephones (Karaca and Gülmez, 2010: 71). With the advance of mobile technologies, enterprises have started including mobile devices in marketing practices. Among new marketing practices where mobile technologies are used, we can count mobile coupons, SMS polls, quiz-contests, MMS applications mobile tags, Bluetooth-RFID applications and mobile games (Alkaya, 2007: 70-76; Karaca and Gülmez, 2010: 75-77; Arslan and Arslan, 2012:109-113; Şenyuva, 2009: 2-7). Mobile tags, which are among mobile marketing practices, are read by users through smart phones and serve as a bridge between printed environments and digital media.

Mobile tags are a new and powerful barcoding technology that helps utilisation of mobile devices at the highest level to create a bridge between conventional environments and the digital world. As mobile tags can be loaded information both horizontally and vertically, they are also named as two dimensional (2D) barcodes. Furthermore, they are also called as new generation barcodes as they replaced line barcodes and have more data storage capacity. They are also known as square codes as the tags are generally in square form. At the same time, they are also referred to as QR code, which is the most commonly use mobile tag type (Mobilkod, 2010).

Mobile tagging is a way to increase the value of printed environments by providing more interactive and interesting information to the user. These new generation tag is a call for action that can be printed anywhere and gives the print an interactive quality. Many reasons affect the use of mobile tags by the users such as to have more information about a product or service, to watch a video, to earn coupons or discounts (Okarimobile, n.d.).

There are more than 100 types of barcodes, however approximately 10 of these are used for mobile tagging (Schmimayer, 2008). Data matrix, QR code, Aztec code, bee tag and microsoft-tag can be given as examples of two dimensional barcodes used for mobile tagging (Kato and Tan, 2005). With the increase of the use of smart phones, there is now more usage space for mobile tags. With the increasing popularity of mobile internet, mobile tags are seen in many places in daily life (Qrcode, n.d.). For reading of a mobile tag, mobile devices have to have camera, mobile tag reader software and internet access (J-Quin, n.d.).

Mobile tags have unlimited digital application areas with different methods in different sectors. Retail, publishing, transport and health sectors are examples of application areas of mobile tags (Mobilkod, 2012). It is recognised that mobile tags are an innovative way for consumers and companies. There are numerous benefits of mobile tagging, which is qualified as a new generation marketing tool, provided to consumers and companies. It is possible to list the advantages of mobile tagging as being free, providing the opportunity for instant communication, providing more information and benefits that printed environments, being able to update information, giving correct information about customers and positive



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contribution to the images of the enterprises, etc. (Neomedia, 2011; Pindarcreative, n.d; Dijital Printing Reports, n.d.).

In the next section of the study, the analysis results of the data obtained through the survey conducted to social media consumers to identify mobile tagging practices awareness of consumers can be found.

4. Methodology

The purpose of the study is to identify mobile tagging awareness in social media. Also in the study, it is studied whether there are significant differences between mobile tagging awareness's of social media consumers based on consumers' demographic and personal characteristics and social media usage levels. In the study, it is assumed that mobile tagging awareness levels of social media consumers are high. The universe of the study covers consumers who are members of Facebook, Twitter and Linked In social media sites. Facebook has 30 million, Twitter has 6 million and Linked In has 750.000 active members. The universe of the study is the 36.750.000 active social media members of the survey. Universe variance cannot be estimated. The study's sample size was calculated with the $n = \pi (1-\pi) / (e/Z)^2$ formula with 0.05 error level and 95% confidence interval. As the variance of the universe cannot be estimated in the formula, maximum variance π has been accepted as 0.5. According to this data, the sample size of the study has been calculated as $n = 0.5 \times 0.5 / (0.05/1.96)^2 = 369$. As the condition $n/N = 1.004 < 0.05$ is not met $N-n/N-1$ correction factor was multiplied with the sample size giving the corrected sample size; $36.750.000 - 369 / 36.750.000 - 1 = 0.995 \times 369 = 367$. Considering that there may be erroneous surveys, 444 valid surveys out of 500 conducted were assessed. Surveys were conducted to individuals 18 years old or older.

The data used in the study was obtained using online survey technique. Surveys were published as a link on Facebook, Twitter and Linked In social media sites. Information about the concept of mobile tagging was given in the survey. In the survey preparation process, brand awareness, recognition, remembering, being first in remembering, dominance, knowledge and opinion criteria were taken into account. Mobile tagging, consumers' personal and demographic characteristics are the other concepts included in the survey.

The survey form used to reach primary data in this study made to identify mobile tagging awareness in social media and the factors that affect mobile tagging awareness consists of 4 parts. The first part consists of 18 statements prepared to identify the mobile tagging awareness level of the participant listed according to 5-point Likert scale varying between "Totally disagree" and "Totally agree". Studies made by Uztuğ (2003), Tosun (2010), Franzen (1999) and Aaker (2007) were utilised in the identification of these statements. The second part consists of 6 multiple choice questions about interaction levels with mobile tags. The third part consists of 10 statements listed according to 5-point Likert scale varying between "Totally disagree" and "Totally agree" to identify personal characteristics of the participants. Studies made by Kim (2010), Bostancı (2010) and Erdem (2011) were utilised in the identification of these statements. The fourth part consists of 6 multiple choice questions to identify demographic characteristics of the participants.

Alpha coefficient (Cronbach's Alpha) was used to identify whether there is a correlation between the elements of the survey form assessed with the Likert scale consisting of 4 parts and 40 subheadings in total, which information is given about the outlines of. At the end of the analysis, the value of the alpha coefficient must be more than 60% to be able to tell that the scale is reliable (Nakip, 2006). In line with this,



the reliability analysis of the scale used in the research was made and the relevant coefficient was calculated as 92.3%. According to this result, it can be said that the survey form is reliable.

5.1. The Model of the Study

The purpose of the study is to identify mobile tagging awareness in social media. The main assumption of the study is that the mobile tagging awareness level of social media consumers is high. The study model developed at the end of the literature review made in the scope of the purpose and the main assumption of the study is as follows:

