Realizing Sustainable Urban Form, the Role of Regulation and Market-Based Instruments

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Abstract— The discourse on sustainable urban form has been debating impacts of compaction and sprawl, whilst neglecting a major challenge, namely personal preferences and choices which might not confer with national and international policies and sustainability directives. Available means to influence and manage sustainable choices need to be brought into the heart of the debate as part of the higher goal of realizing sustainable urban form. Planning regulatory policy and market-based instruments can influence development patterns each in isolation, however, a combination of types of measure might best be applied. This paper reflects on planning regulatory policy drawn from a centrist and decentrist type of urban pattern exemplified in the UK and USA and available market-based instruments which can be combined with such policies as a means to achieve sustainable urban form.

Index Terms— Market-based instruments, Planning regulations, Policy, Sustainable Urban form.

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1 INTRODUCTION

IN In the last thirty years, planning has been influenced greatly by the hegemonic concept of sustainability. Subsequent to the Bruntland report, an emphasis grew on the prudent use of resources and improvement to the quality of life of current and future generations (Radovic, 2009). Cities are seen to play a pivotal role and urban form is regarded as a strategic factor determining sustainable development and sustainable life choices and perhaps the dominant discourse in urban sustainability debates (Breheny and Rookwood, 1993; Guy and Marvin, 2000). Concepts, theories and practices such as the compact city, growth management, multifunctional land use, smart growth, new urbanism and transit-oriented design have consequently evolved as sustainable forms of development (Hall, 1998; Lau et al., 2005; Ancell and Thompson-Fawcett, 2008; Vreeker, 2009).

The dominant idea of a dense, contained and well-connected city now prevails in many planning and city management policies in Europe, North America and elsewhere (Williams, 2007). However, densification might not be acceptable to residents whose main aspiration is large plots and who view the loss of space as a devaluation of their property. They also reject previous practices of intensification on grounds of congestion, localised pollution and noise, and occasional anti-social behaviour (Senior at al, 2006). These views are expressed in studies conducted in the UK, Europe, North America and Australasia (Breheny, 1997; Morrison and McMurray, 1999; Williams, 2004; Champion, 2004; Song and Knaap, 2004; Johns, 2005; Senior et al, 2006; Wilkinson, 2006; Scott et al, 2007; Christiansen and Loftsgarden, 2011).

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Notwithstanding supply and demand, personal values and tolerance for these various impacts shape choices about city or suburban living. A different attitude to the above is noticeable in Hong Kong (Hong Kong Government, 2002; Lau et al., 2005), and Helsinki (Schmidt-Thomé et al, 2013) where limited availability of land, high quality buildings, public spaces and efficient services and transport, make densification an accepted norm and residents value the vitality and convenience of an area where they can work, live and play.

The issue of producing desired settlements supported by personal values and preferences which are yet sustainable, remains the concern and aim of policy making worldwide. This paper investigates an important query: What means are available to the planning domain to best achieve sustainable urban forms? The challenge on the broadest level is managing and altering people's behaviour and preferences so that sustainable settlements develop as a result of their decisions/actions. This could be via policy approaches and/or economic instruments. Much of the research has been concerned with consequences of sprawl and compaction and more recently the drivers behind sprawl, but less attention has been given to ways of influencing current patterns.

The paper presents planning practice set in the context of two countries with different patterns; centrist (UK) and decentrist (USA) to explore available means to achieve sustainable forms. The UK witnessed one of the least increases in urbanized land in the period from 1990-2000, of 30 European countries, with an increment of 1.87%, and an average population of 4,100 per square kilometre of urban areas, compared to 1,100 in the United States (Arellano and Roca, 2010). Setting the debate in the context of the two countries is due to their clear representation of differing urban patterns. Changes in regulatory policies to accommodate and promote sustainability and hindrances to the achievement of sustainability are reviewed in both countries. The paper initiates a practical discussion that can further the goal of sustainable urban forms. It

presents an array of market based instruments that can be used in conjunction with regulatory policies to influence spatial development.

