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***“Markets, prices, policies:
insights from the literature”***



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A short literature review:

- If/how the issue of markets is considered
- The price/s issue
- Policies and tools

Method:

- Scopus and Scholar research
(keywords: market, price, secondary materials, SMS, volatility, policies ...)

A first glance



- A wide literature and reviews deal with Circular Economy (CE) conceptual and theoretical issues
- Few studies deal with empirical applications
- Relevant barriers are identified in research, but they are rarely empirically based
- Definitions and interpretations mainly focus on physical and material resource aspects
- Research is fragmented across various disciplines and often adopts different perspectives and approaches.
- Efforts at comparing/integrating results is very challenging

A first glance



- Many parameters play a role in the overall circular process, but often reductionist approaches
- Limited information on the direct and indirect effects on the economy
- Difficulties in predicting, with a certain margin of time, the future levels of prices. For their determination, several factors act simultaneously: not only supply and demand, but also important speculative pushing phenomena, a generalised concerns about a sudden supply shortage in the coming years, the low number of suppliers, ...
- The issue of price schemes is not adequately addressed,
- and so it is the topic of regional markets

From SMs to PMs



- Use of recycled materials would possibly change demand patterns for primary materials (PMs) leading to a lower extraction of primary material
- The use of recycled material may reduce price volatility associated with primary raw materials and dependency on imports of materials
- Substitutions of PMs and SMs, and within SMs are industry specific
- There is little understanding whether increasing levels of material recycling have contributed to substitute demand for primary resources in Europe or elsewhere

Security, PMs, costs



- Recycling may increase security of supply for companies and bring material costs down once a secondary raw-material (SM) market is functioning
- Recycling implies comparison of different costs: e.g. i) of disposal of waste, ii) of recycling the material and iii) of recycling for the purpose of re-use.
- Some sectors will benefit from CE transition ('winners'), while others might suffer negative consequences in their economic activity and employment ('losers').

SMs production under (quality) uncertainty and rebound effects



- Optimizing the SM's use under uncertainty in raw material specifications can be challenging
- Fulfill a set of demands for finished products at the lowest cost given available raw materials: primary material and alloying elements (both with a narrow uncertainty in quality) as well as scrap materials (with a wide uncertainty in quality)
- Higher uncertainty in the lower quality raw materials means that increased PMs is required to meet the final product specification

Investment, businesses and jobs



- Recycling requires the establishment of sophisticated take-back systems (cost, organization, transport, ...) and a detailed separation process enabled by advanced technology
- For some materials, the separation into its constituents might not be cost-effective; also, a contamination issue must be considered
- With high costs for technology largely untested at an industrial scale and the absence of substantial waste streams, the development is still weak
- Recycling is very labour-intensive; it requires different skills
- Business opportunities for new companies and new business models may arise

Technical feasibility is not enough



- **Business Europe, CE Industry Platform**
 - **Challenges:**
 - Logistics
 - Administrative burden
 - Lack of awareness
 - High costs
 - Lack of access to funding
 - Lack of government enforcement & cooperation
 - Lack of harmonization in EU legislation
 - Lack of demand
 - Missing definitions & standards
 - Input issues (quality, quantity)
 - Output issues (quality, quantity)
 - Cross border shipments

A web of constraints



- **new business models are faced by a number of dynamic and interrelated barriers that form what has been referred to as the 'web of constraints' (Kemp and Dijk, 2013).**

Financial	Measuring financial benefits of circular economy
	Financial profitability
Structural	Missing exchange of information
	Unclear responsibility distribution
Operational	Infrastructure/ Supply chain management
Attitudinal	Perception of sustainability
	Risk aversion
Technological	Product design
	Integration into production processes

The supply side of the SMs markets



- 'waste as resource' rhetoric seems to be very popular among EU policymakers, but provides a partial fuzzy picture of the practical reality of 'waste as cost'
- in a largely globalised world, commodity markets are highly volatile, distorted by national framework conditions and purchasing power, providing important limitations to the real impact of a EU policy on resource efficiency focused solely on the internal market
- raw material policies focus on the supply side and connect with the international dimension of resource extraction and consumption
- recyclers require a steady stream of waste and a steady demand

Markets and price linkages: quality and time matter



- price linkages in the futures, primary, and scrap markets
- effective policies to utilize the scrap market for sustainable use of SMs resource, need to consider long-run price linkage
- price levels and fluctuations make some forms of collection and processing less attractive
- the lower the quality of scrap, the higher the potential impact of price
- policy instruments based on price should be directed towards the low-end segment of the scrap market
- a necessary condition for price-based policies to be effective is some correlation between material supply and price

Strengthening SMs markets



- the additional value from end-of-life goods through recycling or recovery operations is generally not reflected in the mechanisms of product design, pricing and market regulation
- as the markets for recyclables are expanding nationally and internationally, several issues arise concerning the functioning and properties of such markets and their actual contribution to the CE vision
- significant risk of high search and transaction costs associated with recyclable materials in secondary markets