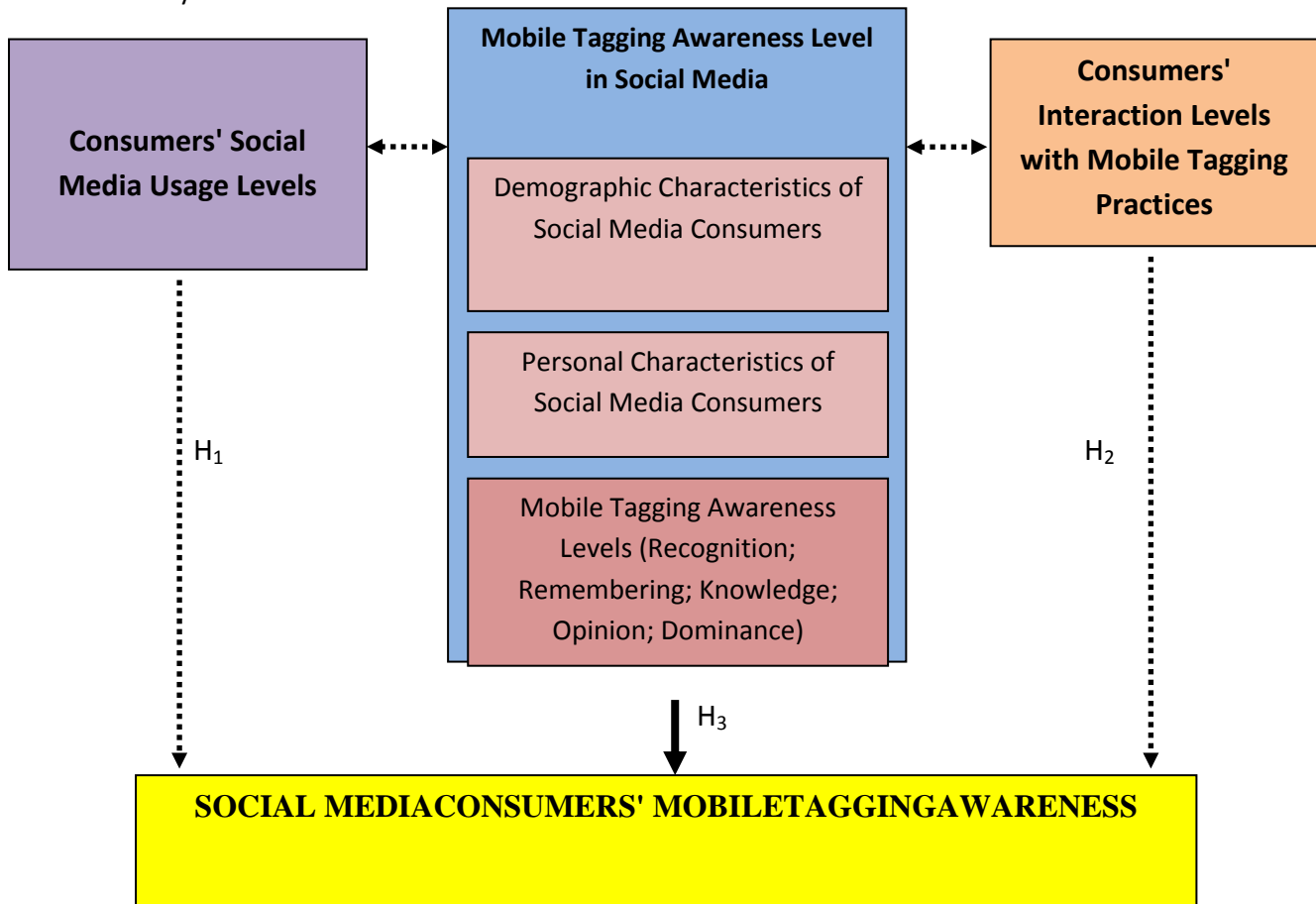


Fig 1: Conceptual Model on Mobile Tagging Awareness of Social Media Consumers

The model examined, it is seen that three variables affect the Mobile Tagging Awarenesses of Social Media Consumers. These can be listed as the Consumers' Social Media Usage Levels; Mobile Tagging Awareness Level in Social Media; Consumers' Interaction Levels with Mobile Tagging Practices. According to the model, the Consumers' Social Media Usage Levels and Consumers' Interaction Levels with Mobile Tagging Practices affects Mobile Tagging Awareness Level in Social Media and therefore Social Media Consumers' Mobile Tagging Awarenesses. Mobile Tagging Awareness Level in Social Media, on the other hand, is determined by Social Media Consumers' Personal and Demographic Characteristics and mobile



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tagging awareness levels. Therefore, social media consumers' mobile tagging awarenesses are directly affected by mobile tagging awareness level in social media and indirectly by the consumers' social media usage levels and consumers' interaction levels with mobile practices. According to the model, the research hypotheses can be developed as follows:

H₁: Consumers' Social Media Usage Levels affect Mobile Tagging Awareness of Social Media Consumers.

H₂: Consumers' Interaction Levels with Mobile Tagging Practices affect Social Media Consumers' Mobile Tagging Awareness.

H₃: Mobile Tagging Awareness Levels in Social Media affect Social Media Consumers' Mobile Tagging Awareness.

H_{3a}: Social Media Consumers' Personal Characteristics affect Social Media Consumers' Mobile Tagging Awareness.

H_{3b}: Social Media Consumers' Demographic Characteristics affect Social Media Consumers' Mobile Tagging Awareness.

H_{3b1}: Gender as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.

H_{3b2}: Age as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.

H_{3b3}: Geographical Region as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.

H_{3b4}: Income as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.

H_{3b5}: Level of Education as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.

H_{3c}: Social Media Consumers' Mobile Tagging Awareness Levels affect Social Media Consumers' Mobile Tagging Awareness.

5.2. Scope and Limitations of the Study

The study covers social media users. The sampling frame consists of consumers who are members of commonly used Facebook, Twitter and Linked In social media sites. These sites have a total of 36.750.000 active users. The findings obtained in the study are limited to the perceptions of the individuals who participated to the survey of the survey questions. The survey was conducted to individuals 18 years old or older.

6. Analysis of Data and Findings

Raw data obtained as a result of the survey technique was assessed with SPSS 16.0 package programme. Descriptive statistics showing percentages and frequencies were used in the analysis of data. Hypotheses developed in accordance with the model of the study were tested with Pearson Correlation Analysis. In order to identify mobile tagging awareness in social media, the factors affecting mobile tagging awareness of participants were identified using Factor Analysis. The analysis results are given in detail below.



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6.1. Descriptive Statistics Concerning the Model of the Study

When we study the percentage and frequency distributions of the descriptive statistical measures of the variables concerning demographic characteristics of the survey respondents, it is seen that 55.2% of the respondents are women, 44.8% are men, 78.8% are between the ages 18 and 35 and 70.5% have an income of 1.000 TL or above. 90% of the participants have minimum bachelor's degree. 22.3% live in Marmara Region, 10.6% in Aegean Region, 7.4% in Mediterranean Region, 23.4% in Black Sea Region, 2.4% in Eastern Anatolia Region and 2% in Southeast Anatolia Region.

When we study the percentage and frequency values of the variables concerning personal characteristics of the survey respondents, the most frequent statements about the personal characteristics of the social media consumers taking the survey are 'I am open to innovation' (87.3%), 'When I come across different and new things, I want to know what it is and apply it' (83.9%) and 'I have an inquisitive personality' (79.5%), respectively. Out of 444 social media consumers who participated in the study, 344 responded as 'Agree' and 'Totally agree' to the first statement, 373 responded as 'Agree' and 'Totally agree' to the second statement and 359 responded as 'Agree' and 'Totally agree' to the third statement. Therefore, it can be said that a great part of the social media consumers taking the survey have innovative personal characteristics. Innovative consumers are individuals who notice new developments first. This finding supports the assumption of the study that "Social media users' mobile tagging awareness levels are high".

The social media sites most commonly used by the social media consumers taking the survey are Facebook (71.8%), Twitter (14.9%) and MSN (4.1%), respectively. Out of 444 social media consumers who participated to the study, 319 stated that they use Facebook most, 66 stated that they use Twitter most, and 18 stated that they use MSN most.

When we study the percentage and frequency values of the variables concerning mobile tagging interaction levels of the social media consumers taking the survey; it is seen that 31.5% of the social media consumers who took the survey have not seen mobile tags before, and 69.5% saw at least once. The social media consumers who took the survey indicated that they saw mobile tags on medication boxes, magazines and newspapers most. 32.9% of the participants describe mobile tags as technological, and 20.2% as informative. 55.4% of the participants have smart phone technology, 65.1% use mobile internet, but 71.2% do not use mobile tag scanner application.

When we study the percentage and frequency values of the variables concerning mobile tagging awareness levels of the participants who took the survey, it is seen that 51.6% of the participants responded 'Agree' and 'Totally agree' to mobile tagging recognition statements (I have heard mobile tags before, I know what mobile tags look like). 52.8% of the social media consumers who took the survey responded 'Agree' and 'Totally agree' to mobile tagging remembering statements (I have seen mobile tags before. I know mobile tags when I see them). 66.7% of the participants responded 'Agree' and 'Totally agree' to Mobile Tagging dominance statements (I prefer mobile tags to other practices to get detailed information about products and services. Now, when someone says tag, mobile tags come first to my mind). 48.6% of the participants responded 'Disagree' and 'Totally disagree' to mobile tagging opinion statements (I am thinking to scan mobile tag in the future. I am aware of the advantages offered by mobile tags. I think reading mobile tag is easy. I share what I know about mobile tag with my immediate environment.). Therefore, it is seen that a great majority of the participants do not have a mobile tagging opinion. 50% of the participants responded 'Disagree' and 'Totally disagree' to statements about the



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knowledge of the social media consumers about mobile tagging (I have knowledge of mobile tags. I know what mobile tags are for. I know how mobile tags are used. I scanned mobile tag with my smart phone before. I use mobile tags to get information. When I see a mobile tag, I am curious about the data inside.). In the scope these findings obtained, it can be said that, from among mobile tagging awareness levels, recognition and remembering levels are high and dominance, knowledge and opinion levels are high, of the social media consumers who took the survey. Therefore, 52.5% of the social media consumers who took the survey recognise and remember mobile tags, but do not use the mobile tagging application actively. It can be said that although social media consumers' mobile tagging awareness is high, their usage levels are low.

6.2. Findings about the Factors Affecting Social Media Consumers' Mobile Tagging Awareness Levels

In this section, there are assessments about the reliability and factor analyses made to identify factors affecting mobile tagging awareness of the social media consumers who took the survey. Reliability is a concept showing all variables' interconsistency and internal harmony in a scale. Cronbach alpha coefficient is found by proportioning of the variances of all variables in the scale to the general scale total variance. Cronbach alpha coefficient varies between 0 and 1 values. Variables that decrease scale reliability can be taken out of the scale if necessary. Cronbach alpha value is desired to be 70% (Kurtuluş, 2010:184). In this framework, first the reliability of the variables was checked on factor basis, and then, the reliability of the whole scale was tested.

Factors affecting mobile tagging awareness of social media consumers are the factors in the study model. These factors were identified as the personal characteristics of the consumers and mobile tagging awareness levels. Of these factors, the scale average of 26 questions identified to share the common value out of 28 questions constituting the subscale was calculated as 83.57 and the standard deviation as 23.368. The general average of the questions is 3.21 and the average variance is 1.871. The range of the averages of the 26 questions is 2.270 and the range of the variances is 2.240. The general average of the correlations between the questions (inter-item correlations) is 0.391, whereas the minimum correlation between the questions was calculated as 0.019 and the maximum correlation as 0.931.

