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**SUSTAINABLE DEVELOPMENT AND CIRCULAR ECONOMY: THE ROLE OF INSTITUTIONAL PROMOTION ON CIRCULAR CONSUMPTION AND MARKET COMPETITIVENESS FROM A MULTI-STAKEHOLDER ENGAGEMENT APPROACH**

**ABSTRACT**

The transition from a linear economy to a circular economy (CE) is a real challenge to achieve long-term sustainability. To push CE in the market, institutional promotion could become a key driver to positively impact both circular consumption and the competitiveness of the market. This paper analyzes the influence that soft and hard initiatives have on circular consumption and market competitiveness. Based on a survey of 1,281 respondents from different types of stakeholders, Structural Equations Modeling statistical analysis was run. Results show that soft initiatives support the achievement of both objectives, while hard ones only influence greater circular consumption. However, the perception of the different stakeholders considered is very heterogeneous. It is indicative that not all institutional promotion initiatives are effective. Thus, institutions should guide, in an adequate and differentiated manner, their efforts to promote CE and sustainable development depending on the stakeholder they are targeting.

**KEYWORDS:** circular economy; circular consumption; market competitiveness; institutional theory; environmental policy; stakeholder engagement; sustainable development

**1 INTRODUCTION**

Nowadays, consumers are more aware of their own consumption and prefer buying products and services considered sustainable instead of others considered non-sustainable when they have the same price (Bocken et al., 2014). Moreover, an increasing number of consumers prefer to buy sustainably manufactured products or services even when the price is higher (e.g. Venugopal and Shukla, 2019) because some added-value benefits are perceived, such as planet care, health improvements, or others (Kuzmina et al., 2019).

The acceptance of Circular Economy (CE) in the market is key to achieving real transformation in consumption towards a more sustainable model of production (Cadez et al., 2018). CE supposes a change from a linear model to a circular one (Adams et al., 2017). The transition to a more CE in Europe has started in the last decade. European

institutions, led by the European Commission, has launched policies and regulatory initiatives (for a compilation, see Rodríguez-Antón et al., 2019 and Alonso-Almeida and Rodríguez-Antón, 2020). Thus, at the macro and meso levels, a number of initiatives are developing in order to stimulate CE (Le Europe et al., 2018; Alonso-Almeida and Rodríguez-Antón, 2020). Those authors stressed that key principles, such as “the polluter pays” or the extended responsibility of the producer, have together encouraged the emergence of new business models to push CE on the offer side. However, many of these initiatives are internal and either unknown or little-known to consumers.

At the micro level, one of the CE’s pioneer industries has been apparel, not only the well-known second-hand fashion industry but other movements, such as slow fashion and small firms that are developing eco-innovations to create new textile materials using plastic bottles, fishing nets, and post-consumer coffee grounds for garments (Alonso-Almeida & Rodríguez-Antón, 2018). However, these types of initiatives are considering “niche strategies” (Chintakayala et al., 2018) that do not appeal to masses of people.

CE also pursues breaking with programmed obsolescence, producing products with a high level of durability and reparability in order to extend their useful life; as a result, fewer products are needed to satisfy market necessities. Thus, less is consumed in terms of raw materials and natural resources, and less waste is produced (Le Europe et al., 2018). Therefore, to guarantee the proper match between offers and demand, the consumer side should also stimulate (Venugopal & Shukla, 2019; Alonso-Almeida et al., 2020). In addition, CE success requires special engagement of consumers because in a number of cases, consumers are required to return products at the end of their life to the stores, to separate waste for recycling, or to use reusable packaging, among other things (Kuzmina et al., 2019). This has been called the “working consumer” (Cova & Dalli, 2009; Kuzmina et al., 2019).

Nevertheless, previous research advised that to engage consumers actively in CE, high-level institutions should take action (Le Europe et al., 2018). This is important, because the main barrier identified for customers’ acceptance of circular products has been lack of information about CE and its principles (Camacho-Otero et al., 2017; Korhoner et al., 2018). On the contrary, the main factor that affects consumer acceptance of circular products is awareness of the benefits associated with CE (Van Weelden et al., 2016; Mugge et al., 2017; Kuzmina et al., 2019).

Therefore, institutions should promote CE beyond the requirements of laws (Kuzmina et al., 2019) in order to promote the benefits of CE in consumers' minds and encourage change to adopt circular consumption at the consumer level. Nevertheless, how it is possible to achieve this and create impact on consumers' perspective has so far received little attention. According the authors' best knowledge, little research on this topic has been developed in circular consumption because circular products and processes in the consumption phase could consider on their first steps. The scarce existent previous research has focused on acceptance of specific circular strategies and products (e.g., Mugge et al., 2017, on strategy for refurbishing mobiles).

Thus, this exploratory paper pursues three goals. The first goal is analyzing how institutions can promote awareness and reduce doubts and misconceptions about circular products to stimulate circular consumption. The second goal is measuring the potential impact on consumer acceptance and the market competitiveness of these initiatives. Finally, institutional initiatives' value to different stakeholders was measured.

To achieve these aims, a survey of 1,281 respondents was used. Findings showed that the right mix of institutional promotion initiatives could produce awareness of CE and their benefits to stimulate the adoption of circular markets and products and to improve market competitiveness. Nevertheless, not all institutional initiatives have the same effectiveness. Therefore, institutional efforts should be stronger in certain soft initiatives and plan a well-considered pathway in hard initiatives because they could have an opposite effect than expected. In addition, businesses can bring their circular products or activities to consumers through their involvement. Also, institutional initiatives are perceived differentially depending on the stakeholder. Therefore, institutional initiatives should carefully consider how to take the target into account.

