

# The policy implications of sustainable consumption<sup>1</sup>

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**P**olicy makers are being urged to take measures that will ensure sustainable consumption. This paper seeks to clarify the meaning of sustainable consumption, with reference to the more generalised concepts of weak and strong sustainability. A review of how the concept is being applied internationally is provided. Welfare economics principles are then used to critique the concept and finally some key implications for policy are drawn: to implement policies that allow the price mechanism to signal resource scarcity to consumers; to define and promote equity goals; and to pursue natural capital management goals efficiently.

**Keywords:** sustainability, consumption, policy



## What is sustainable consumption?

The general notion of sustainability is vaguely defined and widely confused. The term is often used by authors, policy advisers and policy makers as a 'catch all' expression to advocate an individually determined position on resource use issues. This is reflected by the plethora of definitions to be found in the literature. Pezzey (1989) documented over 45 definitions of the concept over a decade ago. The rate of definitional generation has multiplied since then.

Despite the lack of a conceptual consensus, the fundamental theme of ensuring that the capital stock of society is able to continue to deliver well-being through time prevails at least in the economics literature. Capital in this context comprises natural capital, human capital, manufactured capital, and social capital. Stavins et al. (2002) considered this to require the 'efficient' use of all capital through time (i.e. there is no way of rearranging capital use to make people better off) as well as an 'equitable' distribution of well-being through time (i.e. well-being does not decline over time). This latter equity concern may be extended to involve the distribution of well-being within the current generation; however, the focus of this paper and the bulk of the sustainable consumption debate and policy response is on inter-generational equity.

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While definitional diversity is predominant, two fundamental variants emerge from the overall concept and it is on these themes that this paper concentrates. First, there is 'strong sustainability'. To achieve strong sustainability, society must ensure that its stock of natural capital is non-diminishing, for it is only then that well-being can be maintained. Advocates of strong sustainability argue that loss of natural capital cannot be recovered by having more of the other forms of capital. This is seen to be particularly relevant when 'irreversibilities' occur (i.e. once a reduction is made, it cannot be regained), such as emerge in the case of 'critical natural capital', including endangered species (Tisdell 2003; Randall 2006).

Advocates of the second variant – 'weak sustainability' – suggest that not only is substitution between the various forms of capital permitted, it may be a moral imperative; if the value to society over time that is generated by transforming natural capital into manufactured capital is greater than the value over time generated by leaving the natural capital intact, then the transformation should be undertaken. Otherwise, such an inefficient use of capital will mean that future generations will be needlessly worse off (Gowdy 2005).

Even though the core concept of sustainability is based on the use of capital stocks, either implicitly or explicitly, it has implications for consumption. Current and future consumption streams are dependent on the extent and type of capital stocks that are available. Furthermore, consumption is a key cause of changes in the level of capital stocks. Because consumption is fundamental to well-being, it is the impact on consumption of changing patterns of capital use that is the final arbiter of sustainability. By positioning this paper within the economics discipline, an anthropocentric, utilitarian philosophical framework is adopted. In other words, well-being is defined as a human construct. Hence, intrinsic values – those 'experienced' by other species or inanimate objects – are not considered.

Definitions of sustainable consumption commonly focus on the links between consumption and the ways in which

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the various forms of capital are used. This leads to a further expansion of the definitional space. The tenor of the definitions also changes to be more subjective. The interpretations involve perceptions that current consumption levels are not sustainable, that minimising the use of capital while reducing waste and pollution is good, that 'environmentally friendly' or 'green' product consumption should be encouraged, and that the current generation should reduce its demands in the interests of future generations (Comin et al. 2007).

With this broadening of definitional scope, it is unsurprising that Connolly and Prothero (2003) commented on the vagueness of the overall concept of sustainable consumption, noting specifically that the scale, scope, comparative point of reference and time horizon remain unclear. Mont and Pleypys (2007) specifically criticised the definitions for their lack of consensus on key elements, such as the level at which consumption is sustainable, and the paucity of agreement on strategies to attain the goal. Connolly and Prothero (2003) suggested that consumers are even more confused by the concept, equating sustainable consumption with green products and recycling, without acknowledging the link between capital use and the level of consumption.