In the study, the Item-Total correlations were obtained as high values varying between 0.344 and 0.859. For the sake of the additivity of the scale, the correlation coefficients between the Item and the Total are expected to be non-negative and bigger than 0.25 value. Before deciding on taking out of a question from the scale, the importance of the relevant question in the scale must be assessed checking the reliability coefficient Alpha calculated after the relevant question is taken out and change of average and variance calculated after the relevant question is taken out. With the reliability analysis made in the scale with 28 questions, the general reliability coefficient Alpha was calculated as 0.923. With the reliability analysis made with remaining 26 questions after taking out 2 questions which do not share the common value, the general reliability coefficient Alpha was calculated as 0.947. The internal reliabilities of the personal characteristics and mobile tagging awareness levels identified taking the model of the study as basis were calculated as 88.0% for personal characteristics, 89.2% for recognition, 95.2% for remembering, 93.4% for knowledge, 64.9% for dominance and 70.3% for opinion, respectively.

After making of the reliability analysis, the factor analysis was utilised to quantitatively verify the factor structure affecting mobile tagging awareness of social media consumers. Factor analysis is a multi-



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variable statistical analysis type ensuring presentation of data more meaningfully and in summary based on the relations between the data (Kurtuluş, 2010:189). To assess whether the data set is suitable for factor analysis, first the suitability of the variables in the data set to normal distribution must be checked. Central tendency criteria for the variables concerning the data set are given in Table 5.6.

Table 1: Values of Central Tendency for the Factor Analysis Variables

	Mean	Median	Mod
I have heard mobile tags before	3.15	4.0	5.0
I know what mobile tags look like	3.20	4.0	5.0
I have seen mobile tags before	3.21	4.0	5.0
I know mobile tags when I see them.	3.06	3.0	5.0
I have knowledge of mobile tags	2.78	3.0	3.0
I know what mobile tags are for.	2.92	3.0	3.0
I know how mobile tags are used	2.81	3.0	3.0
I scanned mobile tag with my smart phone before.	2.23	3.0	3.0
I am thinking to scan mobile tag in the future	2.81	3.0	3.0
I am aware of the advantages offered by mobile tags	2.70	3.0	3.0
I use mobile tags to get information	2.62	2.5	3.0
When I see a mobile tag, I am curious about the data inside	3.0	3.0	3.0
I think scanning mobile tags is easy	3.02	3.0	3.0
I prefer mobile tags to other practices to get detailed information about products and services	2.23	2.0	2.0
I share what I know about mobile tag with my immediate environment	2.62	3.0	3.0
Now, when someone says tag, mobile tags come first to my mind	2.02	2.0	2.0
I have an inquisitive personality'	4.08	4.0	5.0
I am open to innovation	4.28	4.0	5.0
When I come across different and new things, I want to know what it is and apply it	4.23	4.0	5.0
I follow technology closely.	3.85	4.0	4.0
I read technology news in the newspapers and magazines.	3.66	4.0	4.0
I follow social media closely.	3.97	4.0	4.0
I share something about technological innovations on social media.	3.13	3.0	3.0
I search product package when shopping.	3.86	4.0	4.0
The logos on product package is draw my attention.	3.75	4.0	4.0
I follow mobile phone applications.	3.26	3.0	5.0

When we study Table 1, it is seen that the data set has a normal distribution and is suitable for factor analysis.

Along with identifying suitability of the data set to normal distribution, the correlation matrix has to be created and Barlett test and Kaiser-Meyer-Olkin (KMO) sampling sufficiency tests must be made to check suitability of the data set to factor analysis. Barlett test tests the probability of high rate correlations between at least a part of the variables in the correlation matrix. This test shows that the data set is suitable for factor analysis. KMO test, on the other hand, is an index comparing the size of the observed correlation coefficients and the size of the partial correlation coefficients. The KMO rate must be above 0.5.



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The higher the rate, it can be said that, the better the data set is to make a factor analysis. The data of the Barlett test and KMO test values are given in the below table.

Table 2: Barlett and KMO Test Results

KMO Value		0.941
Barlett Test Value	chi-square	9.888E3
Df.	df.	325
	Sig.	.000

KMO value was calculated as 94.1%. The fact that the KMO sampling sufficiency measure is above 60% shows that the variables in the scale are suitable for factor analysis. The Barlett Test was found to be Sig. 0.000 < 0.05 significant with 9.888E3 chi-square and 325 degrees of freedom. Therefore, there is correlation between the variables and the data set is suitable for factor analysis according to the result of the Barlett Test. Factor analysis results are shown in Table 3.

Table 3: Factors Affecting Social Media Consumers' Mobile Tagging Awareness

	Factor 1 Remembering $\alpha=95.2$	Factor 2 Knowledge $\alpha=93.4$	Factor 3 Recognition $\alpha=89.2$	Factor 4 Personal Characteristics $\alpha=88.0$	Factor 5 Dominance $\alpha=64.9$	Factor 6 Opinion $\alpha=70.3$
S5	0.916					
S4	0.910					
S8		0.901				
S7		0.900				
S6		0.886				
S9		0.666				
S12		0.652				
S13		0.575				
S3			0.896			
S2			0.838			
S26				0.886		
S27				0.866		
S32				0.818		
S25				0.797		
S33				0.776		
S28				0.643		
S29				0.606		
S30				0.469		
S31				0.451		
S34				0.449		
S18					0.778	
S16					0.673	
S17						0.772
S11						0.741
S14						0.662
S10						0.547



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Factors affecting mobile tagging awareness of social media consumers were identified as the consumers' personal characteristics and mobile tagging awareness levels (recognition, remembering, knowledge, opinion, dominance). Factor 1, which is remembering, explains 32.97% of the total variance; Factor 2, which is Knowledge, 14.55%; Factor 3, which is Recognition, 11.64%; Factor 4, which is Personal Characteristics, 9.32%; Factor 5, which is Dominance, 3.02%; Factor 6, which is Opinion, 2.42%. These six factors listed explain 73.94% of the total variance. Therefore, it can be said that these six factors listed affect social media consumers' mobile tagging awareness. The most effective among the factors is remembering which explains 32.97% of the total variance. Therefore, it can be stated that the most important factor determining awareness of mobile tags is the remembering of the mobile tags. This finding is supported by the previous findings of the study (that the participants responded 'Agree' and 'Totally agree' to the statements on recognition and remembering levels of the mobile tagging awareness levels). In the following section, analyses on the hypotheses developed in accordance with the study model are given.

6.3. Hypothesis Tests of the Study

The purpose of the study is to identify mobile tagging awareness of social media consumers. According to the model developed in the scope of the purpose of the study, social media consumers' mobile tagging awareness is affected by the consumers' social media usage levels, interaction levels of the consumers with the mobile tagging practices and mobile tagging awareness level in social media. 3 main hypotheses developed based on the study model developed in the scope of the purpose and the main assumption of the study were analysed with Chi-Square and Pearson Correlation coefficient. Chi-Square is a non-parametric test (Kalaycı, 2010:85). The data to be used in the testing of the first and second hypotheses developed in the scope of the study model contains nominal scaled data. Therefore, the analysis of this data was made according to the Chi-Square test. Interval scale was used in the measurement of data to be used in the testing of the third hypothesis developed according to the study model. Therefore, the data is suitable for analysis with Pearson Correlation coefficient. Pearson Correlation Coefficient is used in the measurement of the degree of the linear relationship of two continuous variables. It is an analysis defining whether there is a significant relationship between two variables (Kalaycı, 2010:116). The analysis results are given in the below tables:

Table 4: Hypothesis Test Results

Chi-Square Tests

H ₁ : Consumers' Social Media Usage Levels affect Mobile Tagging Awareness of Social Media Consumers.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.559 ^a	32	.020
Likelihood Ratio	55.324	32	.006
N of Valid Cases	444		

a. 32 cells (71,1%) have expected count less than 5. The minimum expected count is ,08.

When we study Table 4, it is determined that there is a significant relationship between the consumers' social media usage levels and mobile tagging awareness of social media consumers with $0.020 < 0.05$ significance level and (50.559) chi-square value. According to chi-squared correlation coefficient value



(55,324), there is a medium level relationship between them. H_1 hypothesis is accepted according to this data.

Table 5: Hypothesis Test Results

Chi-Square Tests			
H ₂ : Consumers' Interaction Levels with Mobile Tagging Practices affect Social Media Consumers' Mobile Tagging Awareness.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.743E2 ^a	48	.000
Likelihood Ratio	303.790	48	.000
N of Valid Cases	444		

a. 39 cells (60,0%) have expected count less than 5. The minimum expected count is ,08.

According to Table 5, there is a relationship between the consumers' interaction levels with mobile tagging practices and mobile tagging awareness of social media consumers with 48 degrees of freedom, 2.743E2 chi-square value and $0,000 < 0,05$ significance level. H_2 hypothesis was accepted.

Table 6: Hypothesis Test Results

H ₃ : Mobile Tagging Awareness Levels in Social Media affect Social Media Consumers' Mobile Tagging Awareness.	S4	S5	S6	S7	S8	S9	S10
Pearson Correlation	.883	.888	.809	.825	.821	.559	.492
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000
	S11	S12	S13	S14	S16	S17	S18
Pearson Correlation	.659	.576	.562	.617	.429	.312	.220
Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000

Question 4 and Question 18 are statements about mobile tagging awareness level.

