

THE ROLE OF CONSUMER BEHAVIOUR IN E-WASTE MANAGEMENT SYSTEM IN ROMANIA

Nadia CIOCOIU
Cătălin DOBREA
Valentina TÂRȚIU

The Bucharest Academy of Economic Studies, Romania

ABSTRACT

The environmental issues have gained worldwide a lot of space in the researches of the last years, due to the increasing awareness that the current lifestyles lead to depletion of many resources, pollution, climate change and so forth.

In the same time, the issue of waste electrical and electronic equipments (WEEE, e-waste) became an important debate topic, taking into account the development of digital economy and their environmental impact.

In this context, the paper aims to tackle the role of consumer behaviour in e-waste management system in Romania. In this sense, the paper is structured into three sections. The first section of the paper is devoted to the interdisciplinary literature review on attitude and behaviour towards environment, especially regarding the waste problem. The second section analyzes the driving forces that shape the consumer behaviour regarding electrical and electronic equipments and the waste management in Romania, and is followed by the conclusions of our analysis (in the last section).

KEYWORDS: *private consumer, public consumer, behaviour, waste electrical and electronic equipments (e-waste, WEEE), corporate social responsibility*

1. A review of literature on consumer behaviour towards environment

The concerns regarding consumer behaviour towards environment have reached a distinct character, in the context of natural resources depletion, increasing pollution, climate changes and so forth. Researching this topic has resulted in numerous studies that have contributed to the emergence of theories and models in this field. Following review of the literature, we can distinguish three approaches regarding consumer behavior towards the environment, namely:

- ***internalist approach*** - that analyze the consumer behaviour mainly from the perspective of processes and characteristics which are conceived as being internal to the consumer: attitudes, values, habits and personal norms etc.

One of the most important theories of this approach is the *Ecological Value Theory*, which suggests that pro-environmental behaviour arise from a particular set of values specific to each individual (such as : social, moral values etc.).

One shortcoming of the *Ecological Value Theory* is the *attitude-behaviour gap* - more precisely, the fact that one consumer has certain social values and pro-

environmental attitudes does not mean that his actions will reflect a responsible behaviour towards the environment. In support of this shortcoming, we can mention the Bickman's (1972, quoted in [7]) study regarding the consumer's attitude towards litter (small wastes from the street). According to his study, from the total of 500 respondents, 94% of them stated that they have a responsibility towards litter, but only 2% of the interviewees have put the wastes encountered on their way on the container.

- ***externalist approach*** – claims that external, contextual factors are those carrying a significant influence on individual behaviours of consumption. Therefore, according to this approach, consumers are locked in the choice of consumption pattern by a variety of external factors, such as: economic constraints, financial incentives, institutional barriers, inequalities of access, expectations and dominant cultural values, social norms and so forth.

Regarding the role of economic incentives in order to change consumer behaviour towards waste, studies carried out so far have revealed two different views: for example Pieters(1991) argues that in order to change the consumers habits regarding waste disposal, the financial incentives and legal regulations are essential and is important to find them in any environmental policy, while studies by Oskamp et al. (1991) and De Young (2000) (quoted in [4]) have showed that financial incentives do not produce long-term changes in consumer behaviour regarding the responsible management of waste.

A possible explanation for this is found in [7], Jackson T. argues that environmental concerns, sustainability and proper management of waste are difficult to maintain, because the impact of choices that consumers make, is not usually immediately or is spatial isolated.

- ***integrative approach*** – takes into account both internal and external factors as having a significant role in influencing consumer behaviour towards the environment.

One of the most significant attempts to combine both internalist and externalist perspectives is the Stern's **A**ttitude – **B**ehaviour – **C**ontext (ABC) Model.

The fundamental starting point for Stern's approach is the understanding of consumer behaviour as a function dependent of the sphere of personal, attitudinal variables and contextual factors. "The structural dynamics between the influence of attitudes (ie internal factors) and contextual (ie external) factors is a key dimension of the ABC model. In particular, its proponents claim that the attitude-behaviour link is strongest when contextual factors are weak or non-existent; and that, conversely, there is virtually no link between attitudes and behaviours when contextual factors are either strongly negative or strongly positive." [7, p.93]

For example, in the case of waste recycling, according to the ABC Model "when access to recycling facilities is either very hard or very easy, it scarcely matters whether or not people hold pro-recycling attitudes. In the first case, virtually no-one recycles; and in the second case most people recycle. In a situation, however, in which it is possible but not necessarily easy to recycle, the

correlation between pro-environmental attitude and recycling behaviour is strongest.” [7, p.93]

2. Consumers behaviour – a key factor in the e-waste problem

WEEE is the waste with the biggest and the most spectacular growth rate from the entire quantity of waste generated [9]. For example, in the EU countries at a five years span WEEE are growing with 16-28%, meaning three time more than the medium growing rate of the municipal waste quantities generated every year [10].

