

Executive Summary Improving Recycling Markets

Markets for many recyclable materials are growing.

The growth of markets for many classes of potentially recyclable materials is due in part to policy incentives, but also to more general commercial conditions. In many cases their development is supported directly by public authorities through measures such as collection schemes for recycled materials, deposit-refund systems, and public procurement schemes. Public authorities also provide indirect support for such markets through the internalisation of externalities at the waste management phase and upstream raw material extraction.

However, market failures and barriers are constraining some markets.

The constraints in the markets for many potentially recyclable materials arise, in many cases, because such markets possess characteristics that undermine their efficiency. Factors such as information failures, technological externalities and market power can affect the prices, quantity, and quality of materials traded. In addition, market barriers such as search and transaction costs can have an adverse effect on market development. Ultimately, such market failures and barriers can even undermine the market entirely.

Information failures related to secondary materials can be an important constraint on market development.

If sellers possess information about the characteristics of potentially recyclable materials that is not available to buyers (except at prohibitive cost), there are strong incentives for sellers to place low-quality waste on the market since they will not be penalised for doing so, at least in the short run or when reputation effects are not present. This can result in a downward spiral in the quality of recyclable materials placed on the market. For instance, where collection schemes are not well-monitored, this can create a problem of water contamination in used lubricating oils.

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Initial perceptions (and misperceptions) concerning the quality of products made from recycled materials can be a problem.

Buyers may also be wary of entering the market because they do not have full information about the quality of the final product manufactured from recycled materials. In efficient markets such information is diffused effectively as market participants monitor the choices of other agents. However, for novel products – including those manufactured using recycled materials – there may be significant lags before this arises. Since initial buyers of such products are not rewarded for the information they generate for other market participants, take-up will initially be sub-optimal. This was thought to be a problem for recycled paper in former years, and continues to be a problem for retreaded tyres and other materials.

Technological externalities associated with product design can result in sub-optimal levels of recycling.

Similarly, if manufacturers are not rewarded in the market for designing products that are recyclable they are unlikely to do so even if it is in society's interest at large. Indeed, in many markets the increased complexity of product design and material use has driven up the cost of material recovery significantly. Clearly novel product design and material use brings benefits – otherwise, firms would not make such investments. However, in the absence of market signals that reflect the net benefits of recyclability, product design will be inefficient. Plastic packaging is an area in which such problems seem to be important.

Search and transaction costs can make it difficult for buyers and sellers to find each other and conclude a “fair” transaction.

More generally, trade in recyclable materials can incur significant search and transaction costs. The markets are often diffuse or occasional, and in some cases include market participants with little market experience. Under such conditions it can be burdensome for buyers and sellers to find each other. Moreover, once they do so the effort expended to agree upon a “fair” price may be considerable due to the heterogeneous and uncertain nature of the commodities being exchanged. While these costs may fall with time, they can be important barriers for a prolonged period. Amongst others, markets for some kinds of construction and demolition waste have high search and transaction costs.

Power in markets for substitute primary material markets may restrict penetration of recyclable materials in some cases, but a greater concern may be lack of competition within markets for recyclable materials themselves.

There is little empirical evidence that the exercise of market power by virgin material producers has suppressed markets for recyclable materials. Moreover, there are also

arguments to support the view that market power in virgin material markets may serve to increase the use of recyclable materials. However, it may even be that power within the market for recyclable materials themselves may be reducing recycling rates. In cases where markets are primarily local in nature (*i.e.* construction and demolition waste), or when there are significant economies of density (*i.e.* wastepaper collection), there may be issues of market power in the recycling process itself which need to be addressed.

The extent to which such failures and barriers exist varies widely according to the recyclable material in question.

While there is evidence for the existence of some market failures and barriers, there is also a need to look in detail at the functioning of individual markets. Indeed, many markets appear to be relatively efficient, while in other cases there may be one or more significant market failures or barriers constraining market development. “Industrial” policies that address such market failures and barriers can be an important complement to more traditional environmental policies.

A range of effective policy measures that address specific problems has been developed.

Encouraging ever-higher recycling rates in an imperfect market may impose very high social welfare costs. In such cases it may be far less costly to address the imperfection within the market than to try and bring about increased recycling rates through increasingly ambitious recycling programmes. Relevant public policies for specific problems include:

- Search costs: Disseminate information to potential market participants (supply and demand), web exchanges to reduce costs of identification of market counterparts.
- Transaction costs: Develop standardised contracts, waste quality grading schemes for heterogeneous materials, establish dispute resolution mechanisms.
- Information failure: Introduce certification schemes, support for testing equipment, public procurement programmes, liability for product misrepresentation, and establish dispute resolution mechanisms.
- Consumption externalities: Carry out demonstration projects, put in place public procurement programmes, and disseminate information concerning product characteristics.
- Technological externalities: Implement extended producer responsibility, research and development on “design-for-recycling”, to develop product standards that incorporate impacts upon recyclability.
- Market power: To introduce and maintain general competition and anti-monopoly policy, market regulation of collection and processing that ensures competitive demand.

Such policies can effectively complement more traditional recycling policies.

The need for the use of policy mixes is emphasised. However, this mix relates not only to environmental policy, but also to market and industrial policy more generally. A thorough understanding of the markets and the means by which different policies interact with each other and impact upon the market is key to the development of the right mix. This is particularly so if one recognises that a number of “environmental” policies (*i.e.* extended producer responsibility) can impact significantly upon markets in which “industrial” policies (*i.e.* market regulation) are also operational.

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