When we study Table 6, it is seen that there is a relationship between social media consumers' mobile tagging awareness levels and social media consumers' mobile tagging awareness with sig. $0.000 < 0.05$ significance level. H_{3a} hypothesis was accepted. According to this data, it can be said that social media consumers' mobile tagging awareness will increase as their mobile tagging awareness levels increase.

Table 7: Hypothesis Test Results

H _{3a} : Social Media Consumers' Personal Characteristics affect Social Media Consumers' Mobile Tagging Awareness.	S25	S26	S27	S28	S29
Pearson Correlation	.263	.225	.237	.328	.347
Sig. (2-tailed)	.000	.000	.000	.000	.000
	S30	S31	S31	S33	S34



Pearson Correlation	.157	.165	.211	.291	.342
Sig. (2-tailed)	.000	.000	.000	.000	.000

Question 25 and Question 34 are statements about personal characteristics of consumers.

When we study Table 7, it is seen that there is a relationship between social media consumers' personal characteristics and social media consumers' mobile tagging awarenesses with sig. $0.000 < 0.05$ significance level. H_{3b} hypothesis was accepted. In this sense, it can be said that there is a significant relationship between social media consumers' personal characteristics and social media consumers' mobile tagging awareness.

Table 8: Hypothesis Test Results

Chi-Square Tests

H_{3b1} : Gender as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.815 ^a	4	.066
Likelihood Ratio	8.850	4	.065
N of Valid Cases	444		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13,45.

Table 9: Hypothesis Test Results

Chi-Square Tests

H_{3b2} : Age as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.331 ^a	28	.006
Likelihood Ratio	50.155	28	.006
N of Valid Cases	444		

a. 23 cells (57,5%) have expected count less than 5. The minimum expected count is ,07.

Table 10: Hypothesis Test Results

Chi-Square Tests

H_{3b3} : Geographical Region as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.578 ^a	24	.199



Likelihood Ratio	31.998	24	.127
N of Valid Cases	444		

a. 13 cells (37,1%) have expected count less than 5. The minimum expected count is ,61.

Table 11: Hypothesis Test Results

Chi-Square Tests

H _{3b4} : Income as one of the Social Media Consumers' Demographic Characteristics affect Social Media Consumers' Mobile Tagging Awareness.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	48.684 ^a	24	.002
Likelihood Ratio	55.176	24	.000
N of Valid Cases	444		

a. 11 cells (31,4%) have expected count less than 5. The minimum expected count is ,57.

Table 12: Hypothesis Test Results

Chi-Square Tests

H _{3b5} : Level of Education as one of the Social Media Consumers' Demographic Characteristics affects Social Media Consumers' Mobile Tagging Awareness.	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.966 ^a	16	.010
Lindigjinde kelihood Ratio	34.047	16	.005
N of Valid Cases	444		

a. 9 cells (36,0%) have expected count less than 5. The minimum expected count is ,14.

When we study Tables 8, 9 and 10, we see that there is a relationship between social media consumers' demographic characteristics age, income and education level and social media consumers' mobile tagging awareness with $p < 0.05$ significance level. Along with this, according to Table 11 and 12, there is not a significant relationship between social media consumers' demographic characteristics gender and geographical region and social media consumers' mobile tagging awareness with $p < 0.05$ significance level. According to the findings obtained, it can be said that age, income and education level play a determining role on social media consumers' mobile tagging awareness. When we study the previous findings of the study, it can be said that approximately 79% of the social media consumers who took the survey are younger than 35, 71% have an income of 1.000 TL and above and 90% are minimum high school graduates. It is seen that the findings of the study support each other.



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Conclusion

Growth and expansion are observed in the promotion mix elements of marketing in parallel with the technological developments. Particularly, given the presence of a generation growing and developing with technology, effective and proper use of promotion tools, transmission of the messages to the right persons become more important in a market structure with abundant alternatives. Mobile communication tools have become one of the important promotion tools of our day with their content, dynamic and social structure and that they provide a communication environment which is not boring instead of a formal message structure. With the advance of technology and starting of the common use of smart phones by the consumers, mobile tags have become one of the fields of application of mobile marketing.

The purpose of the study is to identify mobile tagging awareness of social media consumers. According to the conceptual model developed in the scope of the purpose and the assumption of the study, the consumers' social media usage levels and the consumers' interaction levels with mobile tagging practices affect mobile tagging awareness level in social media and therefore the social media consumers' mobile tagging awareness. Mobile tagging awareness level in social media, on the other hand, is determined by social media consumers' personal and demographic characteristics and mobile tagging awareness levels. The factors affecting social media consumers' mobile tagging awareness were determined as the consumers' personal characteristics and mobile tagging awareness levels (recognition, remembering, knowledge, opinion, dominance). Factor analysis was made to identify to what degree the independent variables affect the dependent variable. The six factors identified explain 73.94% of the total variance. Therefore, it can be said that these six factors listed affect social media consumers' mobile tagging awareness. The most effective factor among those is Remembering, which explains 32.97% of the total variance.

In the study, the hypotheses developed based on the conceptual model were analysed with Pearson's Correlation Coefficient. At the end of the analysis, hypotheses H_1 , H_2 , H_{3b2} , H_{3b4} and H_{3b5} were accepted and hypotheses H_{3b1} and H_{3b3} were rejected. Therefore, according to the results of the hypothesis test, it can be said that there is a linear relationship between the consumers' social media usage levels, consumers' interaction levels with mobile tagging practices, social media consumers' personal characteristics and social media consumers' demographic characteristics age, income level and level of education and social media consumers' mobile tagging awareness while there is not a linear relationship between social media consumers' demographic characteristics gender and geographical region and social media consumers' mobile tagging awareness.

The study covers the consumers in the social media. Therefore, the findings obtained include the personal and demographic characteristics of the social media consumers. The study has an original value in that it studies social media consumers' social media usage levels, consumers' interaction levels with mobile tagging practices and mobile tagging awareness level in social media in identifying social media consumers' mobile tagging awareness.



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Including the monetary part in macro accounting: A ‘modern’ approach to the macroeconomic accounting^a

Onur TUTULMAZ

Hitit University, Department of Economics

Abstract: *Economic output is placed at the heart of the macroeconomics. To calculate the output one needs to achieve simplifying a high level complexity of economic relationships to form a system. On the flip side, the model should be enough elaborated to be able to reflect the important relationships. In this manner, the classical macroeconomic identity as Keynes suggested is simple enough to understand the main elements but it does not show the financial parts of transactions. Not having the monetary part of the economy it lacks the coherence. With the financial and economic crises getting more frequent, more endeavour to build a more inclusive and coherent macroeconomic system has been observed. However, there are large variety in different options of simplifying and simulating complex relationships among the real and monetary part of the modern economies. Our paper tries to set an analysis comparing some of the recent prominent ideas in building balance sheet and transaction flow matrix in regard to macroeconomic accounting system. We can conclude the new achievement of including the monetary transactions in the frame causes a compromise from the simplicity for a coherent and more complete picture of macro economy.*

Keywords: Macroeconomic accounting; Transaction flow matrix; Output; Monetary economy; Macroeconomics.

JEL classification: E10, E42

1. Introduction

The development speed of the human economy has been fascinating in the last two centuries. Many times, the establishing the necessary institutions to evaluate and manage it follow behind of the developing economy and its changing structures¹.

Money and the monetary institutions are one of the important parts of a modern economy. However, it has been long discussed that the monetary model we are applying to represent our economies and therefore its monetary theory is insufficient having important shortcomings in simulating the modern

^aThe first version of this paper has been presented at ICESBA 2014 and published among the proceedings of the conference.

¹ For example, the Fed (Federal Reserves) in US was not established until 1913. Its independence has not been completed until 1951 (Moss, 2007, p.70; Moss and Brennan, 2002)



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economies. Wray (2012)'s suggestion, one of its several recent similar ones, of a "modern monetary theory" which combines the stock-flow consistent 3-sector balance approach of Godley (1996) and the modern money approach of Minsky (1986) and use it as a base for his monetary theory or, in better terms, modern interpretation of the macroeconomic modelling. Jackson and Dyson's (2013) and Ryan-Collins et al. (2011) discuss also the issue within the same perspective. Godley and Lavoie's (2007) discussion on the issue that a better and more thorough method of macroeconomic accounting is possible and even necessary can be seen within the parallel direction.

National or macro level accounting of the economies are actually critically important to understand the structure of the economies and to better manage them. Godley and Lavoie introduce a more complete way of macro accounting and discuss how it better represents the economy.

In this paper we aim to elaborate this discussion analysing the mentioned approach of Godley and Lavoie. Comparing the recent developed methods with conventional macroeconomic methods and trying to underline important points that differ itself, the paper set a first look on the possible promises of such a more elaborate macro accounting system. Second chapter focuses on the macro accounting subject closer. Third chapter conducts a comparison between the approaches. Fourth chapter concludes the study.

2. Conventional Macro Accounts

The history of macro accounting is much younger than the development of the economy itself. In many aspects, however, it can be said that macro accounting of national income helped to improve economic modelling and to understand how it works.

