

# Methods for Converging the Romanian Economic Policy with the Circular Economy Model in the Context of Romania's European Integration

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## Abstract

*Based on the European Integration paradigm, the present paper aims to elaborate a set of prescriptions for the Romanian economic policy that would integrate the principles of circular economy. The hypothesis of this analysis consists of demonstrating the fact that accelerating the catching-up processes, respectively accelerating the convergence in real terms of the Romanian economy with the European average and reducing the socioeconomic disparities present in Romania, can be achieved based on the socioeconomic benefits resulting from integrating the principles of circular economy in the Romanian economic policy.*

## Keywords

convergence; the Romanian economy; circular economy; European Integration; catching-up processes

## 1. INTRODUCTION

### 1.1. Recontextualisation and the interest of the subject

Until 2007, Romania's main political objective was adhering to the European Union. For Romania, the date of January 1<sup>st</sup> 2007 marked the inclusion in the European Union, but most significantly the redefinition of a new objective, that of European Integration. Eight years later, the social-economic gaps between this state and the European average began to subside, the GDP rising from 42% in 2007 to 55% in 2013<sup>1</sup>. The literature on economic policy, one of the main marks of the European Integration strategy is the criterion of convergence<sup>2</sup>. Even though this upward trend indicates a reduction of the socio-economic gaps, there seems to be a political-economic

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1 Eurostat, „GDP per capita in PPS”, <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tec00114&plugin=1>, consulted on 10. 04. 2015

2 Ramona Marinela Precup Simuț, *Rezumat Teză de doctorat, Convergența economică a României: de la paradigme la strategii concrete*, (Oradea: Universitatea din Oradea, Școala Doctorală de Științe Sociale), 1

consensus on this subject in the sense of establishing a unanimously accepted minimum degree of convergence between an economy and the European Union average. In the Romanian Government's *Convergence Programme* for 2014-2017, a minimum GDP per capita level that exceeds 60%<sup>3</sup> is considered realistic in order to consider the Romanian economy as being completely integrated and mature in relation to the other European economies.

The interest of the subject is partly comprised of the necessity to reduce the social-economic gaps between Romania and the EU average. Thus, the aim of this analysis will be to propose a set of economic policy measures that can accelerate the Romanian economy's degree of convergence in real terms. Concurrently, in the economically detrimental context of the last years, in the OECD states we witness a rising rate of adoption of the principles of circular economy in the overall economy, this economic model being valued for its positive externalities for both the environment, but especially for stimulating the social-economic environment.<sup>4</sup>

For reasons concerning ethics and the rigors of plagiarism, it must be mentioned that this subject, together with some public policy prescriptions have been integrated in the Government Program of the National Liberal Party (PNL) of February 2015.

## 1.2. Theoretical framework

The present paper is based on the paradigm of European Integration. This theoretical perspective consists in the cultural, social and especially political and economic overlapping of multiple synchronization processes. Thus, the theoretical framework of this analysis is circumscribed and favorable to the idea of European Integration and the element of *economic policy integration* will be definitive for the identity of this analysis. From a theoretical and definitional standpoint, the analysis is based, on the one hand, on the idea of economic policy integration in the sense taken into account by Ignat and Pralea in *Economie Mondială*, namely developing activities that are difficult to achieve in the limits of national markets, generating more coherence in the economic policies and accelerating economic development<sup>5</sup>. On the other hand, the sense taken into account by the phrase '*increase in the degree of convergence in real terms*', even though it makes use of the same term, '*convergence*', will take on the meaning given by Ovidiu Cristian, namely the rise in GDP per capita<sup>6</sup>.

## 1.3. The research hypothesis

The research hypothesis results from the constitutive elements of this study's problematic. Our aim is to demonstrate that, based on the theoretical model of circular economy that will be presented, we can extrapolate the set of economic policy measures that would generate social-economic benefits and could lead to the acceleration of the degree of convergence between Romania's economy and the European average. This research hypothesis itself is based not only on the rising number of policies that support the development of this area<sup>7</sup>, but also on the

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3 Government of Romania, „Convergence Programme”, [http://ec.europa.eu/europe2020/pdf/csr2014/cp2014\\_romania\\_en.pdf](http://ec.europa.eu/europe2020/pdf/csr2014/cp2014_romania_en.pdf), consulted on 10. 04. 2015

4 European Commission, DG Environment, „Towards a circular economy: A zero waste programme for Europe”, <http://www.oecd.org/env/outreach/EC-Circular-economy.pdf>, consulted on 10. 04. 2015

