The Benefits and Costs of Metropolitan Growth
A Survey of the Issues

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In recent years the notion of sustainable cities has been much in vogue. The attractiveness of this term stems from the combination of environmental equity (both inter-generational and intra-generational) with economic growth embedded within it. It implies that all these aspects should be taken into account when determining metropolitan growth paths. Yet, in practice much of the discussion either remained at the conceptual level or focused on a subset of issues, such as energy efficiency. This paper surveys a wide array of issues and aspects regarding the benefits and costs of metropolitan growth. It identifies to what extent each aspect is pertinent to the debate today, and attempts to make a first step toward defining these aspects in terms of specific planning objectives or evaluation criteria. In particular, the paper identifies the main trade-offs that need to be addressed in determining metropolitan growth paths.

Keywords: metropolitan growth, economic growth, environment, externalities, distributional implications.

The disaffection with the outcomes of metropolitan growth, the metropolis, and subsequent concerns over metropolitan growth are not new. Since the mid-nineteenth century the literature is full of accounts of adverse conditions in the metropolis, and calls for better planning and management of the metropolis (Hall, 1988; Norton, 1987).

While the nature of the metropolis changed over time, many of the fundamental concerns remained. These include the fear of disorder (Robins, 1995), environmental degradation (Haughton and Hunter, 1994), increasing alienation (Downs, 1995; Lowe et al., 1995) and diseconomies of scale (Gardner, 1979; Onishi, 1994). At the same time, the metropolis is seen as the locus of opportunity (Sennet, 1970; Robins, 1995) and innovations, driving economic growth (Jacobs, 1984). Thus, many features of the metropolis, such as its disorder and diversity are concurrently viewed both as a threat and as a challenge. These contradictory views lead to divergent policy responses and attitudes to metropolitan growth.

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Inefficiencies in Service Supply

As cities grow additional services are required. Thus a potential market failure is the discrepancy between the costs to incoming residents and firms, locating in the metropolitan region, and the cost of supplying the services to them by the community. In theory, if the newcomer consumes the average amount of services, pays the average local taxes, and the average cost curve is not upward-sloping, there should be no problems (Sonstelie and Gin, 1982). However, in practice this is usually not the case (Onishi, 1994). The estimation of these discrepancies is the focus of most fiscal impact analyses, the techniques for which are well developed (Burchell, 1988). The mitigation of this discrepancy is the basis for the imposition of impact fees (Nicholas and Nelson, 1988; Altshuler and Gomez-Ibanez, 1993). However, such fees may have regressive effects as they tend to redistribute wealth from younger to older and from poorer to more affluent households (Altshuler and Gomez-Ibanez, 1993).

The cost of service provision is not only a function of city size. In a study of 51 cities for nine different municipal services, Gardner (1979) found that while population size increases costs in all expenditure categories, denser cities have lower aggregate service costs. Metropolitan growth allows shifts in population distribution within the metropolis. Thus, Dolan et al. (1987) show that the provision of services is actually in a continuing state of spatial disequilibrium. As population shifts, shortages persist in some areas, while the same services are underutilized in others. These studies indicate that the form of metropolitan growth is important in determining the social costs of service provision.

Other factors that affect the social cost of service provision are the rate of growth and the timing of their provision. Actually many of the environmental problems of metropolitan growth in developing countries can be attributed to the inability to supply appropriate infrastructure in time. Moreover, if the infrastructure is not laid in place in tandem with residential development, urban retrofitting is required, at a much higher cost.

The Loss of Positive Externalities

Certain landscapes and places provide positive externalities to the population, such as visual, cultural and historical amenities. These are termed positive externalities as they are not priced in the market. In as much as development threatens these amenities, it has external social costs. These costs are the value loss to the population from the reduction in its amenity levels.

There have been by now many attempts to evaluate such amenities using a variety of methods (Willis and Benson, 1993). The best known methods are the travel cost method (TCM), hedonic price method (HPM) and contingent valuation method (CVM). The TCM is useful for analyzing loss of recreational values, while in the HPM the loss of property values due to reduced amenity levels is estimated. While each of these techniques has its limitations, they can provide

generally consistent results regarding the use values estimated (Bateman, 1993; Hanley and Spash, 1993).