Keynes defined the economic activity with the expenditure spent on the final activity. Equation 1 gives therefore the volume of an economy, in terms gross domestic products (GDP).

$$C+I+G+ NE_x=Y \quad (1)$$

Equation 1 has led to form a basic logic for a macro accounting system. Starting from 1930s the NIPA accounts² are started to be measured according to the basic logic of overall expenditure.

Expenditures made on the total national product constitute, at the other end, the factor incomes, i.e. the disposable income plus net tax and transfers. Equation 2 gives this relationship as W_f represents wages and factor incomes and F represents the profits. Taking account the disposable income definition, $Y_d=Y-T$, Equation 2 gives us the expenditure-income identity in a simplest manner (Equation 2 constitutes a base for transformation from expenditure matrix in Table 1 to income-expenditure matrix in Table 2):

$$C+I+G+ NE_x=Y(=Y_d+T)=W_f+F+T \quad (2)$$

Keynesian textbook expenditure identity given in Equation 1 and the first part of Equation 2 can be given in a matrix notation as in Table 1 below. In Table 1 we embark the double entry system which is used extensively by Godley and Lavoie (2007) for their balance sheet and transaction flow matrix analyses. The double entry system shows the direction of the transaction flows so that we can show transactions of the elements of basic macroeconomic identity. Here, the consumption expenditures made by the households

² Simon Kuznets from NBER (National Bureau of Economic Research) was appointed to build macro accounting system and the first estimates on national income was conducted in 1934 (BEA, 2006).



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are received by the firms for end products and services produced by the business. Government makes also spending the business production and services. The investment that the business achieves is financed by the private sector itself. The private sector here represents the financial private sector such as banks and other financial institutions.

Table 1. Matrix form of macroeconomic accounting on expenditures (closed economy from Eq. 1)

	Households	Private sector	Private sector	Government
Consumption	-C	+C		
Investment		+I	I_f	
Government		+G		-G
		[Y]		

Setting double entry system we can see the flow directions in macroeconomic expenditure identity. However, the matrix form of the macroeconomic identity in Table 1 is not coherent. At this point we can try to introduce the income part of the identity in Equation 2. The wages and factor incomes are introduced a simplistic method in Table 2. Profits are classified as distributed (F^D) and undistributed (F^U). Distributed profits are channeled to the households and undistributed profits are capitalized by the firms. Factor incomes other than the profits are included in W and it is assumed that all the factor incomes are from the business to households. Tax (T) is an income-decreasing factor for both business and households, forming the source of government expenditures. Tax is assumed here as net tax after substituting government transfers.

Table 2. Conventional income and expenditure matrix (closed economy from Eq. 2)

	Households	Firms-Current	Firms-Capital	Government
Consumption	-C	+C		
Investment		+I	$-I_f$	
Government		+G		-G
		[Y]		
Wages-factor inc.	+W	-W		
Net Profits	$+F^D$	-F	$+F^U$	
Tax and transfers	$-T_h$	$-T_f$		+T

The expenditure matrix of Table 2 seems more inclusive in terms of the inclusion of factor income side of the income-expenditure identity. Therefore, we can see the identity coherence throughout the firms-current transactions: The summations of the expenditure elements determining the output is fully distributed to income items. Consequently, total expenditure is equaled to the total income throughout the business sector where the production of the end products and services take place. However, it lacks still the transaction coherence for all sectors. For example, the net savings of the sectors can be calculated here but where they are hold and by which financial tools are not known in Table 2. For that purpose, though, we need to build more inclusive system. We will see an attempt in this direction by Godley and Lavoie in the next section.



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3. Income-Expenditure Matrix vs. Transaction Flow Matrix

3.1. Transaction flow matrix

Table 1.2 in the previous section, despite being useful to reflect the basic logic of measuring gross product of Equation 1 and Equation 2, cannot prevent some important questions to be raised. For example, we don't know about personal savings holdings; neither much about savings or deficits about business and government. In other words, which forms the savings falls in or deficits are financed from? A more complete accounting system takes the counterpart of the expenditures or the savings and configures the financial tools utilized. For example, the accounting system of the balance of budget does take in account the capital and the financial counterpart of the exchange of goods and services through the border. We know that the fund of transaction

In this manner, Table 3 gives more complete picture giving the flows of funds under the already known transactions from the NIPA system. According to different level of simplifying assumptions it is possible to build various different transaction flow matrixes. Following Godley and Lavoie (2007) we are giving detailed 5 sector transaction matrix. In Table 3, banks are placed separately to better cover especially financial and monetary transactions. Central bank is placed separately from government in a similar manner.

Table 3. Transactions flow matrix

	House-holds	Production firms		Banks		Government	Central Bank		Σ
		Current	Capital	Current	Capital		Current	Capital	
Consumption	-C	+C							0
Investment	-I _h	+I	-I _f						0
Government		+G				-G			0
Wages	+WB	-WB							0
Profits, firms	+FD _f	-F _t	+FU _f						0
Profits, banks	+FD _b			-F _b	+FU _b				0
Profits, Cent. B						+F _{cb}	-F _{cb}		0
Loan interest	-r _{l(-1)}} ·L _{h(-1)}}	-r _{l(-1)}} ·L _{f(-1)}}		+r _{l(-1)}} ·L _{(-1)}}					0
Deposit interest	+r _{m(-1)}} ·M _{h(-1)}}			-r _{m(-1)}} ·M _{(-1)}}					0
Bill interest	+r _{b(-1)}} ·B _{h(-1)}}			+r _{b(-1)}} ·B _{b(-1)}}		-r _{b(-1)}} ·B _{(-1)}}	+r _{b(-1)}} ·B _{cb(-1)}}		0
Taxes-Transfers	-T _h	-T _f		-T _b		+T			0
sub - Σ	SAV _h	0	SAV _b =FU-I	0	SAV _b =FU _b	SAV _g =-DEF	0	0	
Change in loans	+ Δ L _h		+ Δ L _f		- Δ L				0
Change in cash	- Δ H _h				- Δ H _b			+ Δ H	0
Change, deposits	- Δ M _h				+ Δ M _b				0
Change in bills	- Δ B _h				- Δ B _b	+ Δ B		- Δ B _{cb}	0
Change, equities	(- Δ e _f ·p _{ef} + Δ e _b ·p _{eb})		+ Δ e _f ·p _{ef}		+ Δ e _b ·p _{eb}				0
Σ	0	0	0	0	0	0	0	0	0



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(Source: Godley and Lavoie, 2007, p.39; minor changes belong author)

The first part of the transaction flow matrix in Table 3, we can see the conventional NIPA accounts with the expenditures and the factor incomes of the sectors. Here the financial sectors are added to make it clear that where the funds are coming and where they are going. The central bank is also set separately. In Table 3 we can see the interest flows are given in detailed so we don't have to put the asset and liability interests together. Profits are divided into 2 groups; therefore, they are not just distributed to the households, some part of them stays undistributed and adds to the capital stock. We can see here investment expenditures take place in a more elaborate manner.

3.2. System Evaluation: NIPA vs. Transactional flow matrix

The macro accounting system tries to measure economic activity. An economic activity in a modern economy contains, at one side, the production of goods and services and exchange of them, often called real economy; it also contains, at the other side, also the monetary economy which does not just include the financial reflection of the real activity but also capsulate the pure monetary transactions consisting from the transactions among the financial tools. Therefore, a macro accounting system aiming to measure the economic activity should first be able to reflect the economy into a macro accounting model. As we know, a major modelling goal is to find the simplest model to represent the behaviour of the part of the universe that we interested, which is the economic activity here, In this manner, both conventional income-expenditure matrixes and the transaction flow matrixes have advantages and disadvantages.

First of all, a conventional income-expenditure matrix such as NIPA matrix helps to track the logic of GDP calculation. Expressing clearly the macroeconomic duality of the expenditure-income, it is also very helpful for pedagogical purposes. In other words, it is simple enough to represent the "real" part of the economy; so defined, it is useful to understand the real economy. However, it is uncertain that which financial tools are being used to finance these transactions, neither is the relationship between the financial tools and the real economy.

As for the transaction flow matrix, it can put the whole picture thoroughly. The first part of the transactional flow matrix given in Table 3 is same old income-expenditure matrix and reflects the 'real' part of the economy. The financial relations are given in detail in the below part of the matrix. Therefore we can see the all transactions including real and financial ones in the matrix and we can test their coherence. This constitutes a very important advantage because the causality in an economy is deemed to be bidirectional. Hence, the pure financial transactions to balance inter financial tools describing the interest rates have their effects into the real economy. That affecting mechanism generally deemed as via the interest rates. Interest rates are deemed to affect investment, consumption or foreign trade affecting the exchange rates.

4. Conclusion

The conventional macro accounting of an economy tries to capture the economic activity takes places in the 'real economy'. GDP numbers are produced through this macro accounting system, such as NIPA, and they are prevalently regarded as a measure of the economy. Even more importantly, accounting the macroeconomic activity in an economy we can show the way the economy runs and the roles of the different sectors in it. For example, it gives an opportunity to see and to check how the dual equality of macro incomes and expenditures works on a single table.