The growth tendency of WEEE is encountered also in Romania. According to the United Nations University Report in the timeframe 2010-2020 in Romania the WEEE quantities will grow from 134.670 tonnes to 226.702 tonnes.

In this context, the way in which consumers dispose their electrical and electronic products (broken or functional, but unwanted due to the fact that other appliances more efficient have emerged), has become an important issue.

Consumers play two roles in the life cycle of an electrical and electronic equipment (EEE), namely: the role of client and the role of owner of waste electrical and electronic equipment [6].

Both roles of consumers express a middle phase, namely the use phase of the electrical and electronic equipment and the role of mediator between the two interested parties: producers and recyclers. Also, both roles are very important in solving the WEEE problem, since it is not sufficient to treat WEEE only in terms of disposal. Consumption has to be taken into account because the high rate of consumption of electrical and electronic equipments generates huge quantities of obsolete electronics, many still functional.

In Romania, the study of consumer behaviour towards wastes from electrical and electronic equipments has acquired a distinct character, after the EU accession and the WEEE legislation transposition into national law. Thus, EcoTic, one of the collective associations which took over the EEE producers responsibilities, together with Daedalus Millward Brown have carried out in 2008 the first national survey on Romanian consumer attitudes towards EEE and WEEE. However, the study of factors influencing the EEE consumer behaviour in Romania and WEEE management has achieved very little so far.

In this context, through our study we have tried to identify what are the forces that influence consumer behaviour and the WEEE management. In this sense, we have based on various types of qualitative and quantitative data collected from different sources such as publications, reports, national and international statistics, surveys, and we have identified four main drivers regarding the EEE consumption and WEEE management, namely: politics and legislation, economic, social and technological factors (see Fig.1).

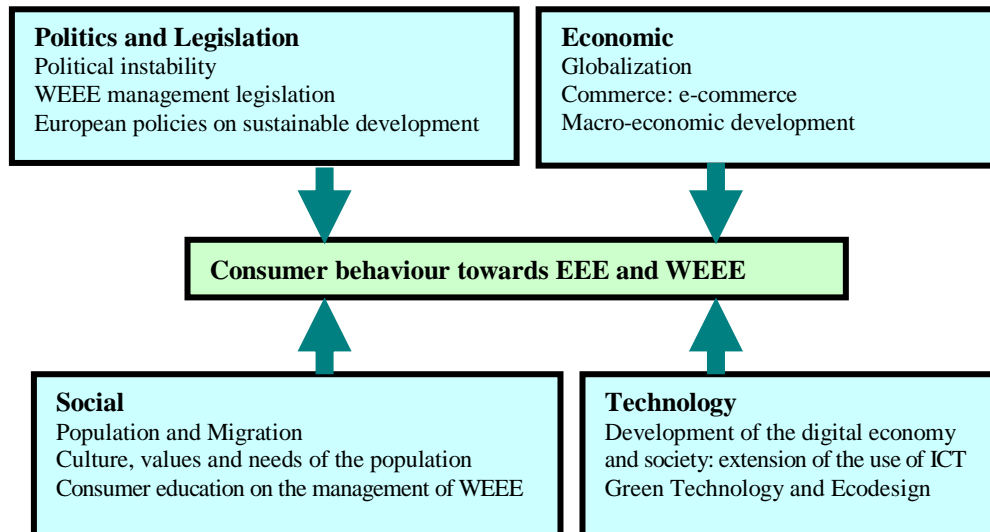


Figure 1 Driving forces that shape the consumer behaviour regarding electrical and electronic equipments and the WEEE management

Each force identified in Fig.1 influences directly or indirectly the purchase of EEE and WEEE management.

Political instability affects indirectly the consumption pattern through changes on EEE's regulations, such as: amendment of VAT applied to products, type of tax, and so on. In Romania, political instability manifested after 1990 has generated a lot of changes and delays in the law application.