A complex economic world



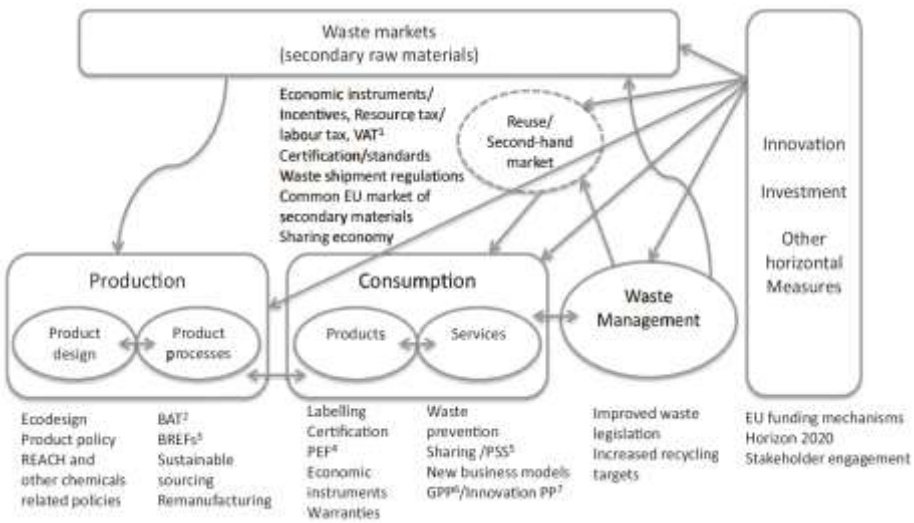
- Indirect effects of changes in materials through prices and policies as well as technology change, and the full extent of these effects can only be captured through multi-sectoral modelling representing the whole economic system.
- Research should develop economy-wide or integrated modelling frameworks
- Micro, meso and macro levels




A systemic change that encompasses innovation and technology systems but also policies, society, business models and finance

in order to support the development of a supply but also of a demand of SMs and to make the profitability of SMs market in the long run

A comprehensive policy mix





VERSO UN MODELLO DI ECONOMIA CIRCOLARE PER L'ITALIA

Documento di Inquadramento e di posizionamento strategico

The price issue begins to emerge even at national level

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Furthermore, the use (and reuse) of internally generated recycled materials allows a country like Italy, poor in raw materials, to be less dependent on foreign procurement, with lesser vulnerability to price volatility, especially at a time of great instability in countries owning the greatest endowments of these resources.

Families can play an important role if they are able to distinguish between similar products and services, favoring, perhaps even at a slightly higher cost, better quality products or products with a lower impact on the environment, renouncing to satisfy primary needs at the lowest price, purchasing imported goods and / or products made under a less severe environmental legislation

Economic theory recognizes a series of market failures where the balance between demand and supply determined by price does not coincide with a socially desirable optimum. One of the most emblematic cases is that of

New EU initiatives

- **A CE Finance Support Platform (Q4 2017):** representatives of the Commission, the EIB, National Banks, institutional investors ... It will have a three-pillar structure to facilitate and support CE financing needs: 1. coordination and awareness raising; 2. advisory; 3. financing
- **A CE Stakeholder Platform**
- **A monitoring framework for the circular economy (COM(2018))**

7a-b Contribution of recycled materials to raw materials' demand
Secondary raw materials' share of overall materials demand - for specific materials and for the whole economy

Trade in recyclable raw materials
Imports and exports of selected recyclable raw materials

A EU Strategy for plastics in a CE (COM(2018)).



What we can expect

List of future EU measures to implement the Strategy

Actions to boost recycled content:

- launching an EU-wide pledging campaign targeting industry and public authorities
- assessment of regulatory or economic incentives for the uptake of recycled content, in particular in the context of the:
 - Revision of the Packaging and Packaging Waste Directive (see above)
 - Evaluation/review of the Construction Products Regulation
 - Evaluation/review of End-of-life Vehicles Directive
- as regards food-contact materials: swift finalisation of pending authorisation procedures for plastics recycling processes, better characterisation of contaminants and introduction of monitoring system
- development of quality standards for sorted plastics waste and recycled plastics in cooperation with the European Standardisation Committee
- Ecolabel and Green Public Procurement: Further incentivise the use of recycled plastics, including by developing adequate verification means

Actions to improve separate collection of plastic waste:

- issue new guidelines on separate collection and sorting of waste
- ensure better implementation of existing obligations on separate collection, including through ongoing review of waste legislation

The EU Strategy for plastics (COM(2018)).



What we are required to do

Pledging Campaign

1. The European Commission calls on stakeholders to come forward with voluntary pledges to boost the uptake of recycled plastics. The objective is to ensure that by 2025 ten million tonnes of recycled plastics find their way into new products on the EU market.
2. Interested companies and/or industry associations have until 30 June 2018 to submit their pledges to the following email address: *GROW-ENV-RPLASTICS-PLEDGE@ec.europa.eu*

Should the contribution be deemed insufficient, the Commission will start work on possible next steps, including regulatory action.

The EU Strategy for plastics (COM(2018)).

What we are required to do

List of measures recommended to national authorities and industry

Key measures to improve the economics and quality of plastics recycling

National and regional authorities are encouraged to:

- favour reusable and recycled plastics in public procurement;
- make better use of taxation and other economic instruments to:
 - reward the uptake of recycled plastics and favour reuse and recycling over landfilling and incineration
 - step up separate collection of plastics waste and improve the way in which this is done
- put in place well-designed EPR schemes and/or deposit systems, in consultation with the relevant sectors
- make voluntary commitments in support of the strategy's objectives, in particular as regards the uptake of recycled plastics

Industry is encouraged to:

- take concrete steps to improve dialogue and cooperation across the value chain, in particular on material and product design aspects
- make voluntary commitments in support of the strategy's objectives, in particular as regards the uptake of recycled plastic






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A comprehensive page yet to be written



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Thanks for the attention ...



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