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We evaluate in this study, on the other hand, today's macro accounting system NIPA matrix is not totally coherent. If the balance of payments account, as a different macro accounting perspective of an economy, can supply this coherence in its calculations, it should be maintained for the macroeconomic accounts which are deemed to take a picture of the whole economy. For that purpose, it should include the financial and monetary dimensions of the running economy.

The most important point to be underlined is that the transaction flow matrix has such coherence for the whole of the economy. It has the financial transaction part as well as the conventional real economy part. The financial interdependencies can be followed as being in a sectorial balance sheet; while the coherence rule puts a reality check on them on sectorial base. Taking the bidirectional influences between the real and monetary part of the economy, the transactional matrix seems the sole system that can simulate the behaviour of the economy.

So far in the history the main focus was on the real part of the economy in terms of macro accounting systems, but in the modern world economy the monetary activity of an economy is much bigger than the real part. In addition to the monetary counterpart of the real exchanges, there are saving funds and also the pure monetary transactions following financial causes. The equilibrium reached through these financial transactions has its effects on real economy mainly via the interrelationship of interest rates with investment, consumption and exchange rates. Transaction flow matrix is the unique tool that one can see the all dimensions and their effects in a single accounting body. The literature shows that not only the practical application of such attempt but also the theoretical formation of one intact coherent macro accounting body is not easy at all. Therefore, we can conclude that further studies on the subject will be utmost useful both in economics theory and economic management on the field.

The last important point to make is that the having complete picture by fulfilling the total coherence of the transaction flow matrix is not the only important advantage of this new approach. But this total coherence is extremely important for the system dynamics point of view. Dealing with the complex systems as a modern economy, the system dynamics or the system thinking model can be effective the solve out the unexplainable or counter-intuitive fallacies in an modern economy such as our recent experiences of hedge fund crashes, bank crisis or market bubbles.

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Knowledge, attitudes and behaviour regarding waste management options in Romania: results from a school questionnaire

Karin KOLBE¹

¹University of Hildesheim, Germany, kolbek@uni-hildesheim.de

Abstract. *This study analyses knowledge, attitudes and behaviour in the area of different waste management approaches of pupils in Romania. Examining school students' knowledge about waste management options and finding out the reasons that prevent them from participating in environmentally sound disposal options is essential for teachers and legislators. For this purpose, questionnaires were designed and distributed in two schools in Romania.*

The analysis revealed that knowledge is highly developed in Romania regarding the potential of recycling, while the concepts of waste management technologies are far less known about and understood. Landfill is seen as a problem for human health and the environment. However, recycling behaviour is low - partly as a result of limited possibilities. In general, the treatment hierarchy that is recommended in the "European waste hierarchy" is only partly reflected in students' attitudes towards waste management options.

Keywords: Waste management, waste hierarchy, waste reduction, sustainable development, Romania

JEL Codes: Q20, I20

1. Introduction

1.1 Waste management and sustainable development

The area of waste management, an essential part of sustainable development, is dealt with in many different ways in EU member countries (Mazzanti & Zoboli, 2008; European Environmental Agency 09; Pires, Martinho, & Chang, 2011). How municipal waste is perceived by the population (and in particular by the young generation), is of importance for understanding how teachers can increase relevant knowledge among students - and indicates what environmental education programmes have to focus on in the future. The younger generation is of particular importance because they will shape future developments and because it is believed that they will promote strategies and beliefs in their homes and will thereby act as

¹ Corresponding author: Karin Kolbe, Marienburger Platz 22, 31141 Hildesheim, Germany, Tel.: +4915204-772846, E-Mail address: kolbek@uni-hildesheim.de



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"multipliers" for positive environmental behaviour (Boerschig & De Young, 1993; Larsson, Andersson, & Osbeck, 2010; Vaughan, Gack, Solorazano, & Ray, 2003).

While many EU member countries have advanced waste management systems, this is not the case in Romania, which only joined the EU in 2007 (Lopotaru, A. 14). Many regions in Romania are not covered by a kerbside collection service and landfill sites are still regularly used as the sole management options (Plesea & Visan, 2010; Apostol & Mihai, 2012). There is little research on societal perceptions of waste management in Romania. To the best of my knowledge, my study which uses questionnaires to look at students' perception of waste management options in Romania is the first of its kind. The current study tries to indicate aspects that not only teachers and educators but also policymakers, should focus on in the future so as to improve the waste management situation in Romania.

In the current paper, questionnaires were distributed to students in Romania and analysed to understand the current situation, limitations and needs in the area of waste management. The current principles of the EU, which are reflected in the EU waste hierarchy, are the context in which the Romanian waste management system is judged and the answers of the students are interpreted.

1.2 The EU waste hierarchy

The EU waste hierarchy is currently widely accepted as a conceptual framework which lays down both the best and the least sustainable ways to deal with waste (see Figure 1). It became legally binding for EU member countries in 2008 (European Commission 12).¹ The main goals of the waste hierarchy are the prevention of waste, the saving of energy and the conserving of resources (Schmidt, Holm, Merrild, & Christensen, 2007). The best option, according to the waste hierarchy, is to avoid the production of waste. The second best option is to re-use waste. This will save a maximum of resources and energy while still producing waste materials. However, in many cases, it is not possible to simply re-use waste materials. Recycling is the option of choice if it is not possible to re-use the materials concerned. According to the waste hierarchy, composting is on the same level as recycling. Energy recovery through incineration is the next best option. However, it should only be applied when the above mentioned possibilities are not feasible. Finally, disposal of waste by putting it on landfill sites is the least favoured option according to the waste hierarchy (European Parliament and European Council 08).

¹ Member countries can decide to deviate from the waste hierarchy for individual waste streams if there are environmental reasons for it (European Commission 12: 49).



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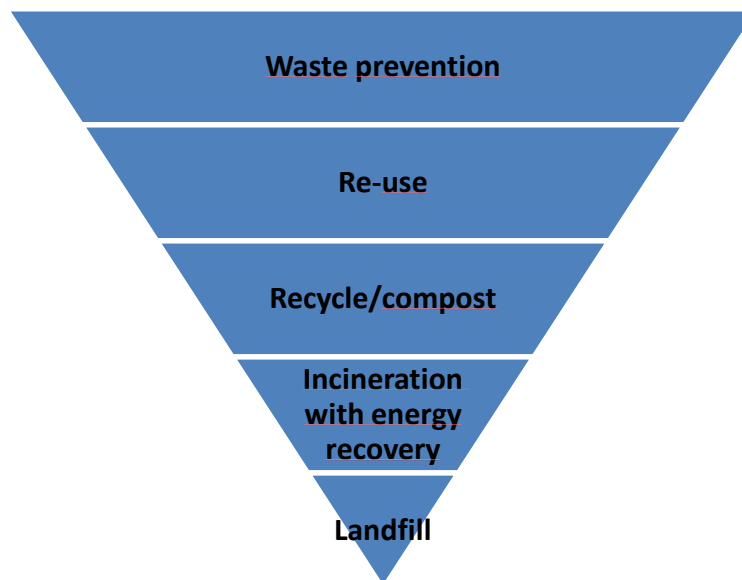


Fig. 1.: The waste hierarchy as described in the EU Waste Framework Directive.

1.3 Situation of waste management in Romania

Romania, which joined the EU in 2007, landfilled over 212 kg of household waste per capita in 2012, which is over 75% of its waste production (Eurostat 14a). While the country has started to close small, uncontrolled landfill sites, there is still a large number of landfill sites “protected merely by a fence enclosure” (Lavagnolo, 2010: 1752). In many regions, a working waste management system is non-existent (Plesea & Visan, 2010). Despite the fact that the Romanian waste management system is less developed, people living in Romania produced on average only around 270 kg of household waste in 2012 which is much less than the EU average of 487 kg (Eurostat 14a). Nevertheless, even these relatively small quantities have influenced the environment and human health negatively in the past (Krüger & Carius, 2001: 7; Lopotaru, A. 14). Moreover, waste quantities are currently rising as a result of increased consumption and Western-style packaging (Bird, M. 10).

The principles that are detailed in the waste hierarchy are therefore currently not taken account of in Romania: the least good option – landfill – is used for the majority of household waste. Incineration with energy recovery, which would be better than landfill, is not used at all since it is considered too expensive at the moment (Almasi, A. M. and Reichel, A. 13: 13). However, there are plans to build incineration plants in the near future (Lopotaru, A. 14). While recycling rates are increasing there are no large scale systems for waste collection and recycling in many regions. Equally, composting is not performed at the national level (Eurostat 13). Re-use of waste is difficult to assess. It can be as trivial as repairing clothes and shoes as much as feasible or using returnable bottles made from glass or resilient plastic instead of one-way plastic bottles. Finally, the best way to deal with waste is to not produce waste in the first place. This can potentially be done in any country. However, if a country has low rates of waste production it is considerably more difficult. Also, waste is up to some point a by-product of economic growth and per



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capita income (Mazzanti, 2008; Beede & Bloom, 1995), therefore, a country such as Romania, which has experienced significant economic growth in recent years (Eurostat 14b), will find it difficult to implement strategies in the area of waste reduction.