Population, by number, but especially through the structure and features is directly linked to the consumption of EEE. According to World Population Data Sheet 2009 [11] in Romania is recorded one of the youngest medium lifetime in the European Union, 73 years, lower values being recorded in Latvia (72) and Lithuania (71 years). Ageing population creates changes in the national budget revenue and expenditure structure.

If Romania do not face up to these problems, government budget may come under pressure and this could lead to cuts in areas such as funding for the WEEE management.

In general, public awareness in Romania regarding the negative effects that WEEE can have on the environment and the improper waste management is very low. However there are differences between the major cities in more developed parts of Romania and less developed cities, especially between rural and urban areas.

In recent years has been observed an increasing awareness of environmental issues at private companies. Consideration of environmental issues has become increasingly important in the consumer electronics industry due to legislative pressure, cost economies and markets to promote "green" products.

Many companies are beginning to understand the complex relationship between corporate reputation, brand value and social, financial and environmental performance. In this context, the corporate social responsibility is very present in the area of EEE production and the WEEE management.

In the field of WEEE are three types of actions initiated in Romania by the private sector, namely: free recycling programs, buy-back campaigns, and environmental protection programs through eco-design products. About 85% of companies operating in Romania would invest more in green technologies such as low carbon equipment, if the government would offer tax incentives, according to a study conducted by the company Regus (cited in [1]). Also in Romania, 53% of surveyed companies would invest in low carbon equipment only if those operating costs would be similar or lower costs compared to conventional equipment.

Economic factors have the greatest influence on the consumption of EEE and WEEE management in Romania. In this sense, in Fig.2 is illustrated the way in which globalization has influenced both the EEE consumption and WEEE management.

The globalization brings together world economy through markets, investments, technology and communications. On one hand this has contributed to the penetration on the Romanian market of all the international brands of EEE and also to an increased volume of electrical and electronic equipments, but which generates huge quantities of obsolete electronics, many still functional. On the other hand this had a positive effect on WEEE management through the attraction of foreign investments for WEEE recycling facilities in Romania (e.g Green WEEE International Buzau, Stena DTM Romania).

The economic crisis caused major changes over the sales of electrical and electronic equipment market, as following [5]:

- at national level the number of firms which have suspended the activity in January- October 2009 has exceeded 120.000;
- the sales of electrical and electronic equipment market in 2009 have decreased with almost 30 % from the previous year;
- consumers have chosen to buy electrical and electronic equipments with lower prices and therefore more accessible, such as : small household appliances.
- the categories of EEE that have recorded a large decrease of sales are: LCD and plasma TVs, monitors and desktop computers (currently the demand is for laptops, especially those with low prices, namely notebooks), photo cameras, office equipments.

This situation can be explained by the low purchasing power of consumers, driven by: the increasing of unemployment rate (which began at the end of 2008 and continued during 2009), accelerated depreciation of the national currency against the euro, delays in wages increase and the reduced level of investments.