However, some of the losses, such as loss of biodiversity, do not impinge directly on human use, and thus are not captured by either the TCM or HPM technique. Moreover, people can appreciate certain resources even if they do not use them directly. By using the survey-based CVM some of these values can be assessed (Bateman and Turner, 1993). Most of these attempts pertain to high-quality natural resources. At this point, however, it is still unlikely that accurate assessments of non-use values of all negative externalities due to metropolitan growth can be obtained.

The concern over loss of amenities, and the inability to assess the full cost of such loss, has spurred the advent of a wide variety of growth control schemes. One of the first and best known is the London green belt. However, similar programs were advanced elswhere (Hall et al., 1973). In the last fifteen years an increasing array of tools was advanced to this end. These include development rights purchase programs, tradable development rights, and conservation plans that identify and preserve such amenities (Munasingh and McNeely, 1994). However, the experience with many of these innovative measures is still limited.

Local Conflicts

Metropolitan growth implies change in both the metropolitan fringe, where rapid urbanization takes place, and at the core and internal suburban ring, where renewal processes often threaten existing communities. In many cases such changes create conflicts between new comers and the existing population (Spain, 1993).

In addition, metropolitan expansion leads to encroachment on various facilities, and demands for expansion of existing facilities and infrastructure. The combination of encroachment and demand for capacity expansion generates environmental conflicts around these facilities or infrastructure, as was demonstrated recently by Feitelson (1996) for the Tel Aviv metropolitan area. Thus, the well documented and analyzed local environmental conflicts are actually an inescapable outcome of metropolitan growth. It is not surprising therefore that similar conflicts are identified in a wide variety of settings (Barlow, 1995). These conflicts, however, are often intertwined in wider political, social, environmental or ideological agendas, and not limited to local neighborhood use values. Consequently, they cannot be resolved through decrees, as was recently attempted in the Netherlands (Wolsink, 1994).

The local conflicts, whether due to community change or environmental factors, implies costs. These costs can be viewed as the transaction costs of metropolitan growth. Thus, in evaluations of metropolitan growth in any specific context the extent of these costs needs to be recognized. This is important as these costs can be reduced if appropriate preventive and mitigative action is undertaken in advance (Feitelson, 1996; Spain, 1993).

DISTRIBUTIONAL IMPLICATIONS OF METROPOLITAN GROWTH

In previous sections we noted in passing that metropolitan growth is not equitable. An evaluation of the distributional implications of metropolitan growth requires normative judgments regarding justice criteria. That is, it is necessary to be able to compare distributional patterns (Beatly, 1988). In this section, however, we have a more elementary and modest aim: to identify the relevant distributional issues that should be discussed in evaluations of metropolitan growth. Essentially, the distributional issues can be analyzed in two dimensions: spatial and sectoral.

The Spatial Dimension

Development does not take place evenly over the metropolitan area. Rather, at any given time it is concentrated in few parts of it (Wilder, 1985; Hart, 1991). This in itself should not be considered negative, if every part of the metropolis gets the development it wants, or if spatial re-distribution of benefits and costs is possible.

Originally, most metropolitan areas were composed of one or few jurisdictions, allowing intra-metropolis transfers. As the metropolis expands it tends to become more fragmented politically. However, in countries with strong central government, this still does not necessarily entail greater internal inequities, as the upper echelons of government can promote equity considerations through a variety of instruments (Hampton, 1991). In federal systems, most notably the U.S., the willingness and ability of the federal governments to intervene in the metropolitan scene has been declining as a result of greater flexibility of capital and ideological shifts. As a result urban governance is characterized today by growing entrepreneurialism (Harvey, 1989), most often at the expense of equity considerations (Mayer, 1995).