2 POLICIES TO ACHIEVE SUSTAINABLE URBAN FORM

Policies have been developed in various countries, adopting the concept of sustainability, and aiming to arrive at sustainable urban forms; whether compact forms or denser routes and nodes in growth areas outside a city's boundaries. Each country developed a set of policies reflecting their concerns. Examples are: the control of regional sprawl and the provision of low- and moderate-income housing in the US (Voith and Crawford, 2004), enhancing the economic and physical revitalisation of cities in Canada (Bunce, 2004), increasing residential densities in the city and in the suburbs in Australia (Searle, 2004), and developing mixed-use suburban centres to divert growth to planned areas in Canada and the Netherlands (Filion, 2001; Schwanen et al., 2004). Despite acknowledging that policies are context dependant and vary from one country to another, it is viewed that policy commands a powerful role in growth control, whereas market-self-regulation is rejected as a *primary* instrument to achieve sustainable patterns (Hesse and Trostorff, 2000 cited in Scheuer, 2006) as the market fails to consider the externalities associated with land markets as will be discussed at the end of this part.

However, economic tools such as Market Based Instruments (MBI) have been regarded as a means to influence the market behaviour and encourage sustainable choices. People with stable preferences will not voluntarily make a sustainable choice when their preference is otherwise, except if incentives change (Sharp, 2002). Political gains can be at odds with sustainable choices (Levine and Inam, 2004), and planning authorities facing local fiscal crisis might endorse sprawling urban development in the hope of boosting the local tax base (Anselmi and Pagliarin, 2013; Christiansen and Loftsgarden, 2011). A strong land use planning policy, economic incentives and local fiscal benefits associated with sustainable choices can gear urban development towards more sustainable forms.

2.1 Regulartory Planning Policies

The focus of policies have been on increasing the density of urban development, improving public transport, ensuring a mix of uses, controlling sprawl (Jones et al., 2010) and building on brownfield or greyfield sites rather than greenfield. Despite the use of policies as a means to regulate urban and rural development, encroaches on greenfield and low density development remain a common practice and most worrying, a demand and preference of dwellers, eagerly met by developers (Neuman, 2005). Policies setting higher densities are unlikely to change people's attitudes (Jenks and Dempsey; 2005). With the global economic market inciting the cycle of development (Harvey, 2001), we might witness an even further diminished role of regulation, seen as restrictive to growth. Planning policies might very well shift practice further from an 'active' to a 'facilitative role', necessitating a plausible policy package combining regulatory market based instruments in order to protect the commons and maintain the aim of sustainable urban patterns, whilst being conducive to economic growth. An

example of intensification policies (mostly adopted in Europe, exemplified in the UK) and another of growth management policies (mostly adopted in North America and Australasia, exemplified in the USA) are reviewed in the following two sub-sections to discern challenges to their implementation and their impact in so far as they have achieved their purpose.

The **United Kingdom** is an example where intensification policies are firmly established as a way of achieving sustainable development. Government policies adopted the principles of intensification through an Urban White Paper in 2000 (Jenks, 2009) however, the UK's commitment to sustainable development started a decade earlier (see table 1). The continuous aim is to arrive at compact, high-density and mixed-use urban forms; criteria synonymous with sustainability (DCLG, 2006).