This paper contributes to previous research in several ways. First, it investigates the potential of institutional initiatives on CE for enhancing circular products' acceptance and market competitiveness. Second, it looks at the impact of institutional incentives on circular products' acceptance and markets' competitiveness for successful introduction in the market. Third, it contributes to understanding of how to introduce the CE at the meso and micro levels properly, depending on the type of stakeholder. Finally, the findings can encourage policy makers to push CE, maximizing the impact of their activities.

The paper is organized as follows: The following section presents the literature review and defines the hypotheses. Next, the data collection and methodology used are described. The following section explains the study's results. The next section discusses these results and contrasts them with the hypotheses. The last section ends the paper with some conclusions, implications for practice and for policy makers, and suggestions for further research.

## **2 LITERATURE REVIEW**

### **2.1 Institutional promotion of Circular Economy**

The current engagement of consumers with circular products is very low (Kuzmina et al., 2019). The main reason is a lack of information about CE and the benefits for consumers, along with the difficulty of finding and understanding information about the characteristics of circular products (Barbu et al., 2018). Moreover, consumers' engagement with other circular strategies, such as repairing, renting, or sharing, is increasing, although this could also be considered low (Le Europe et al., 2018).

According to institutional theory, coercive pressure by law is the main driver to force the adoption of something in the market. However, coercive pressure does not guarantee effective adoption. In other words, incumbents could comply to avoid the punishment and not through true involvement and commitment. Consumer behavior is complex. For that reason, information about CE and its advantages could change consumers' attitude from a neutral or negative position toward a more positive one and help CE to be accepted by consumers (Khan et al., 2019).

Thus, institutional policy makers could use marketing and behavioral science strategies to promote CE among consumers (Le Europe et al., 2018). These types of strategies include hard and soft initiatives.

According to traditional consumer theories, factors that influence their decision-making process could be divided between 1) attitudes and 2) information about the product (Barbu et al., 2018). Previous research has suggested that consumer attitudes are changing toward less materialist models of consumption where the perception of value for money is key (Alonso-Almeida et al., 2020). Thus, in consumption models under the CE umbrella, such as collaborative consumption, consumers' main motivation for involvement is utility and convenience, looking for the best value for money, and the

perception of the product's contribution to sustainability (Barbu et al., 2018; Alonso-Almeida, 2019).

Moreover, institutional soft initiatives can adopt different actions, such as campaigns for awareness about CE and circular products, CE promotional programs, CE labels, providing relevant information about CE products over their expected lifetime or about the availability of spare parts, or education of consumers regarding CE products' characteristics and benefits (Khan et al., 2019), in order to overcome consumers' barriers and accelerate transition toward CE (Kirchherr et al., 2018).

Institutional hard initiatives are used when change acceleration is sought. These types of initiatives serve to influence different stakeholders in the market, such as companies, national institutions, professional organizations, or consumers, and their behavior (Zhu & Sarki, 2007). Such hard institutional initiatives can be based on differentiated taxation levels depending on product resources efficiency; subsidies; or other incentives, such as push green public procurement (Hazen et al., 2017).

In line with the first goal set out in this paper, which aimed at analyzing how institutions can promote awareness and reduce doubts and misconceptions about circular products to stimulate circular consumption, the literature indicates that a proper mix of soft and hard initiatives could accelerate the acceptance of circular products in the market and improve their competitiveness.

## **2.2 Impacts on the market of soft initiatives for CE promotion**

According to previous research, lack of information could act as a potential barrier to the adoption of certain products in the market. In the specific case of CE, lack of knowledge about circular products' characteristics, such as their durability and reparability, use of recycled materials, their expected lifetime, or the availability of spare parts, could act as a potential barrier to growth in CE in consumption level. Thus, provision of clear information on informative labels could reduce consumer uncertainty, reduce risks, and facilitate consumers' acceptance of the product (Le Europe et al., 2018). Certificate or other labels, especially when provided by a third party, can act as a signal in the market (Alonso-Almeida & Rodríguez-Antón, 2011). Another important element of giving information to consumers is the manufacturer's contact point (Le Europe et al., 2018). Therefore, these authors suggest that it is a key institutional policy implication to promote CE at the micro level.

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4 In fact, Van Weelden et al. (2016) found positive, statistically significant results in  
5 the purchase of circular products when consumers have clear and consistent  
6 information. Although they worked only with perceptions and in an experimental  
7 environment, their findings showed a significant willingness to pay a premium price for  
8 some circular characteristics, such as reparability. Findings with real consumers  
9 corroborated significant willingness to pay for circular characteristics, such as better  
10 durability and reparability (Bocken et al., 2016). In both cases, information provision  
11 proved effective in encouraging circular products across different types of products and  
12 consumers (Bocken et al., 2016; Van Weelden et al., 2016).  
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19 Those findings agree with previous research on specific circular products, such  
20 as refurbishing mobiles (Mugge et al., 2017). According to these authors, consumers'  
21 well-reasoned decisions and acceptance require specific information regarding the  
22 benefits relevant to consumers' main concerns, such as environmental benefits, and their  
23 awareness of circular products, and these factors have a positive impact on consumers'  
24 purchase intentions. Thus, when consumers are aware of environmental and other  
25 impacts of circular products, they are more prone to accept them (Khan et al., 2019).  
26 Therefore, the proper promotion of campaigns about what CE is and how circular  
27 products and their benefits encourage CE principles could contribute to customer  
28 acceptance in the market.  
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35 At the same time, CE institutional soft initiatives can stimulate market  
36 competitiveness. When consumers demand more circular products, this would, in turn,  
37 drive companies' interest in circular products, enabling innovation (Kirchherr et al., 2018).  
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41 In addition, this type of soft initiative at the consumption level contributes to  
42 technology neutrality, because these initiatives do not impose certain technology versus  
43 others, allowing technological freedom to develop in the CE (Maxwell & Bourreau, 2014).  
44 Thus, according to the aforementioned authors, technology neutrality encourages  
45 innovation and efficiency and favors competence. On the other hand, non-neutral  
46 technology harms free competition in two ways: 1) by locking in certain technologies at  
47 the expense of others and 2) by helping the industry players who have the resources to  
48 control one technology to the detriment of small businesses. Preserving technology  
49 neutrality will contribute to closing loops in production and consumption areas, facilitating  
50 the development of new circular products (Urbinati et al., 2019). Thus, CE institutional  
51 soft initiatives could contribute to the promotion of circular products inside and outside  
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the geographical area, impacting macroeconomic dimensions such as import–export (Urbinati et al., 2019). Therefore, the following hypotheses are enunciated:

H1 Soft initiatives for the promotion of CE principles in the consumption phase have a positive impact on circular consumption.

H2 Soft initiatives for the promotion of CE principles in the consumption phase have a positive impact on market competitiveness.

These two hypotheses, together with those stated in the following section, try to respond to the second goal set forth in this paper, which sought to measure the potential impact on consumer acceptance and the market competitiveness of these initiatives.

### **2.3 Circular promotion hard initiatives and impacts on consumption and market**

Nevertheless, some researchers advise that soft initiatives would not be enough to encourage radical changes among consumers (Le Europe et al., 2018). Convenience, value for money, and sustainability are the most important predictors for accepting circular products and services (Khan et al., 2019; Alonso-Almeida et al., 2020).

Therefore, other, more stimulating initiatives are needed in order to drive changes in the market regarding CE. Such hard initiatives are related to direct or indirect economic incentives. Direct financial incentives include different taxation levels depending on product resource efficiency or direct economic rewards for contributing to the environment (Le Europe et al., 2018). Thus, these direct economic rewards could change consumers' opinions and attitudes about certain products and encourage their purchase and market competitiveness. Consumers could seek economic incentives or savings in products with lower tax in order to achieve a good value for money and, at the same time, to feel that they choose a fashion choice (Alonso-Almeida, 2019). In other words, an increase of the feeling of "being the first one". Moreover, given that today consumers are pursuing more sustainable ways of consumption (Shao, 2019; Venugopal & Shukla, 2019; Alonso-Almeida et al., 2020), their motivation could be reinforced.

Other direct economic incentive may come via rules on extended producer responsibility schemes where manufacturers and importers of certain mass-consumption products are required to organize, develop and finance the comprehensive management of waste derived from its products, once discarded by the final consumer (Le Europe et al., 2018).



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4 Indirect economic incentives could include longer trial periods, extended  
5 warranties, or certification of the circularity of the product in comparison with non-circular  
6 products (Van Weelden et al., 2016; Mugge et al., 2017). Thus, longer trial periods allow  
7 the consumer to become familiar with circular products and get used to them. It  
8 minimizes uncertainty about losing the money paid. In the same line of reasoning,  
9 extended warranties help consumers to face difficulties or doubts about the usage of a  
10 circular product (Van Weelden et al., 2016). In addition, these incentives emphasize the  
11 benefits of the circular products (Mugge et al., 2017) and reduce the risk in the  
12 consumers' mind regarding a new product's entrance on the market (Llach et al., 2015).  
13 As consequence, these measures could have a positive impact on circular consumption  
14 at the consumer level and the market competitiveness of circular products.  
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22 Finally, Green Public Procurement (GPP) is key to orienting and encouraging the  
23 demand for circular products, in terms of both self-consumption and the market (Testa  
24 et al., 2016). Firstly, governments' initiatives to promote CE are more trusty and reliable  
25 when they act as a consumer and teach by example to citizens. Given that in most  
26 countries governments are the biggest country consumer, the improvement on  
27 environmental conditions, such as CO<sub>2</sub> reduction among others, can be a driver to push  
28 circular products. Thus, consumers can have lower risk with new products, and they can  
29 select among a wider variety of circular products (Rainville, 2017). Secondly, they can  
30 push the demand of green procurement in the market by means of developing green  
31 criteria tools for companies in order to influence the companies green practices adoption  
32 (Testa et al., 2016). These practices will lead to improve the functionality of the product  
33 in terms of sustainability.  
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42 On the other hand, GPP could directly influence market competitiveness in  
43 several ways (Testa et al., 2016; Rainville, 2017). First, it could stimulate the innovation  
44 capabilities of industries to manufacture more green-friendly products (Dangelico et al.,  
45 2016). GPP adoption needs new skills, knowledge, materials and tools. Therefore,  
46 companies should adopt new capabilities to face these challenges (Preuss, 2017).  
47 Second, it could encourage eco-innovations – including incremental and radical  
48 innovations – in industries thanks to the new capabilities acquisition and the search for  
49 bigger public market share (Walton et al., 2019). Third, it could increase competition  
50 among suppliers and manufacturers, promoting technology neutrality in order to achieve  
51 a range of solutions and a variety of different products. Finally, larger quantity of circular  
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products can make companies more competitive and increase exports. The main reason would possibly be developing a differentiation strategy (Alonso-Almeida et al., 2020). Therefore, the following hypotheses are proposed:

H3 Hard initiatives for the promotion of CE principles in the consumption phase have a positive impact on circular consumption.