5 Spiridon Pralea, Ion Ignat, *Economie mondială*, (Iași: Synpozion, 1994), 158

6 Cristian Ovidiu, *Rezumat Teză Doctorală, Politica monetară a Uniunii Europene. Implicații macroeconomice pentru România*, (Cluj-Napoca: Universitatea Babeș-Bolyai, Facultatea de Științe Economice și Gestiunea Afacerilor), 20

7 European Commission, „Scoping study to identify potential circular economy actions, priority sectors, material flows and value chains”, [http://www.ieep.eu/assets/1410/Circular\\_economy\\_scoping\\_study\\_-\\_Final\\_report.pdf](http://www.ieep.eu/assets/1410/Circular_economy_scoping_study_-_Final_report.pdf), consulted on 10. 04. 2015

fact that a rising number of economic actors are reaping the economic benefits of reorganizing their activities based on the principles of circular economy.<sup>8</sup>

#### **1.4. Data and methodology**

##### **1.4.1. The object of study**

The object of study based on which this research will take form consists of the theoretical model of circular economy, in its generally accepted sense.<sup>9</sup> The selection criterion of this object of study as opposed from all others is based on two fundamental aspects. On the one hand, the effervescence and popularity of the circular economy model makes it so that this model's theorization is ample and constantly expanding, which is the reason why two identical theoretical fundamentals will never be found.<sup>10</sup> On the other hand, the focal point in which this model's most theoretical fundamentals overlap is related to its graphical expression. Even though, from case to case, the graphs can show slight differences in form, the logic of the majority of these graphs can be subscribed to the above-mentioned model, which is the reason why we consider it highly representative for our study.

##### **1.4.2. Methodology**

From a methodological standpoint, in the first phase we will focus on a qualitative analysis of the circular economy model, while attempting to observe the interactions that take place both in the model's ensemble and in its closed circuits, underlining the social-economic benefits generated. Based on the short qualitative analysis of these interactions, in the second phase we will generate a set of economic policy prescriptions meant to lead to the synchronization of this theoretical model with the fundamentals of the Romanian economic policy. Implicitly, in the third phase we will conduct a qualitative analysis of the social-economic effects associated with the synchronization of the two entities.

## **2. THE CORPUS OF THE ANALYSIS**

### **2.1. Analysis of the theoretical circular economy model**

Conceptually, Circular Economy represents a generic expression of an economic model that puts sustainability and sustainable development first. From a definitional standpoint, circular economy is based on two series of material flux which flow independently in closed circuits inside this model. On the one hand, there are the biological nutrients which, through their non-toxic and environmentally safe design, can safely return to the biosphere, while on the other hand, we have the technical materials, which are designed to be recycled and infinitely recirculated without ever entering the biosphere. In the graphic model of circular economy, the biological cycle is represented on the left side, while the technologic cycle is shown on the right side, each of these circuits having independent interactions and different properties. This model was conceived as opposed to the linear economy model, which is prevalent in today's society. The *exploitation* (of raw materials and fossil fuels) – *transformation* (of raw materials based on the energy consumption gener-

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8 Ellen MacArthur Foundation, <http://www.ellenmacarthurfoundation.org/business/ce100#>, consulted on 10. 04. 2015

9 Ellen MacArthur Foundation, <http://www.ellenmacarthurfoundation.org/circular-economy/circular-economy/interactive-system-diagram>, consulted on 10. 04. 2015

10 Ellen MacArthur Foundation, <http://www.ellenmacarthurfoundation.org/circular-economy/circular-economy/the-circular-model-brief-history-and-schools-of-thought>, consulted on 10. 04. 2015

ated by fossil fuels) in consumption goods, *consumption* – then *land filling*<sup>11</sup> type linear model is completely unsustainable because it is based on a false paradigm of cheap raw materials and energy which constantly generates increasing consumption and massive pollution.

### **2.1.1. The mechanic of the interactions**

#### **2.1.1.1. The biological cycle**

In the circular economy model there is a clear dichotomy between *consumer* and *user*. In the biological cycle, man has the role of consumer because he takes elements from the biosphere and degrades them through consumption (e.g.: water, apples, air). The interactions in the biological cycle are multiple and include a number of possible processes:

1. The extraction of biochemical feedstock represents the entirety of energy (as biofuels, bioethanol for example) and chemical element extraction processes from natural elements which are transformed into biomass (e.g.: the transforming of crops in biorefineries).
2. Anaerobic digestion is another method of energy extraction (biogas) from organic materials (food and human waste) using microorganisms that exist naturally in the biosphere.
3. Composting makes use of the same type of microorganisms in order to produce chemical elements (natural fertilizers) using organic materials from the biosphere (food waste, leaves, agricultural waste).
4. Soil restoration is the step that follows the application of natural fertilizers, also obtained using microorganisms already existent in the biosphere.