TABLE 1
POLICIES IN THE UK REFLECTING A CONCERN FOR SUSTAINABLE
DEVELOPMENT

Year	Commitments towards sustainable development in the UK
1990	This Common Inheritance was the first comprehensive UK government White Paper on the environment
1991	Caring for the Earth, a Strategy for Sustainable Living (IUCN, UNEP and WWF)
1992	Towards Sustainability this was the fifth environmental programme published by the European Commission
1992	UK Government publishes a new Planning Policy Guidance Note 12, which requires land use planning to take account of global environmental concerns
1992	The United Nations convened the UN Conference on the Environment and Development (UNICED), (The Earth Summit) and published Agenda 21, plus other conventions and strategy documents
1993	DoE publishes the Good Practice Guide on the Environmental Appraisal of Development Plans
1993	DoE, Scottish Office and Local Government Management Board (LGMB) publish the Eco Management and Audit Scheme for local authorities
1994	UK Central Government published four separate publications Sustainable Development: the UK Strategy, Climate Change, Sustainable Forestry and Biodiversity
1994	Report of the Royal Commission on Environmental Pollution
1992-95	DoE revises the whole range of planning policy guidance notes, reorienting them towards sustainable development
1997	DoE: PPG1 General Policy and Principles provides a strategic view of the role of the planning system in contributing to sustainable development; summarizing other related documents stressing design considerations in planning (Frey, 1999)
1999	Urban Task Force report led by Richard Rogers providing guidance on land re-use and fostering urban renaissance
2000	Planning Policy Guidance PPG3 significant revisions made to increase housing densities and brownfield development
2005	Planning Policy Statement PPS1 setting out the overarching planning policies for the delivery of sustainable development through the planning system
2007	Sustainable Communities Act provides a statutory framework for councils to put forward proposals on sustainable improvements to economic, environmental and social well-being
2012	The UK Sustainable Development Strategy Securing the Future

Source: Barton, H. (1996), Frey (1999), ODPM (2005), HMSO (2007), DCLG (2012)

Context of UK Policy: There is a considerable amount of literature concerned with the methods used to implement urban intensification policies in the UK, particularly in the form of government reports, policy statements and planning guid-

ance notes, as will be briefly shown. There were two main drivers of policy. First, the global commitment to develop sustainable strategies for future development. Second, political pressures arising from urban decline and loss of population in English towns and cities, where the remaining population experienced economic problems and related social difficulties (Williams, 2004). Additionally there were issues concerned with traffic congestion, inefficient public transport and an increase in house building on green field sites enacted through government policies of deregulation (Bartuska and Kazimee, 2005). Hence there were pressures regarding urban regeneration and the protection of land outside cities. In these terms, policies regarding urban intensification were a way of tackling these problems, whilst at the same time research work suggested that this type of policy was a way of achieving sustainability objectives.

Responsive UK Policy: Since the 1990s a series of important policy changes have been made in the UK aimed at promoting more compact urban forms to achieve some sustainability objectives. In 1998 the Urban Task Force was set up to provide guidance on how to re-use land and foster an urban renaissance. The most significant policy changes were in planning policy guidance on transport and housing. Planning Policy Guidance (PPG13) on transport was revised to advocate clustering trip ends and raising densities to reduce car travel.
PPG3 on housing was revised significantly in 2000 to increase housing densities, to give priority to brownfield rather than greenfield sites, and advocated a sequential approach (brownfield sites are nominated for development before greenfield sites can be considered) to reduce urban sprawl. Prior to this, in 1998, a 'brown field target' was introduced, stating that 60% of all housing should be built on reused land. The revision of planning policy guidance notes to the current Planning Policy Statements (PPSs) has maintained this focus on sustainability, with PPS1 setting out the overarching planning policies for the delivery of sustainable development through the planning system (ODPM 2005). Further, the Sustainable Communities Act was enacted to provide a statutory framework for councils and communities to put forward proposals on sustainable improvements to economic, environmental and social well-being (HMSO, 2007). The act is meant to advocate changes to the law, specifying which body provides particular public services, as well as requiring the Secretary of State to publish statements detailing the public spending in the area on the services provided (LGA, 2010).

Critique of UK policy: Legislation in the UK is dedicated to the delivery of sustainability through controlling the land available for development, ensuring a mix of housing and enabling local communities to shape their surroundings. It has been considerably successful and Couch and Karecha (2006) point to the achievement of British policy at controlling urban sprawl and in encouraging urban regeneration in the last two decades, however, they doubt how much further market forces can be directed towards the production of more compact cities, given the inherent desire of the population for single family homes. Cheshire (2009) criticises containment and densification policies of the UK, as they restrict the supply of land, increase the cost of space exceeding the value of planning amenities generated. He recognises the benefits land use

planning generates, yet points to the significant cost associated. The alternative is to use other means to re-align market forces more effectively to the achievement of sustainable urban development. This is further discussed in section 2.3.