H4 Hard initiatives for the promotion of CE principles in the consumption phase have a positive impact on market competitiveness.

Figure 1 shows the studied model.

-Figure 1 near here-

**3 SAMPLE AND MEASURES**

For this article, a database of the European Commission related to CE has been used: [http://ec.europa.eu/environment/consultations/closing\\_the\\_loop\\_en.htm](http://ec.europa.eu/environment/consultations/closing_the_loop_en.htm). This database is derived from the answers to a questionnaire conducted with all kinds of interested stakeholders in CE. As can be seen in Table 1, respondents can be classified as individual persons, private companies, civil society, public authorities, professional organizations, and others (missing values and minor groups are included in this item). The questionnaire also includes the origin of the respondent control variable.

-Table 1 near here-

The survey was structured with four main sections: CE from the research and development point of view, the promoting perspective, consumer-related factors, and product assessment. At the end of the survey, other data, such as industry, country, size of the business, or degree of knowledge of managers about CE, were also included.

Further details of the sample can be reached in table 2. It is structured according to countries and splits companies' individuals. It shows that more than half of the answers come from Germany, UK, Italy, Spain and Belgium. In general terms, countries with more population are the ones with more answers. It can be assumed that the sample as a whole is representative of the EU population distribution.

-Table 2 near here-

The variables incorporated in the survey were quantified by a five-point Likert scale, where 5 meant strong agreement and 1 meant strong disagreement with the sentence. Items and constructs incorporated in the model can be seen in Table 3.

-Table 3 near here-

#### 4 METHODOLOGY

With the goal of testing the designed model, this article was divided into two main parts. First, an Exploratory Factor Analysis (EFA) selected the variables included in the model and aggregated them into four clear dimensions. Following previous research, any variable with a lower load than 0.4 was discarded. Items with a load greater than 0.4 contributed to the four constructs considered in the model. In order to obtain more robust dimensions, a Confirmatory Factor Analysis was carried out. Following previous literature, variables with a lower load than 0.6 were not taken into account. Related to CE Promotion, 10 items were surveyed, but only seven match the requirements. These seven variables were grouped by EFA in two different dimensions: soft and hard initiatives. The rejected items were related to product design, maintenance services, and encouraging waste prevention initiatives.

Related to the consumption construct, four items were considered, but only two fulfilled the statistical requirements: affordability and value change initiatives were rejected. Finally, related to the market competitiveness construct, all the variables included in the questionnaire were accepted for the proposed model. The last stage of this process was testing the internal consistency and reliability of each dimension by using Cronbach's alpha coefficient and the Average Variance Extracted (AVE). According to the literature, the Cronbach's alpha must be greater than 0.6 (Churchill, 1979). Composite reliability was higher than 0.7, and AVE higher than 0.5 (Barclay et al., 1995). Besides, the discriminant validity of the model was tested and corroborated the goodness of the designed model.

Second, Structural Equations Modeling was used to test the cause-effect relationships among constructs by using EQS 6.1 software and the maximum-likelihood method. The used items were  $\chi^2/\text{degrees of freedom}$ , the Jöreskog and Sörbom goodness of fit (GFI), the Jöreskog and Sörbom adjusted goodness of fit (AGFI),

comparative fit index (CFI), and root mean square error of approximation (RMSEA). The next section details the results obtained.

**5 RESULTS**

The analysis of the results is divided into two parts. The first part analyzes the model using the sample as a whole, while the second part analyzes the differences by groups.

**5.1 Whole sample analysis**

As can be seen in Table 4, variables derived from the factor analysis were grouped in four dimensions, and by using AVE, Cronbach's alpha, and composite reliability coefficients, the internal consistency of the constructs was confirmed.

-Table 4 near here-

The subsequent discriminant analysis shows that, in all cases, the correlations between constructs are lower than the square root of AVE (see Table 5).

-Table 5 near here-

After verifying the goodness of the dimensions, analysis of causal relations can begin. By using EQS 6.1, the hypotheses of the model were analyzed.

Table 6 shows the main statistics and the values that the literature considers as valid. In this sense, Wheaton et al. (1977) confirmed that chi-square divided by its degrees of freedom must be lower than 5, and Tabachnick et al. (2007) recommended that this ratio should not be lower than 2. Byrne (1994) assumed as a good value for AGFI any value higher than 0.8 and for GFI any value bigger than 0.9. Finally, for CFI, any value close to 0.9 is valid (Hu & Bentler, 1999), and for RMSEA, any value lower than 0.1 indicates an acceptable fit (MacCallum et al., 1996). The goodness of fit of the model can be confirmed due to more than three statistics fulfilling the recommended values (Schermmelleh-Engel et al., 2003).

-Table 6 near here-

Figure 2 shows the standardized solution of the causal model. As can be seen, not all hypotheses are confirmed. H4 is rejected. In the next section, an explanation of these findings can be found.

-Figure 2 near here-

## 5.2 Differences among stakeholders

In order to achieve the third goal set forth in this paper, the next stage was to develop a multigroup analysis to define possible differences among groups – Consumers, Private Enterprises, Civil Society, Public Authorities, Professional Organizations, and Others – for a total of six groups.

Results showed differences among groups for every construct, especially in relation to soft initiatives for principles promotion in the consumption phase and in relation to applying CE principles to products. The T-test mean differences results were used to detect where the differences were most prominent by studying each connection across the dimensions. Table 7 shows the outcomes for each dimension and group, along with the mean and STD results. Consumers show higher values for soft initiatives, Civil Society shows higher values for hard initiatives and consumption, and Professional Associations shows higher values for applying CE principles to products.