The link between sustainability, as defined by capital use, and consumption is through the production process. Production involves the conversion of capital into goods and services for consumption. Hence, the continued ability of capital to generate well-being for consumers is not just a matter of the on-going availability of capital but also its productivity. Innovations (sourced from human capital and motivated by institutional structures broadly defined as social capital) have been key to society's capacity to gain increasing levels of consumption, and hence well-being, from the available stocks, particularly of natural capital. The prospect of 'de-coupling' rates of growth of consumption from rates of growth in capital use has been particularly attractive to those seeking sustainable consumption as a policy goal. For instance, some forms of capital, notably human and social capital, can be accumulated over time, evolving and building from generation to generation. Hence, acts of consumption may not be associated with the depreciation of all forms of capital. Measures such as the 'energy intensity of consumption' have been developed in this light.

However, Sanne (2002) and Clark (2007) pointed out that improvements in productivity can bring reductions in the prices of goods and services. The consequence thus can be increased overall levels of consumption and concurrent increases in the extent of capital use. This 're-bound

effect' therefore acts against the prospects of de-coupling. In addition, increasing economic wealth and population increases have also worked against the de-coupling effect.

With the apparent ineffectiveness of productivity increases to generate reductions in pressure on the capital asset base, achieving sustainable consumption is often taken to involve either reductions in overall consumption or forms of consumption that are perceived to be wasteful. There are two fundamental models of achieving this goal. The first is based on the notion of weak sustainability and relies on the voluntary actions of consumers in response to educational campaigns and market signals. In other words, not only are people taught not to want non-sustainable consumption options, but these options are priced out of their range. The second involves more strident actions by government, consistent with the concept of strong sustainability, whereby some consumption options are not permitted. The policy paths for these two alternatives are starkly different.

Barber (2007) promoted 'voluntary simplicity', whereby consumers are educated, often by public interest organisations, to raise awareness of the impacts of consumption activities, under a 'right to know' regime regarding the pollution and health risks being experienced. In contrast, Mont and Pleypys (2007) asserted that governments need to change the institutional frameworks in society and create conditions in which less materialistic aspirations prevail, supported by producers delivering less resource-intensive products and services. Their argument essentially involved government acting to replace one form of social capital that holds materialism in high esteem with another that provides incentives for frugality.

The incompatibility of these two approaches was noted by Comin et al. (2007), who acknowledged the clash between the individually subjective preferences of the consumer, and the associated notion of consumer sovereignty (the 'bottom-up' approach), and the compulsion implied by strong sustainability, whereby a universal system of values is imposed on individuals (the 'top-down' approach). Manoocheri (2002) noted that the latter is likely to enjoy little political enthusiasm given the ease with which it can be cast either, or both, as an attack on growth and development, and a restraint to personal freedom.

## Applications

The concept of sustainable consumption, despite its definitional vagrancies, has increasingly appeared in high

level policy directives and guidelines. At the 1992 United Nations Conference on Environment and Development, Agenda 21 - a plan for achieving sustainable development in the 21st Century - was adopted. Chapter 4 of Agenda 21 was titled 'Changing Consumption Patterns', and included the objectives to:

- promote efficiency in production patterns, and reduce wasteful consumption in the process of economic growth, taking into account the development needs of developing countries
- develop a policy framework that will encourage a shift to more sustainable patterns of production and consumption (UNDESA 1992).

Also in 1992, the Commission on Sustainable Development was formed to monitor and report on sustainable development. Subsequently, in 1999, the United Nations published a set of voluntary sustainable consumption guidelines (UNDESA 1999) to aid in policy-making by governments. These guidelines promoted:

- sectoral resource policies for land-use, transport, energy and housing
- information programs to inform consumer choices
- removal of subsidies that promote unsustainable patterns of production and consumption
- sector-specific environmental management best practices
- encouraging design of products that are energy and resource efficient
- encouraging recycling and purchase of recycled products.