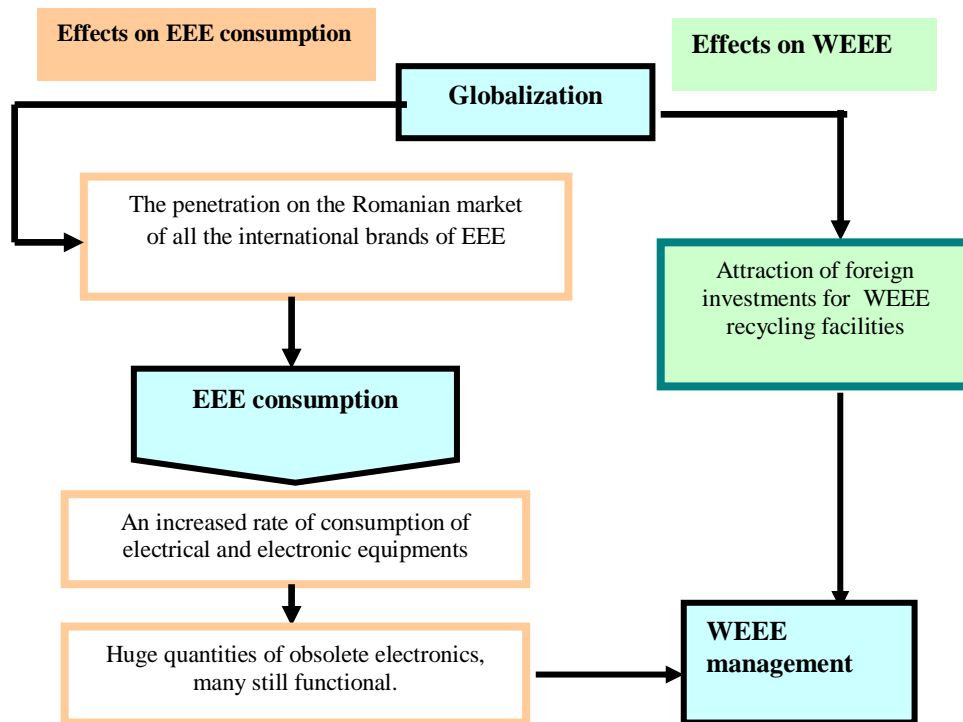


Figure 2 The relationship between the driving factors (e.g Globalization), EEE consumption and WEEE management

Conclusions

E-Waste management is a problem of great actuality due to: continued growth of quantities and types, important quantity of raw materials, reusable energy and materials that can be recovered and placed into the economic circuit.

The EEE consumption patterns and the WEEE management are influenced by a series of driving factors, which should be taken into account when new policies, awareness campaigns are developed.

Consumers are playing two roles in the life cycle of e-waste: that of a customer and e-waste holder. That is why consumer should be actively involved in the development of a sustainable e-waste management system.

Acknowledgements

This work was supported by CNCSIS –UEFISCSU, project number PNII – IDEI 1834/2008 and by project number PN II-RU code PD_ 73/2010.

References

1. Băjan C., (2010), *Green Investments and the New Spirit of Capitalism* (Investițiile verzi și noul spirit al capitalismului), 21 Iul 2010, Online at: <http://www.infomediul.eu/investitiile-verzi-si-noul-spirit-al-capitalismului/>
2. Berkhout, F. and Hertin J. (2001), *Impacts of Information and Communication Technologies on Environmental Sustainability: Speculations and evidence*, Report to OECD 25 may 2001, On line at: <http://www.oecd.org/dataoecd/4/6/1897156.pdf>
3. Ciocoiu N., Burcea S., Tartiu V. (2010), *The WEEE management system in Romania. Dimension, Strengths and weaknesses*, Theoretical and Empirical Researches in Urban Management, Number 6(15) / May 2010, pg.5-22
4. Clay S.(2005), *Increasing University Recycling: Factors influencing recycling behaviour among students at Leeds University*, *Earth & Environment Journal*, 1: 186-228
5. Environ, (2009), *Environ Association. Annual Report (Asociatia Environ. Raport anual)*, online at: http://www.slideshare.net/responsabilitate_sociala/asociatia-environ-raport-anual-2009
6. Gurauskiene I., (2008), *Behaviour of Consumers as One of the Most Important Factors in E-Waste Problem*, *Environmental Research, Engineering and Management*, 2008, No. 4(46), 56-65
7. Jackson T. (2005), *Motivating Sustainable Consumption. A review of evidence on consumer behaviour and behavioural change*, A report for the Sustainable Development Research Network (SDRN), from www.sd-research.org.uk/researchreviews/documents/MotivatingSCfinal.pdf
8. Pieters RGM (1991), *Changing garbage disposal patterns of consumers. Motivation, ability and performance*, *Journal of Public Policy and Marketing*, 10: 59 -76
9. UNEP (2007a). *E-waste - Volume I: Inventory Assessment Manual*, *United Nations Environment Programme*, Retrieved June 26, 2009, from http://www.unep.or.jp/ietc/Publications/spc/EWasteManual_Vol1.pdf.
10. United Nations University, (2008). *Review of Directive 2002/96 on Waste Electrical and Electronic Equipment – Study No. 07010401/2006/442493/ETU/G4*, United Nations University, Bonn, GERMANY. AEA Technology, Didcot, UNITED KINGDOM GAIKER, Bilbao, SPAIN. Regional Environmental Center for Central and Eastern Europe, Szentendre, HUNGARY, TU Delft – Design for Sustainability, Delft, THE NETHERLANDS.
11. World Bank, (2010), *Migration and Remittances Factbook 2011*, second edition, online at: <http://siteresources.worldbank.org/INTLAC/Resources/Factbook2011-Ebook.pdf>