The large scale replication of these steps in the biological cycle synchronizes the human activity with the biosphere activity, all while generating minimal waste (all waste becomes food in another interaction) and using as little energy as possible.

#### **2.1.1.2. The technological cycle**

Here, the consumer from the biological cycle becomes the user. The reason why the circular economy model makes this distinction is related to the fact that in the technological cycle, the accent falls on the usage of a good, the service generated, rather than its possession. If in the current model of linear economy, after the user of the good (who is also its owner) considers that the object has reached its performance limit or has simply broken, he sees himself as the owner of latent raw material that theoretically has market value but cannot be monetized. In the pure circular economy model, what is proposed is the rental of a product and not the acquisition of the product itself, focusing on the idea of selling that product's performance and not the idea of owning a consumer product. The classic example is that of airlines, which sell mobility/access at a price. What remains essential is the idea of ownership that is shifted from the user of a product to its manufacturer. The intellectual explanation behind this model is tied to the fact that every product has two values: the value of its raw materials and the value of its performance, the user being only interested in the second. In this sense, in the circular economy model the interaction between the user and the product subscribes to the steps regarding *Maintenance*, *Reuse/redistribution*, *Refurbishing/remanufacturing*, and only ultimately *Recycling*.

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<sup>11</sup> Ellen MacArthur Foundation, [http://www.ellenmacarthurfoundation.org/uploads/new\\_article\\_cbf802f9fb4be6451d70b64045fcc0f86f16f32b.pdf.jg](http://www.ellenmacarthurfoundation.org/uploads/new_article_cbf802f9fb4be6451d70b64045fcc0f86f16f32b.pdf.jg), consulted on 10. 04. 2015

## 2.2. Convergence methods of the Romanian economic policy with the circular economy model. Economic policy catalysts.

The economic policy catalysts used for the integration of the circular economic principles are divided under multiple axes, as follows:

1. The material purity domain: It is necessary to reduce the diversity of alloys used in product construction. The approximately 250 types of polymers present in product alloys make recycling very difficult. It is therefore imperative to create a *Code of Material Purity*, based on the on the Cradle-to-Cradle continuous quality standard, which can be used in order to encourage producers to deliver goods that have a lower raw material make-up (i.e. are more pure).

2. The reverse logistics domain: Romania's problem is that it focuses almost solely on the recycling stage (which is also extremely low as only 3% of the total wastes are recycled, the rest being land filled/incinerated) which has become the least valued in the EU states, as it destroys the repair-remanufacture value (which is intrinsically linked to the creation of new employment opportunities). New *consumer – producer economical interactions* need to be institutionalized – *take back system* – so that the latter can become co-interested with not only collecting the market placed product, but also with raising its quality in order to make it easier to repair and resale. Theoretically, the profitability rate grows due to the recirculation of the same product and not having to incur the costs of new raw materials. One of the methods, still in its experimental phase, is to introduce *chips that record the amount of remaining life* in the technological components, *which will in fact lessen the work carried out by waste management companies in order to establish if the analyzed good/component must be directly placed back on the market after cleaning, either through repair and then market placement, either by ultimately being recycled*. In order to raise the component capture rate it is also necessary to create a *Technological component Sorting and Recycling Network*, as well as a *Waste Intermediating On-line Platform* in order to be able to institutionalize and merge the relationships between the waste management companies and the recycling firms.

3. The multi-sector management domain: Due to the fact that the principles of circular economy are tangent with regards to the majority of legislative spheres, the synchronization of circular economic principles with the foundations of Romanian economic policy can only be attained based on the creation of a *multi-sector team* that can understand the holistic functioning of the systems.