The **USA** adopted a policy other than intensification widely adopted in the UK, i.e. that of growth control which has shaped the policy agenda, out of recognition of the troubling rate of growth of low-density housing, commercial strip development and the associated problems of sprawl. Gillham (2002) states that in the seventies and eighties more than 95 percent of US and Western Europe population growth took place in suburban areas outside cities and that currently, in the US, more people live and work in suburbs than in cities. He warns that sprawl has emerged as the dominant development pattern.

Underwriting policies to the sprawling pattern: Neuman (2005) and Duany et al (2000) maintain that earlier policies and the wide array of government subsidies at all levels had a role in allowing sprawl. The policies that have encouraged urban dispersal in the USA are:
- Federal Housing Administration and Veterans Administration loan programs; post 2nd world war providing mortgages for new homes discouraging the renovation of existing housing stock, placing great emphasis on the construction of single-family housing (Duany et al., 2000).
- Federal investment in a 41,000 mile interstate highway program coupled with federal and local subsidies for road improvement and the neglect of mass transit (Duany et al., 2000).
- Zoning, introduced in the mid twentieth century as codes intended to bring light and air back to the city streets and homes and order to property values, separated land uses often promoting lower density development than those dictated by the market (Levine and Inam, 2004; Gillham, 2002; Knaap, 1998).
- The structuring and manipulation of real estate and urban development marketplaces through monopoly, since the great depression in the USA, supported low density development (Jackson, 1985).
- Difficulty of receiving government approvals for projects that do not fit the conventional format, and the related risk aversion on the part of lenders hence replicating status quo sprawling patterns (Laswick, 2002; Levine and Inam, 2004)
- Decentralised land ownership, fragmentation of governmental land-use authority following the model state planning and zoning enabling acts since the 1920s and disparities in the fiscal capacities of local governments further entrenched sprawl (Richmond, 1995, Knaap et al., 2002a).
- National and local codes promote wider roadways, separation of land uses, and technological rather than ecological responses. Substantial change is likely to take many years due to the lack of federal policy direction, the variety of state policy priorities and the numerous separate municipal jurisdictions with slightly different standards as well as neighbours exclusionary sentiment played out through local government intervention (Downs, 1999; Laswick, 2002).

Responsive policy: Recognition of the impacts and costs of sprawl has prompted policy makers in the US, to adopt growth management policies (Jabareen, 2006; Neuman, 2005;

Johnson, 2001; The Sierra Club, 1999). Greenbelts and urban growth boundaries are containment policies that have been used in the US, where the former aims at drawing a permanent tight belt around an urban area and the later defines a politically designated area, revised periodically, controlled by regulatory techniques such as zoning (Jabareen, 2006).

Johnson (2001) explains smart growth policies (mid 1990s) as another type of management programs based on a revision of land-use controls, which may be more politically appealing than urban growth boundaries because there is no fixed limit to growth; instead, incentives are designed to produce results that are similar to those derived from an urban growth boundary. Smart Growth principles of mixing land uses, directing development toward existing communities, preserving farmland and open space, creating walkable neighbourhoods, and providing a range of transportation choices, have been promoted as proposed changes to state and local laws in more than sixteen states (Laswick, 2002).

Critique of US policy: Robinson et al. (2005) examined the effects of growth management policies in Washington State's Puget Sound region between 1974 and 1998, and found that the aim of increasing housing densities within the boundaries was successful, yet 72 percent of land developed occurred in rural and wildland areas, questioning the effectiveness of their regulatory techniques. On the other hand, Neuman (2005) explains that the greatest savings gained from growth controls were in land consumed and infrastructure built, especially water, sewer and road facilities. In terms of the ability of regulation to improve environmental performance, Kahn (1999) modelling environmental damage associated with dispersion found that although household travel, energy consumption, and land consumption have increased as a result of suburbanization and migration, environmental impacts have been largely mitigated by regulations such as the Clean Air Act and the ability of individuals to provide incentives to developers not to develop on environmentally rich land. Knaap et al. (2002b) argue that environmental performance, as a measure, might not suffice to make a case for smart growth policies due to abundance of land and food production capacity in the USA, rather local demands and preferences to preserve land are more influential.