In 2002, following the World Summit on Sustainable Development, the Johannesburg Plan of Implementation was agreed (UNDESA 2002). It called upon all governments to 'change unsustainable patterns of consumption and production'. The Plan asked countries to promote the development of a ten year framework of programs called the 'Marrakech Process', which involved:

- identifying specific activities, tools, policies, measures and monitoring and assessment mechanisms, including, where appropriate, life-cycle analysis and national indicators
- adopting and implementing policies and measures aimed at promoting Sustainable Consumption and Production (SCP) patterns, applying, inter alia, the polluter-pays principle

- developing production and consumption policies to improve products and services
- developing awareness-raising programmes on the importance of SCP patterns, particularly among youth and relevant segments in all countries, through education, public and consumer information, advertising and other media
- developing and adopting consumer information tools to provide the information related to SCP.

Despite these initiatives, a review of the implementation of sustainable consumption (UNEP and Consumers International 2004) found that many countries had implemented policies aligned with sustainable consumption. However, it also found that there was still confusion about the concept's definition and how the UN guidelines could be implemented.

The focus by governments that responded to these high level directives and guidelines was initially on separate policy actions on the consumption and production sides, with a greater focus on the production aspects of sustainable development. The primary elements of a production centred approach are often cleaner production approaches, product design, and promotion of environmental technology (UNEP 2002).

Notwithstanding this separation in the policy response, sustainable consumption and production are clearly linked, and part of the overall supply chain for a product. Both the OECD and UNEP encouraged governments to integrate programs and policy measures that independently tackle supply and demand side factors (see for example OECD 2002). UNEP stated that the focus of more recent efforts is both to alter patterns of consumption by changing the form of what is consumed, and shifting the value of consumption towards less material- and resource-intensive products and services (UNEP 2002). UNEP (2001) elaborated and clarified the idea of sustainable consumption as encompassing:

- efficient consumption – making goods and services resource efficient
- different consumption – changing patterns of consumption
- conscious consumption – focussing consumption on improving quality of life
- appropriate consumption – making patterns of consumption, and their effects, the focus of social and political debate.

Hence, there is a range of policy mechanisms that could be introduced by governments. These range from information and education programs, to economic incentives and mandatory standards, bans and regulations. Not all available policy mechanisms have been widely applied. The most common instruments that governments have used to target sustainable consumption have focussed on information and awareness raising and consumer protection; policies promoting recycling and use of recycled products; government procurement; and product bans.

UNEP (2002) concluded that policy implementation at the national level has been limited. Amongst the most widespread are initiatives focussing on re-use and recycling, eco-design, eco-labelling and certification programs, product testing by consumer groups, and awareness-raising campaigns. In some areas, such as recycling, implementation was found to be high, with a recent survey finding that 82 per cent of countries had implemented some form of recycling practices (UNEP and CI 2004).

### **An economic critique**

The fundamental issues that, for the economist, are inherent in the concept of sustainability, and hence sustainable consumption, are those of efficiency and equity in the use of capital. These issues are the dual focal points of welfare economics. Hence, it is useful in the consideration of sustainable consumption as a policy goal to investigate the issue using welfare economics principles.

Efficiency in welfare economics involves adherence to three conditions:

1. production efficiency, which requires that rates at which inputs can be substituted for each other in production processes be equal. This ensures that any potential for increased output being derived from a reorganisation of resource inputs is exhausted
2. consumption efficiency, whereby the values of goods held by individuals are all the same. If there were differences in marginal values, there would be potential for trade between lower valued and higher valued consumption
3. efficiency in exchange, so that the costs of extra production are made equal to the additional values of consumption via price. Prices signal to producers the willingness of consumers to pay to have resources allocated to meet their demands (rather than an alternative use); and to consumers the willingness of

producers to accept and to mobilize resources accordingly.

Price is therefore critical to efficiency, since it signals the relative scarcity of resources. It is the key to ensuring co-ordination between producers and consumers. Prices transmit information regarding the relative strength of preferences and the relative scarcity of resources. Markets, in setting prices, act as information generation and transmission devices to co-ordinate the actions of millions of people in the allocation of scarce resources. Specifically, prices reflect the relative scarcity of resources so that consumers can judge if they are willing to pay enough to have resources used for their benefit.