-Table 7 near here-

Finally, the Structural Equation Model (SEM) was tested by means of EQS, assessing results by the maximum likelihood process. Table 8 shows the standardized solution of the causal model using values and statistics by subsample. More than 50% of the items presented significant differences among them at 95% significance.

-Table 8 near here-

Analyzing the different stakeholders, Table 8 and Figure 3 show the results. In the case of Consumers, hard initiatives are positive and statistically significant. Thus, Consumers perceived hard initiatives as very effective in pushing circular consumption and improving market competitiveness. However, soft initiatives are only statistically significant in the case of circular consumption, and this is negative. This means that Consumers do not consider that more information and promotion about CE contributes to circular consumption. On the contrary, more promotion and information could be counterproductive for circular consumption.

-Figure 3 near here-

However, both Private Enterprises and Professional Associations obtain the same statistically significant relations. On the one hand, for both, soft initiatives have

positive statistical impact on circular consumption and market competitiveness. On the other, hard initiatives do not have any impact on circular consumption or market competitiveness. In the case of Public Organizations, all statistical results have a positive significant impact. Soft initiatives in both circular consumption and market competitiveness and hard initiatives in circular consumption. Finally, for Civil Society, only hard initiatives obtain a positive statistical impact on circular consumption.

Following a discussion of the results, the hypotheses are contrasted and the main findings are discussed.

## 6 DISCUSSION

The results found in this paper clarify how institutional promotion of CE impacts on consumers and the market and how the different groups that participate in the process act differently.

Regarding the second goal set in the paper, from which the four proposed hypotheses derive, this research showed that soft initiatives to promote CE have a positive impact on circular consumption (hypothesis 1). Thus, providing more information about circular product characteristics and benefits has a positive impact on CE adoption. These outcomes confirmed previous studies that pointed out that providing clear information, such as on durability, reparability, or recycled materials, could reduce consumer uncertainty and make it easier for a product to be accepted by the market (Le Europe et al., 2018). Thus, campaigns to promote CE and its principles, such as waste prevention, could make potential consumers more predisposed to engage in circular consumption (Mugge et al., 2017; Khan et al., 2019). Therefore, hypothesis 1 is accepted.

Nevertheless, institutional efforts should be carefully considered and addressed because some differences have been found among stakeholders. Shedding light by stakeholder, this relationship is also proven for four different groups: Private Enterprises, Public Organizations, Professional Organizations, and Others. Nevertheless, institutions have to improve their efforts in relation to Consumers. As can be seen, a negative relationship is observed. This means that Consumers consider that an excess of information could be contrary to the expected. Thus, Consumers could require more than only information to accept circular products. In depth, the positive significant results of hard initiatives are an indication of that. Consumers require more incentives than just

information to accept circular products in their daily consumption. This finding requires further research, but it could indicate a lack of awareness and understanding among individuals in relation to CE and its benefits.

With respect to hypothesis 2, this research showed that soft initiatives to promote CE have a positive impact on market competitiveness. Thus, providing information such as the lifetime of products, ensuring the credibility of consumer information, organizing campaigns, and encouraging waste prevention have a positive impact on applying CE principles to products due to an increase in the demand for circular products. These results are aligned with previous studies showing that promotion is a key driver to push changes in consumption. As a consequence, companies have to innovate to maintain in the market and offer circular products. Thus, companies produce innovative products that could allow them access to other markets, even international markets, increasing exports. Therefore, it is clear that CE institutional soft initiatives have a positive impact on markets' competitiveness. Thus, hypothesis 2 is accepted.

Concerning the third objective proposed in the paper, results by stakeholders show that these sorts of initiatives are perceived as relevant for Private Enterprises, Public Authorities, and Professional Organizations to improve market competitiveness. Neither Consumers nor Civil Society and Other stakeholders consider this type of soft initiative significant for market competitiveness. This finding could reveal a misalignment among the main players on the offer and demand sides regarding the best way to drive the change from linear economy to CE and the impacts of CE. More research with key players on the demand side is required to understand how this change should be conducted and what are the real impacts in the market.

In regard to hypothesis 3, this research assessed that CE hard initiatives to promote CE have a strong positive impact on circular consumption. Thus, taking action on circular materials and product design, extending producers' responsibility guarantees, reviewing legal and commercial guarantees, encouraging financial incentives to consumers by differentiated taxation levels depending on products' resource efficiency, and taking measures targeting public procurement, have positive impacts on circular consumption. These results confirmed previous studies, which pointed out that hard initiatives are needed to encourage radical changes (Le Europe et al., 2018) and that stimulating initiatives with impact on the customer's pocket or other direct benefits on



customers are needed to drive changes in the market (Van Weelden et al., 2016; Mugge et al., 2017). Therefore, hypothesis 3 is accepted.

Results by stakeholders showed that these kinds of initiatives are highly significant for Consumers, Civil Society, Public Organizations, and Others, but not significant for private enterprises and professional organizations. This finding is interesting because it shows that higher institutions should take active actions to push CE at the consumption level, but these are not enough to convince companies to become involved in CE. In fact, despite the potential advantages for companies derived from CE, companies should implement some inversions and changes in their supply chains. Therefore, private enterprises and professional organizations could prefer other types of institutional initiatives.