4. The fiscal regime domain: The creation of a motivating economical context for all economic actors that are heading towards the creation of *durable, resistant, modular design, easy to assemble and disassemble (i.e. ecodesign) products* is recommended so that the product *reutilization, repair/remanufacture, recycling* activities will be stimulated. It is necessary to stimulate the idea of creating products whose design does not include *planned obsolescence*. Due to the fact that circular economy tends to require more work force than the linear, energy-hungry and industrial/technological equipment (that ultimately tend to replace the human work-force) economy, we consider that a fiscal reform should have the following in view: *a finance sector fiscal reform* to stimulate and reorient capital that will favor long term investments, which in term will support the real economy, and projects that are characterized by sustainability; the creation of a *Sustainable Projects Financing Code* that will offer fiscal stimuli to the development of sustainable projects and the fiscal penalization of non-sustainable projects; we recommend the modification of the fiscal regime for waste management companies in order to develop their investment capabilities. The introduction of the *Carbon Tax*, following the Canadian model – offering fiscal stimuli to both sustainable energy producers and consumers, which are in term compensated by transferring the fiscal burden towards the

non-renewable energy sector; the same fiscal paradigm shift can be applied in order to *stimulate the reorientation of the supply chain towards recycled materials*; we propose the application of a fiscal benefits system to companies that use and distribute recycled plastic, recycled paper etc., which can be compensated by transferring the quantum towards the companies that use plastic, virgin paper etc. in the fabrication and distribution of their products. Concomitantly the remanufacturing process needs to be stimulated through *the elimination of VAT on products that are the result of remanufacturing / the encouragement of remanufactured product/component value conservation activities*. We recommend the progressive raising of the *land filling tax* so that the salubritization services will become motivated to reorient their activity towards waste management companies, as opposed to simple land filling,

5. The public acquisition domain. With regards to the public acquisition processes, the integration of the *sustainability criterion* is recommended (e.g. ecological footprint, ecodesign, cradle-to-cradle materials etc.). Simultaneously, the commencement of a *National Instruction Plan* for civil servants in the field of public acquisition is advised so that the level of expertise within this field can be improved.

6. The Extended Producer Responsibility Domain. The integration in the Romanian legislation of the Extended Producer Responsibility is also recommended, as this will oblige producers to offer a product recovery scheme for all products placed on the market once their life cycle is over. Otherwise, it will be necessary for producers to contract a recycling association that can retrieve the products off the market on their behalf.

7. The state certification domain: The creation of a Romanian *ECO LABEL*, following the *EU ECO LABEL* model, in order to reorient general consumer behavior is also proposed. At the same time it is advisable to apply a system of *responsible certificates* on activities based upon which fiscal stimuli can be granted.

8. The cooperation and cooperation networks domain: It is also recommended to develop an on-line research hub for universities, companies and foundations that are active in this domain. At the same time, we urge support for a multi-sector circular economy domain team operating within the *Economy, Commerce and Tourism Ministry*, which will also be in close partnership with the *Environment, Waters and Forests Ministry*, as well as for bringing all these entities closer to the *Circular Economy 100 Platform*.

### **2.3. The socio-economic benefits that will come as a result of the synchronization of Romanian economic policy with the circular economy model**

The 8 axes described above underline a series of possible legislative changes that aim towards the synchronization of circular economy principles with the foundations of Romanian economic policy. On the one hand, the stimulation of the *biological cycle* presents the advantage of protecting the biosphere through the synchronization of human economic activities with natural processes, but also has the enormous edge of generating new clean and sustainable energy sources based on processes that are already present in nature. On the other hand, the stimulation of the technological cycle comes with another set of benefits. The integration of circular economy principles has the capacity of generating new employment opportunities in Romania precisely due to the remanufacturing logic upon which this model is based. *Maintenance, Reusability-Redistribution, Repairing-Remanufacturing and Recycling* are the clear expression of the creation of new industrial workforce generating branches that can positively influence the revitalization of the Romanian industrial foundation. On one hand the unemployment reduction process is positively influenced, as well as the reintegration of those that have dropped out of

the working force statistics. On the other hand, this growth of employment opportunities is backed up by a decrease of energy consumption with regards to the production of new goods, thus favoring a drop in national energy consumption and contributing to national energy independence. Due to the fact that in the present Romania is specialized in the production of low added value products and is situated at the lower end of the deeply energy hungry chain of production, *the integration of circular principles can have the advantage of helping surpass the stage of low value added goods producing economy and can help the economy grow in terms of competitiveness*. Due to the recirculation of the same technological materials (under different forms), the retention of primary materials is also favored and with it the independence of economical agents with regards to primary material imports. The economic agents' predictive capacity also evolves subsequently through the elimination of primary material price volatilities and on the long term the primary materials' costs can tend to be close to zero due to their continuous recirculation within the system.