The process of information transmission performed by prices is dynamic as well as static. Future consumption and future supply are taken into account in the price determination process. To understand how markets act to signal 'inter-temporal' efficiency, it is useful to consider the two types of value a resource can yield: 'use value' arises when a resource is allocated for current consumption and 'asset value' is generated when a resource is available for use in the future.

The 'asset value' reflects the benefits expected from future consumption. Owners of a resource weigh up the relativities of 'use values' and 'asset values' when deciding whether to sell the resource now for current consumption or to hold it for future sale and consumption. Hence, if a resource owner expects strong future demand (with consequentially higher future prices), they may decide to postpone use. Therefore, while the preferences of future generations of consumers cannot be directly incorporated into current resource use decisions, current resource owners do incorporate their expectations of the preferences of future generations of consumers into current resource use decisions – with subsequent rewards commensurate with how well future preferences are anticipated.

Market forces are well equipped to integrate new information on relative scarcity, brought about by changes in production and consumption efficiencies and expectations as to future consumption preferences. Through the decentralised process that involves the combined knowledge of all who operate in the market, information on how resources can be used to best effect, minimising waste in production, consumption or exchange, both now and in the future, is conveyed to resource managers to ensure 'efficiency' in resource allocation. Signals of relative scarcity are transmitted quickly, at low transaction costs. New discoveries are factored in. Expectations of reserves of resources are

continually being integrated into the price formation process.

Put simply, prices formed in markets are a (potentially) low transaction cost method of signalling resource scarcity to both producers and consumers. The 'getting the prices right' dimension of sustainable consumption therefore involves an analysis of the fundamentals of markets in providing the institutional settings (components of social capital) that will ensure the formation of 'accurate' price signals. Specifically, for markets to generate prices that perform the role of signalling resource scarcity, resources must be owned so that property rights are defined across all resources; well defended by society; and tradeable without restriction to competitive processes.

Numerous resources lack well-defined property rights and, therefore, markets are either missing or incomplete. For example, markets do not exist for so-called 'open access' resources (e.g. the atmosphere, biodiversity, fisheries beyond the 200 nautical mile economic exclusion zone, and so on), while markets are incomplete where property rights are not fully defined (e.g. fresh water fisheries, water, and so on). In other markets, competition may be compromised where collusion amongst buyers and sellers is possible.

Where property rights are attenuated, markets will not be able to deliver efficient resource allocation statically or dynamically. For instance, rights to the knowledge that an endangered species is protected cannot be well defined or defended against use by those who do not pay for access. In such cases, the role of markets, through price formation, to generate the information necessary for consumers (and producers) to make decisions that are sustainable in the sense of a dynamically efficient allocation of resources is compromised. Prospective policy mechanisms that would make for more accurate flow of information to consumers deserve careful consideration in these circumstances.

In addition, efficiency, or the maximisation of wealth, is not the sole determinant of social welfare. Modern societies are also concerned about the equitable distribution of wealth. Equity must be defined in terms of both the distribution of wealth within the current generation and between this and following generations.

Importantly, changes in the distribution of wealth would lead to changes in the expressed willingness of consumers to have resources allocated to meet their demands, giving rise to new market equilibria at new prices. Indeed, conceptually, every distribution of wealth

gives rise to a specific and unique set of efficient prices. So, if the initial distribution of wealth is changed, the prices that form to ensure efficient allocation will also change. To determine the 'best of the best' distribution and allocation, a decision must be made as to society's most preferred distribution of wealth amongst the current generation (intra-generational equity) and between the current and the future generations (inter-generational equity).

The decision as to the 'best' distribution (that is, what is equitable or not) is of course subjective and determined by the existing position of the individual making the choice in society. It is unlikely that a rich person in the current generation will make the same selection as a poor person in some future generation. Disagreements will arise even within the current generation. Debate is therefore inevitable.

Hence, because sustainability is most often defined in equity terms as well as in terms of efficiency, it is not surprising that there is no clear picture as to what is sustainable and what is not. The debate regarding the 'best' distribution of wealth and resources is reflected in the debate regarding 'sustainability' – value judgements and subjectivity reflect individuals' pre-conceptions of what is 'right and fair'.