Finally, in regard to hypothesis 4, previous researchers showed that hard initiatives, such as longer trial periods or certifications, could have a positive impact on market competitiveness (Van Weelden et al., 2016; Llach et al., 2015; Alonso-Almeida & Rodríguez-Antón, 2011). This research showed mixed results in relation with this relationship. Overall, the outcome obtained cannot support this relationship, although it is highly proven for consumers and others when looking at segmented data. This type of hard initiative has a cost for both governments and companies, and benefits could not offer a quick return. Thus, hypothesis 4 is not accepted.

Although hard initiatives have a positive relationship on Consumers, it has been founded no evidence of this relationship among other subgroups. Thus, Consumers are positively influenced by any kind of promotion done by the EU. No matter if it is a hard initiative or a soft initiative. Nevertheless, the kind of promotion chosen by the EU does have a different impact in terms of efficiency on the other subgroups. In that sense, there is no evidence that hard promotion has any impact on market competitiveness in terms of private enterprises, civil society, professional associations or public organisations. A possible explanation for this lack of relationship is that when the EU is taking action on product design or on extending product life, it could affect enterprises in terms of number of units sold or the degree of innovation of the product. It seems that hard regulation makes harder for the enterprises to improve its innovation, creativity or exports.

In summary, soft initiatives, especially those ensuring the clarity, credibility, and relevance of consumer information related to CE and protecting consumers from false

and misleading information in this respect, and hard initiatives, particularly those encouraging financial incentives or improvements in commercial guarantees to consumers at the national level, have a positive impact on CE, both in circular consumption, through the durability, reparability, and functionality of products, and in market competitiveness, through impact on EU imports and exports, although stakeholders are behaving and reacting differently to these policies.

## 7 CONCLUSIONS

According to the results obtained, some interesting conclusions can be extracted from this study. This paper contributes a new point of view about the consequences of and the more effective initiatives for promoting CE in the UE in three main aspects that are going to be highlighted in this section.

First, in response to the second objective set, and talking about the whole sample, it is clear that promoting CE in consumption has a positive impact on consumers and market competitiveness, but different impacts are perceived depending on how the promotion is done.

A great difference is noticed when comparing the results got from the use of hard policies – such as taking action on material and product design and long life, encouraging financial incentives to consumers at the national level, or taking measures targeting public procurement – and the ones got from using soft initiatives – namely, providing more information relevant to CE to consumers, ensuring the clarity, credibility, and relevance of consumer information related to CE, protecting consumers from false and misleading information in this respect, organizing EU-wide awareness campaigns to promote CE, or encouraging waste prevention. Soft initiatives, especially when its positive effects are explained, obtain better results. In fact, no effects are observed between hard policies and market competitiveness.

Then, soft initiatives in general have a positive impact, and they are needed to introduce new products in the market. Nevertheless, the findings highlighted that hard promotion has a stronger impact on individuals than soft promotion. Thus, low-tax schemes for circular products can act as a strong driver to introduce circular products in the market and advance in sustainable consumption. This evidence has to be taken into account by governments when designing their promotion policies in order to improve global results and achieve better distribution of their available resources.

The second point in response to the third objective set is related to the segmentation of the model between groups of stakeholders. When the sample is analyzed by stakeholder type, many differences were found among groups in all the relations analyzed in the statistical model. With regard to the relationship between soft initiatives and circular consumption, positive relations were observed for all stakeholders, with the exception of Consumers. That finding could be explained by the fact that consumers do not sufficiently value the need for more sustainable consumption. Another possible explanation could be the fact that all types of consumers are treated equally, when a personalized design of promotion by Consumer group might be necessary. Thus, the results seem to indicate that governments should focus their promotion policies on each segment of the market, depending on the group where they wish to push the change. Therefore, a unique promotion policy is not an optimal mix. This last assertion could be applied also to the other relationships studied by the model when it is segmented by groups.

Third, Consumers do not react positively under soft initiatives or they perceived a limited impact. Today, there is an excess of information, and sometimes it is difficult for consumers to discriminate among useful and useless information. Therefore, consideration is needed regarding how CE should be pushed at the micro level. The findings show that hard initiatives seem to be more effective, especially to encourage radical changes in consumption level.

As a final aspect, it should be noted that there is a positive relationship between hard policies and market competitiveness in terms of the perception of Consumers. This relationship was not observed when the whole sample was analyzed. This fact provides evidence that Consumers perceive positive changes in the market resulting from hard initiatives based on improvements in consumer legislation and fiscal policies, and this reinforces the need for carefully considered policies to maximize positive impacts.

Therefore, governments at different levels should take action to promote CE, taking into account the effectiveness of each action given that resources are scarce. Thus, carefully considered action plans to push CE should be developed. Consumers are becoming more and more conscientious about the need for sustainability in all spheres of life.

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4 Finally, this paper opens new questions that require future research. For  
5 example, it is necessary to study how to design personalized policies to achieve the  
6 highest impact in order to invest scarce economic resources optimally. Also, more  
7 research into circular production and consumption drivers and benefits at the meso and  
8 micro levels is required in order to make the benefits of CE more visible and push the  
9 changes required to achieve real and wide CE.  
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Table 1: Sample description

<b>VARIABLE:</b>		
<b>STAKEHOLDERS</b>	<b>N</b>	<b>%</b>
Consumers	337	26.3%
Private companies	222	17.3%
Civil society	135	10.5%
Public authorities	74	5.8%
Professional organizations	346	27.0%
Others (e.g., universities; research centers)	167	13.1%
<b>TOTAL</b>	<b>1281</b>	<b>100.0%</b>
<b>Country:</b>	<b>N</b>	<b>%</b>
EU	1230	96.0%
Non-EU	51	4.0%
<b>TOTAL</b>	<b>1281</b>	<b>100.0%</b>