Up to the present there has not been any research carried out in Romania in order to quantify the socio-economic effects caused within the GDP by the integration of the circular economic model. Therefore, in order to support the validity and benefits of this model we will present several statistics generated in France, Germany, the UK and the US. These data sets are either prospective in their character, due to they're being generated following some prior impact studies, or retrospective, presenting the socio-economic benefits that have been obtained up to this point through the integration of circular economy principles within the general economy. The following statistics prove that integrating circular principles within the general economy has the capacity to provide the large scale economy with a significant number of direct employment opportunities and also to offer a substantial increase of the GDP, both being elements that can lead to the growth of the Romanian economy's real convergence rate with respects to the European average.

One report estimates that the circular economy represents a net material cost saving opportunity of USD 340 to 380 billion p.a. at EU level for a 'transition scenario' and USD 520 to 630 billion p.a. for an 'advanced scenario'. The latter would equate to 19 to 23% of current total input costs or a recurrent 3 to 3.9% of 2010 EU GDP.<sup>12</sup> A study of the German system shows that production, filling, distribution, and retail employs 161,000 people. The study concluded that 'going linear'—i.e., switching to a completely one-way packaging system for beverages—would lead to the loss of 53,000 jobs, whereas increasing the share of reusable packaging to 100% would result in 27,000 additional jobs.<sup>13</sup> In the US, the remanufacturing industry is estimated to provide around 500,000 jobs for products ranging from automotive, electrical and electronic equipment to furniture and construction equipment. In terms of value, CLEPA (the European Association of Automotive Suppliers) puts the remanufacturing market in Europe at US\$ 10 to 12 billion.<sup>14</sup> Sita Group, the waste management arm of Suez Environment, estimates that some 500,000 jobs are created by the recycling industry in the EU, and this number could well rise in a circular economy.<sup>15</sup> Management Agency says that 28,000 jobs have been created

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12 Ellen MacArthur Foundation, „Towards the circular economy. Economic and business rationale for an accelerated transition” <http://www.ellenmacarthurfoundation.org/business/reports/ce2012>, consulted on 10. 04. 2015

13 Ellen MacArthur Foundation, „Towards the circular economy. Opportunities for the consumer goods sector” <http://www.ellenmacarthurfoundation.org/business/reports/ce2013>, consulted on 10. 04. 2015

14 Ellen MacArthur Foundation, „Towards the circular economy. Accelerate the scale-up across global supply chains” <http://www.ellenmacarthurfoundation.org/business/reports/ce2014>, consulted on 10. 04. 2015

15 Ellen MacArthur Foundation, „Towards the circular economy. Opportunities for the consumer

in France over the past 20 years in collection and sorting in the packaging sector alone.<sup>16</sup> NISP (U.K.'s National Industrial Symbiosis Programme) works to provide a brokerage service for businesses wishing to turn waste into by-products. Since its launch in 2000, NISP claims credit for bringing about cost savings of GBP 1 billion, additional sales revenue of GBP 993 million, and the creation of over 10,000 jobs in the U.K. economy.<sup>17</sup> Defra estimates that 35,000 new jobs may be generated from the use of Anaerobic Digestion technologies in the U.K.<sup>18</sup>

Integrating the principles of circular economy within the foundations of Romanian economic policy leads to the stimulation of all those spheres that contribute to the growth of the real convergence rate between Romania and the EU. The increase in non-delocalized working opportunities, the decrease of national energy costs, the creation of new clean and sustainable alternative energy resources, positive externalizations with regards to the environment, the reduction of environmental costs, the decrease of social costs associated with environmental issues, the increase of the volume of manufactured products, all of these lead to a major competitiveness boost and directly contribute to the acceleration of Romania's GDP growth. In turn, these socio-economic benefits generate the premises for the acceleration of the real term convergence of the Romanian economy with the European average and for the decrease of socio-economic disparities.

### 3. CONCLUSIONS

The integration of the circular economy model within the foundations of economic policy in Romania represents one of the best ways of accelerating the catching-up process, namely the acceleration of the real term convergence of the Romanian economy with the EU average. Of course, the modifications discussed within this analysis are not the only mechanisms that can help reduce disparities. They can be backed-up and conjugated with modifications steaming from other types of research. The present study wishes to be a precursor for a far wider public policy on this subject. In this sense, we hope to have opened the path for an analysis that will be complementary to the current one, namely one that needs to be mainly quantitative in character, one that can quantify as precisely as possible the impact of the socio-economic benefits previously presented.

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17 Ellen MacArthur Foundation, „Towards the circular economy. Opportunities for the consumer goods sector” <http://www.ellenmacarthurfoundation.org/business/reports/ce2013>, consulted on 10. 04. 2015

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