1.4 Research question

Waste management is influenced to a large extent by societal factors, e.g. by the perception of waste among the population, by the knowledge of people about waste and possible management routes, and by potential obstacles that prevent people from participating in waste management schemes. The research question of the current paper is, whether pupils in Romania agree with the hierarchy of waste management options that is recommended by the European Union, despite the fact that the country is currently not treating its waste accordingly. The study also analyses reasons why students do not participate in recycling possibilities and thereby identifies educational needs in the area of waste management for Romanian schools.

2. Method

To explore knowledge, attitudes and behaviour in respect to waste management among students in Romania, an explorative approach was chosen. Questionnaires were designed and distributed in two Romanian comprehensive schools in 2009. The schools that were chosen were situated in small towns, each with a population of around 40,000 people. The questionnaires were translated into Romanian by a translation agency and were cross-checked by Romanian teachers. Participating pupils were between 14 and 15 years of age. A total of 105 students were questioned, 58 female, 47 male. The questionnaires were handed out to all students of each school on the same day and were filled out anonymously in class.

The questionnaire had been piloted previously with differently aged students. Younger students (below 11 years) had problems with the questionnaire while the questions were well-understood by students from the age of 13 onwards.

The questionnaires encompassed multiple choice and open-ended questions on knowledge about waste management, attitudes regarding waste management options and behaviour in the area of waste recycling.

The first part of the questionnaire was developed to identify the level of knowledge and the general importance of waste-related concepts. Students were confronted with different waste management concepts: Recycling of paper, kerbside collection services, household waste recycling centres, composting of garden and kitchen waste, incineration and landfill of waste. Students were asked whether 1) they had never heard of the concept, 2) had heard of the concept but did not know what it meant 3) had heard of it and knew what it meant.

Moreover, pupils were asked about the importance they placed on different waste management options. Answers were given on a 10 point scale with 1 being least important and 10 being most important. The aspects that were named are 1) reduce the amount of waste, 2) recycle our waste, 3) compost organic waste and 4) re-use waste.

In the second part of the questionnaire, the following approaches towards waste which are laid down in the waste hierarchy were addressed: Landfill, incineration, recycling and waste reduction. Students were



asked about their associations with the word landfill, whether they thought incineration is a good option to treat waste, whether they recycled and if they did not, what the reasons for their non-recycling were and finally, whether they thought that the amount of waste produced should be reduced and why they thought so.

Quantitative and qualitative approaches were used to analyse the students' questionnaire. Multiple choice questions were analysed by providing cross-tabulation and calculating frequencies.

Answers to open-ended questions were grouped into categories to allow better comparison. Categories were cross-checked by another researcher, discrepancies were discussed. Answers which were only given by one student were compiled under a specific section which is called "other".

3. Results

3.1 Knowledge about recycling concepts

The questions on knowledge of different waste management concepts were used to get an understanding of what students in Romania currently know. The results are summarised in Table 1.

Table 1. Knowledge of students

	<i>Have never heard of it</i>	<i>Have heard of it / don't know what it means</i>	<i>Have heard of it / know what it means</i>	<i>Missing answer</i>
<i>Recycling of paper</i>	5.7	2.5	91.8	0.0
<i>Kerbside collection services</i>	23.8	12.4	60	3.8
<i>Composting of garden and kitchen waste</i>	54.3	21	22.9	1.8
<i>Incineration</i>	9.5	8.6	78.1	3.8
<i>Landfill of waste</i>	19	12.4	66.7	1.9

The results reflect the situation in the country to some extent. Paper is one of the few materials which is often collected and recycled in Romania. There are also awareness campaigns at school which focus on paper recycling (Almasi, A. M. and Reichel, A. 13: 6). Consequently, over 90 percent of the students had heard about "recycling of paper" and knew what it meant.

Contrary to this, over 23 percent of the Romanian pupils had never heard of kerbside collection services. This lack of knowledge of the Romanian pupils can probably be explained by the current absence of such collection services in large parts of Romania. Only around two thirds of the students questioned stated that they knew what kerbside collection services were.

The concept of composting garden and kitchen waste is even less well known among the students. Over 50 percent had never heard about composting of garden and kitchen waste. While only slightly over 22 percent knew what it means. This reflects the current lack of composting facilities. Organic waste fractions are normally disposed off together with the rest of household waste.



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Surprisingly, the majority of students had heard about incineration and knew what it meant although incineration is currently not used in Romania. Only slightly less than 10 percent claimed to have never heard about incineration.

What was also surprising was the fact that almost 20 percent claimed to have never heard about landfill of waste although it is a widely used technique at the moment. Fewer pupils knew the concept of landfill compared to incineration, kerbside collection services and recycling of paper - although the majority of waste is land filled.

3.2 Importance ascribed to different waste management concepts

The importance of different waste management options had to be rated by the students on a scale from 1 to 10. Table 2 shows the average importance that was ascribed by the pupils from the different groups to the different aspects. The best option according to the waste hierarchy, to “reduce the amount of waste”, was rated as being very important. However, “recycle our waste” was even considered slightly more important by Romanian students. They were less inclined to find “re-use of waste” important, “compost organic waste” was rated as being of very low importance although re-use and composting are both possible options to reduce waste. According to the waste hierarchy re-use is seen as being more important than recycling and composting is on the same level as recycling (compare Fig. 1).

Table 2. Importance of waste management options

Concept	Importance
<i>Reduce the amount of waste</i>	8.68
<i>Recycle our waste</i>	9.09
<i>Compost organic waste</i>	4.26
<i>Re-use waste</i>	6.21

3.3 Landfill

If students had heard of the concept of landfilling waste, they were asked what they associated with this technique. Landfill is currently seen as the least good option to handle waste according to the waste management hierarchy of the EU and in almost all other western countries. However, Romania still heavily relies on this technique and in the past, waste was often disposed off in small, uncontrolled landfill sites. It was therefore not clear whether pupils might have the feeling that it is an adequate treatment option for household waste.

However, the answers to the question indicate that many students are aware of the negative side-effects of landfill. As can be seen in Table 3, a large amount of answers (45.4 percent) did neither associate positive nor negative aspects with “landfill”. They simply associated “waste”, “storage of waste” or “where waste goes” with landfill. However, negative associations were also common. 18 percent associated misery, 10.6 percent smell, 5.7 percent environmental pollution and 5 percent disgusting or ugly with it. Moreover, around 2.1 percent thought that it was a problem for human health and 1.4 percent stated that it was “bad”. A low number of students also argued for other waste management options instead. 2.8 percent stated that waste could be recycled instead, another 2.8 percent stated that it could be burned instead. Only 1.4 percent stated that landfill was “good”. Overall, results show that where Romanian pupils knew the concept of landfilling waste, they rather associate negative aspects with it.



Table 3. Associations of students with the word landfill

Association	Percent of answers
<i>(Storage of) waste</i>	43.97
<i>Misery</i>	17.73
<i>Smell</i>	10.64
<i>Environmental Pollution</i>	5.67
<i>Disgusting, ugly</i>	4.96
<i>Waste could be recycled instead</i>	2.84
<i>Waste could be burned instead</i>	2.84
<i>Human health</i>	2.13
<i>Bad</i>	1.42
<i>Where waste goes</i>	1.42
<i>A good thing</i>	1.42
<i>Other reasons</i>	4.96

3.4 Incineration

If pupils knew what incineration was, they were asked which impression they had about this technique. The following options were provided: Incineration is

- a good technology for the treatment of waste
- not a good technology for the treatment of waste
- a potentially good technology if certain criteria are met
- I do not know whether it is a good technology

Students were also asked to provide reasons for their judgement. Since incineration is at the moment not used in Romania, it was supposed that approval rates would be rather low. It was of particular importance in these cases whether pupils were able to identify criteria, which might help to increase the usefulness of incineration, e.g. the containment of fumes or the recovery of energy.

The questionnaire revealed that the number of pupils who agree and disagree with incineration as well as the number of students that did not hold any opinion about incineration is almost evenly distributed (around 30 percent), whereas only a small proportion (6.7 percent) of the pupils said that it could be a good option if certain criteria were fulfilled. These students named “the containment of fumes”, “recovery of energy” and “the limitation to materials which cannot be recycled” as criteria. The specific percentages can be seen in Table 4.



Table 4. Perception about incineration

Impression of incineration	Percent of answers
<i>A good technology</i>	28.57
<i>Not a good technology</i>	29.52
<i>A potentially good technology if certain criteria are met</i>	6.67
<i>Do not know whether it is a good technology</i>	27.62
<i>Missing answer</i>	7.62

Given the distribution of answers, it is questionable whether students really understood the concept of incineration. The question might have led to some confusion. In some cases pupils might have believed that the private burning of waste was meant. For instance, one student who approved of incineration stated that “I think every household should burn their waste in the garden”. Another student wrote that “we always burn our waste”. This possible confusion might also explain why such a large number of students (around 78 percent) said that they had heard about incineration and knew what it meant (Table 1). The private burning of waste is in no way more environmentally friendly than the burning of waste in incineration plants, these answers reflect the limited knowledge regarding air pollutants and residues which might have a negative impact on human health and the environment. Considering this, there seems to be a lack of environmental education regarding the negative effects of private or industrial burning of waste. While incineration can be a relatively safe treatment option for waste if strict emission limits are regarded and energy recovered, incineration cannot be seen as a good treatment option per se. Pupils who said that it is not a good treatment option for waste normally referred to the release of gases, in some cases, these were referred to as “toxic gases” or “greenhouse gases” in particular.