The concept of intergenerational equity being achieved through market forces is further compromised by differences in the ways individuals feel about the relative importance of future values compared to society's 'time preferences'. Individuals are likely to value the future less than society because, whilst individuals have a finite lifetime, society does not. This is what Pigou referred to as the 'faulty telescope' that individuals use to assess the future. The 'asset values' of resources formed on the basis of individual decisions in markets are thus likely to be lower than the asset values held by society as a whole.

A related issue is the extent to which individuals act differently as consumers and as citizens. For example, a consumer may place no value on buying 'greenhouse friendly' products when at the supermarket, yet as a citizen may make representations for, or even vote for, policy settings that impose costs on the community to reduce greenhouse gas emissions. There may be two reasons for such apparent contradictions. First, seeking community-wide action may merely be rent-seeking behaviour where the individual seeks to have others in the community bear a greater part of the costs involved. The other reason may be that the individual is not prepared to contribute to the solution at personal cost

unless they believe everyone will contribute. The latter is the classic 'free-rider' response to open access goods.

The result of consumers with individual time preferences, rent-seeking behaviour, and varying notions of fairness, acting in a laissez faire market system, will be the speedier use of resources. There may also be societal concerns that prices are too low now, and that this encourages too much consumption and resource use by the current generation relative to future generations (either through direct consumption or alienation through pollution or other processes). Put simply, the concern is that current generations are consuming 'too much' and leaving 'too little' for future generations.

In summary, markets will often fail to deliver prices that accurately reflect resource scarcity from a societal perspective, taking into account potential 'efficiency' failures, perspectives on a more 'just' distribution of wealth, and disparities between individuals' actions as consumers and aspirations as citizens. This lies behind the desire for a sustainability paradigm to guide social choices.

## Policy implications

Given prevailing views across the citizenry that we are currently consuming 'too much', governments have adopted a pragmatic policy focus to reduce pressures on the resource base – so that we are at least moving towards more sustainable resource use patterns, albeit towards an ill-defined goal. Accordingly, sustainability policies have emphasised 'doing more with less'. Governments have looked to apply this concept across the supply chains that link capital stocks to consumption, with a long policy history of promoting technical efficiency in input use at the production stage and maximising resource recovery at the waste disposal stage.

The 'waste hierarchy' for example, has been a driving policy principle in Australia and overseas for many years. This hierarchy decrees that waste avoidance is preferable to re-use, which in turn is preferable to recycling, which in turn is preferable to disposal. It is premised on maximising material recovery without any regard for the societal costs in doing so.

More recently, policy interest has broadened to promote reductions in resource use at the consumption stage – that is, the pursuit of 'sustainable consumption'. The fact that governments have sought to promote policies across all aspects of supply chains to address a capital stock issue is salient to developing a framework with which to critique sustainable consumption policies.

Policy instruments are most likely to be effective when focussed at the point of incidence of market failure in supply chains. As instruments become more broadly applied across product supply chains, the link between behavioural responses sought by the instrument and (environmental) benefits becomes more tenuous, reducing the effectiveness of the instrument. So, for example, the exploitation of native forests can be controlled effectively through forest access policies, which could be regulatory or market-based (such as tradeable quotas). On the other hand, policies to increase the use of recycled paper, as an example, may be ineffective where the wood fibre for paper is primarily sourced from plantation forests that do not contain the ecosystem values of native forests.

However, there will be instances where policy may be more effectively and efficiently applied beyond the point of the capital stock, such as at production or consumption stages of supply chains. One example would be climate change, where there is neither an existing market for this 'natural capital' nor a mechanism to regulate climate change directly. If greenhouse gas emissions can be shown to be very closely linked to climate change, policy interventions could focus on managing these emissions as a proxy for climate change. A significant debate centres on whether it is more effective and efficient to regulate greenhouse emissions at the 'upstream' stage associated with the production of energy or at the 'downstream' stage associated with the consumption of energy; key determinants include the extent of transaction and enforcement costs associated with different policy designs.

Additionally, many commentators, such as Walls and Palmer (2000), have concluded that different policy instruments are needed to address different policy problems (the 'Tinbergen Principle'). Rarely can one instrument fully internalise multiple externalities or efficiently deliver multiple efficiency and equity goals. Hence, broad policies, that seek to reduce production or consumption across multiple sectors and are pertinent to multiple resource flows, are likely to be blunt and inefficient.