Table 2: Sample by country and subgroup

Countries	Total Answers	%	Individuals	%	Enterprises (Private, Public, Associations...)	%
Austria	40	3,3%	9	2,7%	31	3,4%
Belgium	200	16,3%	21	6,4%	179	19,9%
Bulgaria	5	0,4%	2	0,6%	3	0,3%
Croatia	2	0,2%	2	0,6%	0	0,0%
Cyprus	1	0,1%	0	0,0%	1	0,1%
Czech Republic	25	2,0%	4	1,2%	21	2,3%
Denmark	23	1,9%	5	1,5%	18	2,0%
Estonia	3	0,2%	0	0,0%	3	0,3%
Finland	34	2,8%	3	0,9%	31	3,4%
France	111	9,0%	47	14,2%	64	7,1%
Germany	150	12,2%	49	14,8%	101	11,2%
Greece	7	0,6%	3	0,9%	4	0,4%
Hungary	4	0,3%	0	0,0%	4	0,4%
Iceland	1	0,1%	0	0,0%	1	0,1%
Ireland	6	0,5%	3	0,9%	3	0,3%
Italy	122	9,9%	69	20,9%	53	5,9%
Latvia	3	0,2%	1	0,3%	2	0,2%
Lituania	1	0,1%	0	0,0%	1	0,1%
Luxembourg	2	0,2%	2	0,6%	0	0,0%
Netherlands	61	5,0%	12	3,6%	49	5,4%
Poland	19	1,5%	4	1,2%	15	1,7%
Portugal	24	2,0%	4	1,2%	20	2,2%
Romania	4	0,3%	1	0,3%	3	0,3%
Slovakia	1	0,1%	0	0,0%	1	0,1%
Slovenia	5	0,4%	2	0,6%	3	0,3%
Spain	89	7,2%	23	7,0%	66	7,3%
Sweden	38	3,1%	4	1,2%	34	3,8%
United Kingdom	193	15,7%	60	18,2%	133	14,8%
Transnational Corporation	53	4,3%	0	0,0%	53	5,9%
No answer EU	3	0,2%	0	0,0%	3	0,3%
<b>Total EU</b>	<b>1230</b>	<b>100,0%</b>	<b>330</b>	<b>100%</b>	<b>900</b>	<b>100%</b>
Non EU	51					
<b>Total</b>	<b>1281</b>					

Table 3: Variables and dimensions

<b>PROMOTION</b>	To promote CE principles in the consumption phase at the EU level is relevant:
SOFT1	Provide more information relevant to CE to consumers, for example, on expected lifetime of products or availability of spare parts
SOFT2	Ensure the clarity, credibility, and relevance of consumer information related to CE (e.g., via labels, advertising, marketing, etc.) and protect consumers from false and misleading information in this respect
SOFT3	Organize EU-wide awareness campaigns to promote CE
SOFT4	Encourage waste prevention (e.g., minimizing food waste)
HARD1	Take action on material and product design and long life (e.g., economic incentives via rules on Extended Producer Responsibility schemes, review of legal and commercial guarantees, encouragement of green products)
HARD2	Encourage financial incentives to consumers at the national level (e.g., by differentiated taxation levels depending on products' resource efficiency)
HARD3	Take measures targeting public procurement (e.g., through criteria for Green Public Procurement)
<b>IMPACTS</b>	When applying CE principles to products at the EU level, obtain positive impact on
CONSUMP1	Consumers (e.g., through durability and reparability)
CONSUMP2	Functionality of the product
MARKETC1	Enabling innovation
MARKETC2	Respecting technology neutrality
MARKETC3	Imports and exports

Table 4: Factor analyses of the dimensions

Dimension	Code	Load	Internal consistency and reliability statistics
SOFT	SOFT1	.840	Cronbach's alpha: .880 Composite reliability: .934 AVE: .781
	SOFT2	.913	
	SOFT3	.819	
	SOFT4	.861	
HARD	HARD1	.786	Cronbach's alpha: .717 Composite reliability: .843 AVE: .641
	HARD2	.840	
	HARD3	.775	
CONSUMP	CONSUMP1	.917	Cronbach's alpha: .803 Composite reliability: .914 AVE: .841
	CONSUMP2	.917	
MARKETC	MARKETC1	.858	Cronbach's alpha: .777 Composite reliability: .880 AVE: .710
	MARKETC2	.800	
	MARKETC3	.868	

Table 5: Discriminant validity

	SOFT	HARD	CONSUMP	MARKETC
SOFT	<b>.884</b>			
HARD	.752**	<b>.801</b>		
CONSUMP	.626**	.577**	<b>.914</b>	
MARKETC	.452**	.478**	.722**	<b>.843</b>

\*Square root of AVE in the diagonal.

\*\*Correlation is significant at the 0.01 level (bilateral).

Table 6: Goodness of fit of the model

Assessment item	Values	Recommended value
X2 (chi-squared)*	237.498	The lower the better
X2/df (normed chi-squared)	4.7499	$2 < x < 5$
GFI	0.932	$> 0.9$
AGFI	0.894	$> 0.8$
CFI (comparative fit index)	0.790	Close to 0.9
RMSEA (root mean square error of approximation)	0.087	$0 < x < 0.1$

\*Satorra-Bentler chi-squared.