3.5 Recycling

Students were asked to sort different materials into recyclable and non-recyclable materials. The results are shown in Table 5.

Many students were not aware that drink cans and aluminium foil can be recycled. However, the overall rate of materials that were correctly classified as being recyclable was very high.

Table 5: Knowledge about recycling possibility

Materials	Correct answers [%]
<i>Paper</i>	81
<i>Glass</i>	82
<i>Fruit juice cartons (Tetra Paks)</i>	90
<i>Plastic bottles (PET bottles)</i>	72
<i>Drink cans</i>	88
<i>Cardboard</i>	64
<i>Aluminium Foil</i>	81



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Overall, 32.4 percent of the Romanian students classified all materials correctly. This high number was surprising, since waste management is currently not very well developed.

3.6 Participation in household waste recycling

Participation in household waste recycling was measured by asking pupils to indicate their frequency of participation on a three-point scale: whenever possible, sometimes and almost never.² Three materials were provided in the questionnaire: paper, cans and glass bottles. General trends are summarised in Table 6.

Table 6. Recycling frequency.

	<i>Whenever possible</i>	<i>Sometimes</i>	<i>Almost never</i>	<i>Missing answer</i>
<i>Paper</i>	57.1	13.4	25.7	3.8
<i>Cans</i>	32.4	21.9	40	5.7
<i>Glass bottles</i>	29.5	28.5	39	3

Overall, a large part of the students stated that they recycle “almost never”. Paper was the only one of the named materials which was recycled by 57 percent of the surveyed students. However, even paper was recycled “almost never” by around 26 percent of the asked students, cans were only recycled by 32 percent of the students “whenever possible” while 40 percent did not recycle them. Glass bottles are equally not recycled by almost 40 percent of the students.

If pupils stated that they did not recycle regularly, they were asked to provide reasons for this not recycling. This question was supposed to identify key factors which limit the number of people participating in recycling behaviour.

63 percent of the pupils provided reasons why they did not recycle. These are summarised in Table 7. The majority of pupils stated that it is not possible for them to recycle although it remains unclear why it is not possible. It might either be a lack of space, recycling points or knowledge. Around 13 percent of the questioned students said they were not interested. The same proportion named the lack of collection points as a reason, followed by a lack of storage space. 6 percent claimed that recycling was too complicated for them and another 6 percent said that their parents did not do it either. Some pupils also claimed that it is polluting, probably referring to the space that is needed in their homes and not to the technique itself. Dislike was also named by some pupils as well as a lack of time. Overall, most students thereby named external factors as reasons (not possible, no collection points, lack of storage space). Individual factors which in some cases reflect a lack of interest, knowledge or willingness to recycle (not interested, too complicated, because parents do not do it, it’s polluting, dislike, lack of time) also mattered, although they were named less often.

² Gamba and Oskamp (1994) found, that self-reported recycling behaviour was higher than observed recycling behaviour. Reported frequencies might be biased by social desirability or selective remembrance. While self-reported behaviour is a common method in social sciences, the frequencies reported in this paper might show a small bias towards higher reporting of recycling frequency.



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Table 7. Reasons for not recycling

Reasons	Percent of students
<i>Not possible</i>	46.9
<i>Not interested</i>	13.3
<i>No collection points</i>	13.3
<i>Lack of storage space</i>	10.5
<i>Too complicated</i>	6.0
<i>Because parents do not do it</i>	6.0
<i>It's polluting</i>	4.5
<i>I do not like it</i>	4.5
<i>No time</i>	3.0
<i>Other</i>	12.0

3.7 Importance of waste reduction

Pupils were asked if and why they thought that the amount of household waste should be reduced. The waste hierarchy defines that the best way of dealing with waste is to reduce the amount of waste produced. In accordance with this, the large majority of pupils believed that waste should be reduced. Only one pupil stated that he did not believe that waste should be reduced since he was “not interested”. Twelve percent of the pupils left the answer blank. All other pupils named the reasons shown in Table 8 for their belief in a reduction of household waste.

The reason that was named most often was the reduction of environmental pollution. Interestingly, the protection of human health was named by over one quarter of the Romanian pupils as a reason to reduce waste. It was thereby the second most often named reason. Reasons such as the protection of nature, the responsibility for future generations and the saving of resources were each named by around 5 percent. Other reasons, such as waste being ugly, water quality and the reduction of global warming were only rarely given.

Table 8: Reasons for waste reduction

Reasons	Percent of students
To reduce environmental pollution	29.3
To protect human health	25.7
To protect nature	5.9
Too much waste in the future	4.4
To save resources	4.4
Because its ugly	2.9
Water quality	2.2
To reduce global warming	1.5
Other	3.7



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4. Discussion

This study provided findings on knowledge, attitudes and behavior of Romanian pupils regarding waste management for the first time. Overall, it was found that theoretical knowledge about different waste management concepts is not well developed while in general waste management is considered to be an important topic.

Knowledge was particularly high for waste management options which are currently performed in Romania: Recycling of paper, kerbside collection services and landfill. Composting, which is currently rarely done in Romania, was only known by one fifth of the students. The results in respect to incineration are difficult to interpret since students might have thought that the private burning of waste was meant and not industrial incineration processes. These results for knowledge clearly indicate the need for more teaching of concepts, processes and options, which are currently not performed in Romania. Composting is an environmentally very useful technique since it actively reduces the amount of biodegradable municipal waste which ends on landfill sites. It thereby also reduces the impact that waste has on global warming since biodegradable waste leads to the production of methane, a potent greenhouse gas, if it is put on landfill sites. However, students need to know of such possibilities and of their advantages in order to start participating in such schemes. In particular composting can often be easily carried out at home in the garden or on the balcony. The potential for students to participate is therefore given but knowledge about these options is essential.

Romania currently largely relies on landfill as a waste management option. Accordingly, many students named neutral aspects (e.g. “storage of waste”) when asked about their associations with landfill. Still, a large amount of students reported pronounced negative feelings regarding landfill. This perception is in accordance with the waste hierarchy which also considers landfill as the least best option to treat waste.

Interestingly, knowledge regarding recycling potential was rather high. Students knew which materials could be recycled while at the same time, a large proportion of students did not recycle themselves, primarily since it is “not possible”. It remains unclear, why it is not possible. It might either be a lack of space, collection points or knowledge. However, the theoretical knowledge to recycle is already available. Therefore, students who name a lack of collection points as a reason (or who find recycling “not possible” for external factors) will find it easier to participate in recycling options once they are introduced. The lack of interest, however, which was named by 13.3% of the students has to be addressed through educational initiatives. The benefits of recycling need to be highlighted in front of limited landfill capacity and resource efficiency.

Waste reduction, the best option according to the waste hierarchy, was considered important by most pupils despite the fact that Romania currently only produces little waste per person compared to the EU average. The questionnaire showed that pupils in Romania are aware of the negative consequences for human health and the environment that are associated with landfill. The specific quantity of waste that is produced is therefore probably of less importance compared to the feeling that too much waste is currently land filled.

Incineration was regarded sceptically by about 30 percent of the students. While this can be a problem regarding incineration it only reflects part of the picture: Currently, waste is primarily land filled in Romania and the governments wants to introduce incineration plants in the future to reduce landfill, as has been



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done in many other European countries. A safe use of the technology can help to increase the environmental performance through a reduction of landfill unless the technology is arbitrarily used. If materials can be (easily) recycled, they should not get incinerated. If the Romanian government proceeds with its plans to establish incineration as a treatment option for large amounts of waste, there has to be acceptance within society. In the current questionnaire, around 30 percent of the questioned students do not show such acceptance but rather see incineration as a source of gaseous emissions that can have a negative impact on human health and the environment. In this area, distinguished information is vital to help the long-term goals of waste management.

5. Conclusion

In this study, knowledge, attitudes and behaviour with respect to waste management were analysed for the first time among Romanian pupils.

In general it was found that the waste hierarchy is only partly agreed with by the students that were surveyed. While landfill was not seen as a good option to treat waste and incineration was equally viewed with skepticism by a large fraction of the surveyed students, recycling was seen as much more important than waste-reduction, waste re-use or composting.

Environmental education needs to address these issues by providing reasons for why the current waste hierarchy is environmentally the best approach. This should be addressed at school in particular. Life-science teachers have the ability and knowledge to provide detailed information about life-cycle assessments of different waste management options. Equally, the social and economical impact of different waste management options should be addressed at school.

While environmental education can help to improve waste management, the questionnaire also showed that it is essential that convenient options for separate collection are introduced. Only if legislators provide bring-banks and kerbside collection services in all areas of Romania will this knowledge be translated into actual good recycling/composting behaviour.

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