Mandating consumption behaviour is likely to introduce inefficiencies as individuals are not free to choose their preferred outcomes. Hence, the marginal values of consumers are unlikely to be equated. Some people will have marginal values that are higher than those of others for whom limits on personal consumption levels are imposed.

This means that there will remain opportunities for reallocation of resources that will create net gains and

hence avoid waste. Furthermore, by restraining consumption, rather than allowing prices to ration resources, the incentives for consumers to develop substitutes or find ways of reducing their consumption are reduced.

Manipulating consumption availability (for instance, the banning of one good and mandating a substitute) is also an opportunity for rent-seeking behaviour on the part of the producers of the substitute. Similarly, vested interests will take the opportunity to impose their preferences on the rest of society. The consequences are unequal marginal values and hence inefficiencies. Such policy reflects a paternalistic view on the part of government that may not sit well, politically, with the public.

The imposition of inefficiencies or provision of opportunities for rent-seeking need to be weighed against the potential benefits sought through changing resource use patterns. In light of uncertainty with regard to future generations' conditions (the availability of resources and the extent of demand), can the imposition of government regulation regarding consumption be justified at all? That is, even though markets cannot perfectly signal future demand and supply conditions in current prices, this does not necessarily imply that government intervention is justified.

As is the case for addressing market failures on purely economic efficiency grounds, intervention to promote alternative patterns of resource use should demonstrate the necessary and sufficient conditions. These include that there is a failure of markets to deliver resource use that is consistent with economic efficiency and equity goals; and that the benefits from introducing the policy intervention exceed any costs.

The appropriate policy stance is not simply to impose intervention when market failures are evident. They are, and will always be, evident. Rather, the intervention proposed needs to be assessed relative to the non-intervention scenario because the intervention of government will not be perfect either. Policy is thus a matter of relative imperfection. Can governments forecast supply and demand conditions more or less effectively than the marginal contributions of self-interest-motivated individuals? And of the various policy interventions available, which will achieve the policy goal at least cost or maximum benefit.

## Policy principles

As argued in this paper, sustainability has essentially been interpreted as a capital stock issue where the challenge is to identify the optimal temporal path of

using capital resources. From a government's perspective, this is complicated by an inability to measure capital stocks and rates of use. For this reason, governments have been encouraged to address market failures and impose (inter-generational) equity constraints on resource exploitation and to allow markets to perform the detailed production and allocative tasks that 'reveal' efficient patterns of resource use.

For governments to identify a specific consumption pattern that would align with efficiency or equity, optimal use of resources poses the same informational challenges as faced by the market. It requires knowledge of the full range of production possibilities across the economy; their technical conversion efficiency; knowledge of the nature, extent and location of production externalities, ranging from environmental to public health, to social amenity, and so on. It necessitates similar knowledge in relation to transport, storage and distribution possibilities. Moreover, it requires knowledge of consumer wants and relative preferences, the values that they place on convenience, hygiene or fashion, for example, as well as knowledge of waste management, recycling and disposal opportunities.

Given the information deficiencies and asymmetries that governments face in trying to determine a desirable consumption pattern for even a single commodity – given production and consumption substitution effects – a policy approach directed at identifying and promoting 'preferred' consumption patterns would appear doomed.

And even if it was possible, given the dynamic drivers behind resource condition, production efficiencies and consumer demands, any identified consumption pattern would be only temporarily relevant. This would be as useful in setting resources policy as a single stock market index number would be to guide industry policy.

So, while observed consumption levels may be useful from an environmental reporting sense, indicating (possible) shifts in pressures on the resource base, they provide limited value to policy-makers and should not be allowed to cloud sustainability policy. Meaningful sustainability policy must relate back to the underlying resource base, regardless of where, in supply chains policy, interventions are judged to be effective and efficient. That is, in some instances, sustainability objectives may be best promoted through policies at the consumption stage of supply chains, but seeking to promote a specific consumption outcome in its own right is not only misguided, but may lead to perverse sustainability outcomes!