Despite recuperated regulatory policy in the USA, implementation is challenged with many aspects. Multiplicity of governmental jurisdiction undermines growth control which requires regional policy. Abundance of land and fiscal determinants are non-conducive to alteration of public preference for large plots, hence local decisions are geared towards sprawling practice. Indeed, Levine and Inam (2004) suggest that it is not the lack of regulations that present an obstacle to smart growth alternatives, but the willingness of local decision makers to employ regulatory function.

Merits and Limitations of Regulation

Policy intervention in land development has been shown to command a powerful role in preventing sprawl. However, real-world actors succumb to political pressures particularly where urban development decisions are decentralised and local actors are subjected to fiscal burdens. Nilsson and Nielsen (2011) emphasize that a decentralized system (such as that in the USA), together with a laissez-faire policy, weakens the potential to control land-use development.

Denmark, Britain and the Netherlands are acknowledged for their strong state regulations for land-use planning, effectively restricting sprawl (PLUREL, 2010). However, regulation can be seen as resulting in absolute prohibition of choice and reproducing same patterns of development rather than producing new ideas and solutions. Regulatory policies are criticized as resulting in a lengthy process of expensive and time-consuming bureaucracies and by distorting the market. Moreover, planning traditions, weak land use planning and lack of coordination among municipalities and other public and private entities are considered as causes towards urban sprawl (EEA 2006). Siegan (2005) argues against zoning, suggesting that it increases prices of homes by limiting supply, encourages sprawl by imposing restrictions on uses, densities and heights, and acts against the needs of disadvantaged groups. Carmona et al. (2010) maintain that perhaps it is not the fault of intervention through regulation that might be causing a problem, but of poor public intervention that has failed to allocate enough land and is based on a drivable suburban model of development (citing Leinberger, 2008), concluding that there might be good and bad regulation.

Government policies which do not outperform the market nor improve its function are considered as policy failures. That is because costs of planning, implementation and enforcement exceed benefits these policies might achieve, resulting in favouring of overexploitation of valuable and scarce resources (Panayoutou, 1992). Levine and Inam (2004) posit the problem of rarity of smart growth alternatives in the USA on a planning failure (lowering development densities, mandating ample road and parking, and separating land uses). Cheshire (2009) however, argues that policies of containment and densification in the UK limited land supply, and imposed considerable costs for economic agencies, suggesting the use of economic policies (taxes, incentives and price information) to preserve the role of regulation in offsetting market failure while relieving costs of policy-imposed supply restrictions. Pendall (1999) through a study to test policy-related hypotheses (both regulatory and economic) regarding sprawl in 25 large metropolitan areas in the USA, demonstrates that policy can indeed affect sprawl and reduce the primacy of consumer preferences.

The argument of whether policies or market self-regulation can effect changes, each on their own, or whether a combination of policies and economic instruments are required to alter unsustainable development patterns and public preferences is an important argument. Given the freedom of choice, people do not necessarily choose alternatives that preserve common environmental resources or conserve land. A preference for suburbia and rural areas is argued to be part of the culture of several nations as previously discussed. Economists have traditionally taken a sceptical attitude to the idea of persuading people to change their behaviour voluntarily as individuals with stable preferences will change behaviour only if incentives change (Sharp, 2002). Economic interventions are discussed in the following section.

2.3 Economic Policies and Instruments

Economists argue that public policy should be based on the rational use of market incentives. Of the three economic instruments available for government intervention, namely a) common values and norms (moral suasion), b) command and control (mandates actions and sanctions non-compliance) and c) market incentives. The latter is most appropriate in a heterogeneous society (Bulte et al., 2003) with various stakeholders and different preferences.

Market based instruments (MBIs) are *'regulations that encourage behaviour through market signals rather than through explicit directives regarding pollution control levels or methods'* (Stavins, 2002), hence the government or regulator's role is restricted to providing the legal and institutional framework altering economic incentives private sectors face, rather than interfering with the conduct of the business, leaving actors decide whether and how much to change their behaviour (Bulte et al. 2003; Jack et al., 2008).