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Table 7: Mean differences results

<b>SOFT</b>	<b>Consumers</b>	<b>Private</b>	<b>Civil</b>	<b>Public</b>	<b>Professional</b>	<b>Others</b>
<b>Mean</b>	3.424	3.168	3.246	3.414	3.163	3.323
<b>Standard Deviation</b>	0.878	0.945	1.067	0.846	0.913	0.867
<b>Consumers</b>						
<b>Private Enterprises</b>	6.187***					
<b>Civil Society</b>	3.306**	-1.333				
<b>Public Organizations</b>	0.167*	-4.001***	-2.387**			
<b>Professional Associations</b>	7.114***	0.117	1.502	4.295***		
<b>Others</b>	0.020**	0.002***	0.194	0.149	0.001***	

<b>HARD</b>	<b>Consumers</b>	<b>Private</b>	<b>Civil</b>	<b>Public</b>	<b>Professional</b>	<b>Others</b>
<b>Mean</b>	3.299	3.054	3.624	3.451	2.782	3.251
<b>Standard Deviation</b>	0.917	1.001	0.667	0.761	1.045	0.456
<b>Consumers</b>						
<b>Private Enterprises</b>	4.739***					
<b>Civil Society</b>	-7.547***	-10.420***				
<b>Public Organizations</b>	-2.452	-5.770***	2.663***			
<b>Professional Associations</b>	10.804***	4.850***	16.064**	10.135**		
<b>Others</b>	0.386	0.002***	0.000***	0.009***	0.000***	

<b>CONSUMP</b>	<b>Consumers</b>	<b>Private</b>	<b>Civil</b>	<b>Public</b>	<b>Professional</b>	<b>Others</b>
<b>Mean</b>	3.395	3.425	3.687	3.451	3.528	3.473
<b>Standard Deviation</b>	0.780	0.803	0.531	0.653	0.726	0.757
<b>Consumers</b>						
<b>Private Enterprises</b>	-0.607					
<b>Civil Society</b>	-6.371***	-4.982***				
<b>Public Organizations</b>	-2.976***	-2.324**	1.525			
<b>Professional Associations</b>	-3.106***	-2.053**	3.522	0.917		
<b>Others</b>	0.148	0.425	0.000***	0.136	0.296	

<b>MARKETC</b>	<b>Consumers</b>	<b>Private</b>	<b>Civil</b>	<b>Public</b>	<b>Professional</b>	<b>Others</b>
<b>Mean</b>	2.727	3.130	2.969	3.132	3.429	3.146
<b>Standard Deviation</b>	1.133	1.055	0.852	0.931	0.820	0.998
<b>Consumers</b>						
<b>Private Enterprises</b>	-7.017***					
<b>Civil Society</b>	-4.014***	2.502**				
<b>Public Organizations</b>	-5.064***	-0.033	-1.918*			
<b>Professional Associations</b>	-15.033***	-5.843***	-8.414***	-3.920***		
<b>Others</b>	0.000***	0.799	0.011**	0.873	0.000***	

\*\*\* 99% sign.

\*\* 95% sign.

\* 90% sign.



Table 8: Model results by groups

	SOFT => CONSUMP	SOFT => MARKETC	HARD => CONSUMP	HARD => MARKETC
Consumers	-0.243**	---	0.889**	0.967**
Private Enterprises	0.549**	0.417**	---	---
Civil Society	---	---	0.925**	---
Public Organizations	0.342**	0.381**	0.940**	---
Professional Associations	0.579**	0.475**	---	---
Others	0.530**	---	0.220**	0.425**
Full database	0.486**	0.245**	0.210**	---

\*\* 95% sign.

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Figure 1. Model and hypotheses

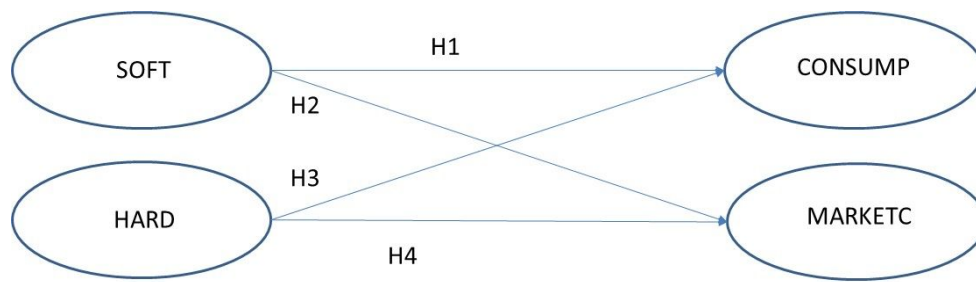
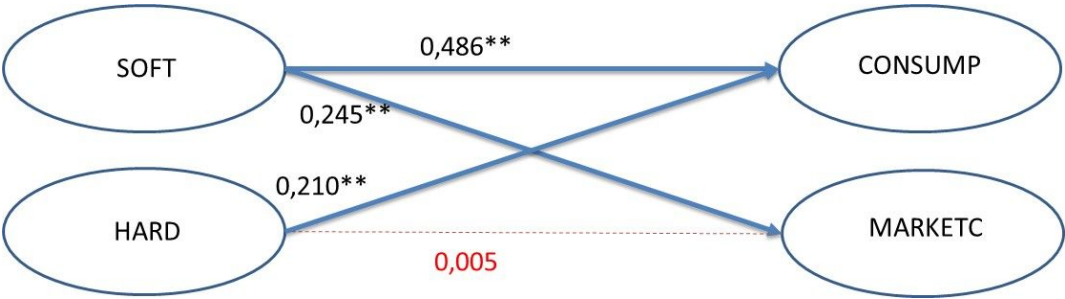


Figure 2. Contrasted model



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Figure 3. Model's results by stakeholder