Accordingly, policy principles that relate to sustainability in its broader sense of fostering the optimal use and allocation of resources are preferable to those based on a notion of fostering sustainable consumption per se. Three such principles and guidelines are detailed below.

### **1. Promote markets that convey resource allocation signals efficiently**

Move to ‘get the prices right’. Extend the market resource allocation process to include resources for which property rights have previously not been well defined or defended. Allow market processes to define the resource scarcity signals, generate knowledge as completely as is feasible given the extent of the transaction costs associated with establishing markets (relative to the transaction cost of government intervention). For example, introduce individually tradeable quotas (ITQs) in fisheries, pollution permit trading schemes, cap and trade water allocations, and similar industries. Adjust market prices using Pigovian taxes<sup>2</sup> that inject more accurate information regarding the scarcity of all resources, even those that are not marketed directly. Remove or adjust existing policies that have perverse incentives; these are policies that send the wrong signals to consumers, such as subsidies for consumption, potentially delivered via production subsidies (e.g. drought relief payments).

### **2. Seek to identify and promote equity goals**

From the wide variety of approaches developed across a range of disciplinary bases, two fundamental categories emerge from the economics literature for consideration here:

a. Stavin’s approach (see Stavins et al. 2002) is to ensure that policy measures are ‘potential equity improvements’. Hence, as long as the extent of gains from a policy is sufficient to allow the current generation to compensate future generations (even though no compensation is forthcoming, nor is a mechanism available to allow it), the policy should be enacted. This approach reflects the standard Benefit Cost Analysis approach of a ‘potential Pareto improvement’ being sufficient in a practical context, to accept a policy.

b. Randall’s approach (see Randall 2007) of calling into play specific ‘principles’ that guide the recognition of an equity improvement provides another pragmatic approach. An example is the use of ‘safe minimum standards’ in resource use. Under this approach, a

resource should be used up until the point where further use will compromise the well-being of future generations, unless there is an intolerable cost. Subjectivity remains in defining such thresholds, in addition to technical uncertainties regarding ‘break points’ in resource use trajectories.

### **3. Pursue natural capital management targets efficiently**

Where policies are specifically directed towards the equity dimension of sustainability – that is, modifying the rate of resource use by the current generation - a key role for economic analysis is determining the efficiency consequences. In other words, are the community-wide costs of achieving an alternative wealth distribution intolerable? Economic analysis can estimate the efficiency costs of an equity goal. In addition, economic analysis can help assess whether a proposed policy is likely to be the best policy to achieve the targeted policy goal. A ‘first principles’ test in relation to potential sustainable consumption policies is to ask:

- What resource stocks is this policy seeking to conserve? Are current levels of extraction or use considered ‘unsustainable’?
- Are there grounds to believe direct ‘resources’ policy would not be more efficient at performing this role (e.g. defining and then trading resource access quotas, levying resource rent taxes, etc)?
- Could policies at the production stage provide a closer link to the desired changes in resource use sought? Would policies at this stage be more efficient?
- Is it likely that policies implemented at the consumption stage of supply chains can effectively be conveyed to resource managers (e.g. could changes in imports or input substitution lessen signals for conservation of the targeted resource)?
- Could the resulting change in consumption patterns lead to worse environmental impacts?

### **Concluding comments**

The definition of sustainability, generally, and sustainable consumption, specifically, has been vague at best. In turn, government policies to promote these concepts have been varied and their performance has been indeterminable. Moreover, the concepts have been used as justification for a wide range of intervention strategies with popular appeal that has allowed their introduction without rigorous critique. Such policy

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<sup>2</sup> Pigovian taxes are levied on those who through their actions create costs for others (known as externalities). The extent of the tax is set equal to the extent of the costs created.

interventions, often of a coercive and regulatory nature, have occurred at all stages in production-consumption supply chains.

In this article, an economics-based approach has been used to clarify the definition of sustainable consumption, to critique existing policies, and to develop a set of policy guidelines. The goal is to ensure that policies invoked in the name of sustainable consumption satisfy core requirements of any public policy – that they are both efficient in their use of scarce resources and equitable in their treatment of people.

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