Stavins (2002) explains that if MBIs are well designed and implemented, they encourage firms and/or individuals to undertake environmental efforts that are in their own interests and that, collectively, meet policy goals. Also, establishing property rights (in legal or physical space) is consistently encouraged by economists as a first step towards efficient management of resources, particularly of land (Bulte et al., 2003). Types of MBIs have been described in the literature and generally fall into four categories (see Fig 1), these are: charges (taxes, user fees, impact fees), tradable rights/permits, reductions in market frictions (through improving information flows and reducing transaction costs) and reductions in (inappropriate) government subsidies (Sharp, 2002; Stavins, 2002; Whitten et al, 2004; Hatton McDonald et al, 2004; European Environment Agency, 2005; Jack et al., 2008). A wider notion of charges is price-based market instruments that include charges as well as financial incentives (Whitten et al, 2004). Congestion charges are an example where evidence from London and Stockholm support claims that they have changed consumer-demand behaviour (Transport for London, 2007; C40 cities, 2008).

Merits and Limitations of MBIs

There are four main arguments in the literature in favour of economic instruments (EIs) as concluded by Bulte et al. (2003), mostly generated in the context of managing polluting industries. First, EIs arrive at the '*least cost*' because of a quest for efficiency and profit among agents in the economy. The regulator sets conditions whilst allowing agents to trade their quotas (or permits) which had been allocated to them by the regulator or sold via an auction, thereby generating revenue for the government. Taxes on the other hand internalise costs and the regulator sets it at an optimal level to account for external costs and user cost, particularly when property rights are insecure. Second, EIs are '*easier to enforce*' than command and control regulations where there is more transparency in trading mechanisms. In all cases (regulations or EIs or both) there is a need for enforcement and monitoring. However, it can be argued that enforcement can be reduced when property rights

are secured as it would be in the owner's interest to sustainably use a resource and though access to the resource would still be enforced, the costs associated with enforcement, to a large extent, will be borne by the owner rather than the regulator. Third, EIs provide '*dynamic incentives*' to change products and processes and adopt technological advancement in order to sell permits or avoid buying them or avoid paying taxes. Lastly, EIs may '*raise revenues'*, for rather than hand out tradable rights, auctioning them can raise revenue similar to taxes.
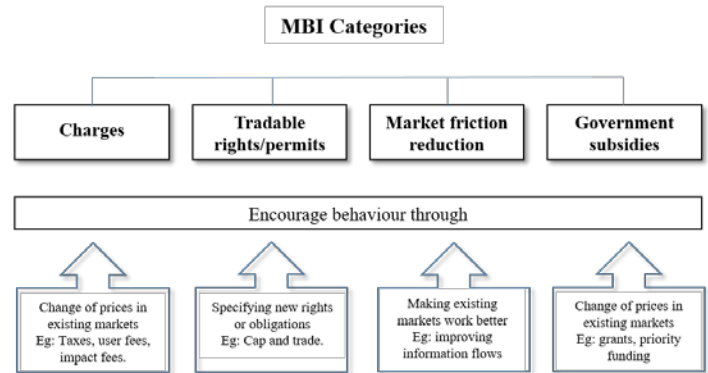

Fig. 1 Categories of Market-Based Instruments

Limitations include: institutional weakness (allowing free riders to benefit); design weaknesses (grasping full costs to the environment and future generations); legal gaps (what authority assigns property rights and enforces contracts, national taxes versus local taxation and local direct benefit); strong political and special interest opposition; also community perception – seen as the ability to pay to pollute (Jack et al., 2008, Cheshire, 2009). Similar to the last point, incentive zoning (popular in the USA) is abused by developers who use the granted bonus as of right entitlement to increase floor space, building heights and volumes regardless of impacts (Lou

Stavins (2001; 2002) builds on evidence from the US to conclude that MBIs can achieve cost savings while accomplishing their environmental objectives. However, they do not always perform as expected because political preoccupation with distributional concerns can affect their efficiency and cost effectiveness. Johnson (2001) points to the difficulties of designing market based policies that enforce the full-cost principle where all users are expected to pay the full cost of environmental exploitation, resorting to cost-effectiveness (achieving a goal at the least possible cost, eg pollution rights trading). He recommends that policy initiatives based on economic models should incorporate economic incentives linked to measurable externalities and risk associated with development, deterrence strategies such as monitoring and enforcement, and longer-term strategies and investments. Yet Cheshire (2009) adds that to place an exact valuation of environmental or amenity benefits associated with any parcel of land is an impossible task. Johnson (2001) also points to the difficulties over ownership rights of resources and needs of future generations, partly addressed by the property-rights principle (endorsing ownership of local communities over environmental resources within their borders). The European Environment Agency (2005) considers that MBIs work best. where the following criteria apply.

Firstly, that they are well designed in themselves and are part of a wider package of instruments. Secondly, that the reasons behind them and how revenues will be charged are clearly communicated. Thirdly, that the levels at which 'prices' are set reflect both an incentive to producers and consumers to change behaviour and a realistic analysis of affordability.

3 REGULATORY POLICIES AND MBIS IN THE PLANNING DOMAIN

The means by which unsustainable urban patterns can be reversed through persuading consumers to choose sustainable alternatives is the concern of this paper. Planning is regarded as a non-market based instrument where practice- and process-based standards are put in place to regulate development (Hatton Macdonald et al, 2004). Research confirms that impact fees, property tax incentives or selective tax waivers for developers, investors, and residents can play a significant role in improving the physical and economic environment in cities (Pendall, 1999; Knaap et al., 2007; Adair et al., 2003; Cadell et al., 2008; Williams 2008; Williams and Boyle, 2012). Indeed, Pendall's study (1999) concluded that requiring developers to pay the incremental cost of new infrastructure is preferable to policies such as low-density zoning and building-permit caps. Knaap et al. (2007) cite Maryland's approach to smart growth and stipulate that its popularity lies with its foundation on incentives (impact fees) rather than regulations. Similarly, Cheshire (2009) argues that in the UK, planning policy should use impact fees to ensure that costs of urban development internalised most of the externalities leading to market failure in land markets. Currently there are no impact fees within the planning system, however there are environmental taxes for other domains (Climate Change Levy to tax energy use in industrial and commercial uses, Aggregate Levy for quarrying activities and Landfill taxes). A betterment levy has been introduced in 2013 in the planning domain; The Community Infrastructure Levy which is a tool for local authorities in England and Wales to help deliver infrastructure to support the development of the area (DCLG, 2014).

Nonetheless, tax-based measures need to operate within a clear robust planning, regulatory, and budgetary framework (Williams and Boyle, 2012; Jones et al. 2010). Types of market failure in urban land markets have been summarised in three points by Cheshire (2009). They are: 1) the inability to recognise the locational specificity and how the value of a plot of land is strongly influenced by the uses and characteristics of neighbouring plots, 2) unpriced costs of congestion caused by new construction on existing urban areas, 3) inability to measure the amenity value of land-consuming public goods such as green space. And according to Ellin (2006) one might add 4) the inability to measure things that do not have obvious financial value such as the purity of air and water or the quality of our communities. Successful policy would ensure that urban expansion maximised the positive agglomeration gains from growth, internalised environmental and social costs, minimised the impact on space costs and congestion, and provided optimal quantities of land-consuming public goods.

Examples such as planning gain supplements and commu-

nity infrastructure levy (a betterment levy) and financial subsidies (urban development grants, derelict land grants) in the UK (Williams and Boyle, 2012) and development contributions in New Zealand (section 198 of the Local Government Act 2002) as well as resource consent charges (Perkins and Thorns, 2001; Jackson and Dixon, 2007), are ways in which the planning system can harness assets. Examples from the US are (Knaap et al. 2002a): *Tax Increment Finance Districts*, considered as a sort of betterment levy where the public sector may receive a higher proportion of the tax revenues generated by a development, had it made considerable investments in spatial quality; *Priority Funding Areas:* designated areas where the state or national government provides extra funds for investments in urban infrastructure; *Location- and energy-efficiency mortgages*: higher loans for energy-efficient homes and for houses built in existing urban areas (or those closer to the city centre) where the cost of living (including transport) is lower; *Vacant land tax*: a tax on vacant land in urban areas left undeveloped by landowners speculating on the property market; *Transferable development rights*; *Live near your work schemes* that subsidize moving near your work by one-off cash payments (employers, local government and state government joint scheme). Also, incentive schemes and demand-focused real estate can be instrumental in encouraging sustainable choices. These are summarised in table 2.

TABLE 2
MBIs in the Planning system in the UK (centrist) and USA & New Zealand (Decentrist)

MBIs	UK	USA
Charges (Taxes, user fees , impact fees)	Community infrastructure levy	-Vacant land tax -Resource consent (NZ) -Development contributions (NZ)
Tradable rights/permits (Cap & trade)	Tradable emissions permit (env)	Transferable development rights
Market friction reduction (Improve information flow)	Planning statements /Guidance	Planning Guidance
Government subsidies (Grants, priority funding)	-Planning gain -Urban development grant -Derelict land grant	-Tax increment finance districts -Priority funding areas -Location & energy efficiency mortgages -Live near your work scheme

4 DISCUSSION

Planning regulatory policies have proven to organise the spatial patterns of urban and suburban areas, however their ability to further influence the market and people's preferences is challenged. In the USA, political difficulties arise in giving planning an active role rather than a facilitative one and in public expenditure commitment to intensification, while administrative difficulties arise at the level at which sustainable planning is tackled (local or regional). In the UK, rising land prices, latent responsiveness of supply to demand and costs incurred by the planning process are criticised (Barker, 2004;

Corkindale, 2007; Cheshire, 2009).

On the other hand, markets neglect the value of non-financial aspects such as environmental quality and the quality of communities (Ellin, 2006), resulting in poor developments and place-making, marking a market failure (Carmona et al., 2010). Hence, public sector intervention and regulation is needed to protect property rights of other landowners and the rights of society at large against inappropriate development (Carmona et al., 2010).

Therefore, the question is not whether to intervene but what type of intervention and how it occurs (Carmona et al., 2010). There is a need for clear frameworks and legal structures in which to operate MBIs and consistent governance across regional and local levels for them to function predictably (Hatton Macdonald et al, 2004; William and Boyle, 2012). MBIs are regarded in a positive light, promoting individual freedom where regulation might restrict it. Sharp (2002) states that regulation (interpreted as command-and-control) will not produce the desired outcome at least cost. In addition he considers that devolving rights to communities, empowering them to manage local resources and providing them with technical (and possibly financial) assistance is a powerful instrument. Cheshire (2009) points to an important issue, that of incentivising local planning authorities fiscally so that there is a net revenue to local communities. He argues that there is greenbelt land that can be released if the benefit is shown to exceed environmental, amenities and economic agglomeration values. A bottom up approach to policies can help build consensus regulatory imperatives and market demands. The role of regulation remains central to the achievement of sustainable patterns as discussed. Advocates of economic instruments do not support the abolition of land use regulation altogether as they realise that the system produces benefits but perhaps not at the least cost. Also economists are sceptic to voluntary suasion as people only change their stable preferences with incentives and charges.

5 CONCLUSION

The appropriate policy approach for environmental reform and urban renaissance is likely to be a portfolio of different mechanisms with regulation and legislation having an important role to play. Robust planning policies should incorporate efficient land use planning and development control, powerful subsidies to urban sustainability approaches, incentives to change individual behaviour, changes to systems of local taxation and administration, and careful planning of infrastructure. MBIs formulation should be based on information on willingness to pay, on opportunity cost and on land price information (Sharp, 2002; Cheshire and Sheppard, 2005) and where such information will not emerge from the market, some kind of government intervention is required. The paper concludes that MBIs should not be seen as economic forces operating in a non-regulated free market, rather they should encourage selected behaviours through market signals allowing actors whether and how much to change their behaviour.

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