The original statement of the benefits of inter-jurisdictional competition is usually attributed to Tiebout (1956). He suggested that local public goods expenditures will reflect consumer preferences as consumers choose between jurisdictions by moving, based on differences in supply of services. Bruce Hamilton (1975) showed that this can occur only if jurisdictions are able to exclude nonpayers (which in the U.S. case studied by Hamilton is done through zoning). This was further modified by Fischel (1985), who stated that jurisdictions can get the amount of development they want by negotiating deals with developers over granting of development permits. On the other hand such fragmentation offers firms a with a locational asset that may enhance growth rates (Wolpert, 1991). The efficiency of such competition and the extent to which it reflects consumer preferences is dependent, however, on the existence of many different homogeneous jurisdictions, free mobility of households, and the political process accurately reflecting the will of the electorate (Oates and Schwab, 1988).

The inter-jurisdictional competition model fails to account for a number of factors that may lead to spatial inequalities in the distribution of costs and benefits of metropolitan growth, in contrast to the desires of certain communities. The first is inter-jurisdictional externalities. Decisions in one jurisdiction may affect the welfare of citizens in other communities. Unless this is taken into account, the resulting development decisions are likely to be biased. Such externalities may have a number of forms. The simplest is inter-boundary effects due to proximity. For example, a certain land use can create nuisances in a neighboring jurisdiction, such as noise. Jurisdictions may also have no incentive to provide certain positive amenities, if part of the benefits are enjoyed by citizens in other jurisdictions (Isserman, 1976). A second type of externalities can be indirect, whereby actions in one jurisdiction may have pecuniary effects in other jurisdictions, through multiplier effects, or by requiring additional facilities or services (Hakim et al., 1979). For example, additional residential units in one jurisdiction may lead to congestion near commercial areas in other jurisdictions, requiring public outlays there. As each type of externality is manifested at a different spatial level, it is unlikely that any division of the metropolis into jurisdictions could internalize all externalities.

In an inter-jurisdictional competitive environment one jurisdiction is affected by actions of other jurisdictions. Thus cost cutting in one jurisdiction may lead other jurisdictions to follow suite. This may limit jurisdictions' ability to carry out redistributive programs, or maintain environmental standards aimed at providing future generations with a better legacy (Kenyon, 1988; Oates and Schwab, 1988). Consequently, highly fragmented regions can be expected to display greater disparities during rapid growth periods, as was shown for northeastern New Jersey by Danielson and Wolpert (1992).

The Sectoral Dimension

In a market system development is usually targeted for the benefit of the population strata that can pay for it (and in some cases only to those that can pay most for it). Thus we can expect development to be inherently geared toward higher income levels (Downs, 1981). Indeed the process of urban development improves the quality of life for most high income and many middle income households through the provision of new units (Downs, 1981). In Israel the size of new units built in 1988 (prior to the latest immigration wave which led to the enactment of emergency measures) was almost 150 m^2, almost 50% above the average apartment size at the time. While some analysts suggest that lower income households also benefit from development through a 'trickle down' process, others such as Lowry (1960) note that maintenance levels decline as the units trickle down, thus leaving lower income households no better off. This process is especially deleterious for the lowest income households that can find residence only in very poor quality areas on the verge of abandonment (Downs, 1981).

This differential impact of development is not limited to residences. Rather, as Harvey (1973) notes development provides differential access to various services and amenities. These differences have been accentuated with the increasing decentralization of jobs and services in the post-industrial metropolis. The combined effects of lower income households constrained to low quality old housing stock in inner-cities, without access to the increasing opportunities in suburban centers, has been the formation of an urban underclass (Wilson, 1987).

In the U.S. these differences have been exacerbated by three factors. First is the lowering of barriers to minority suburbanization. This resulted in increasing suburbanization of minority middle class, leaving the inner-cities without leadership. Second, the suburbanization of capital created in many cases fiscal difficulties for inner-cities left with infrastructure requiring high maintenance costs, a diminishing tax base, and a population requiring much welfare and social services. To mitigate for lost tax base, inner-cities are increasingly dependent on office development. However, office development may have negative impacts for some inner-city residents, through direct displacement or as a result of accompanying gentrification (Berry, 1985). Third, the exclusionary measures used by suburban communities isolate the central cities from the rest of the metropolis (Downs, 1995).

This last point has several important ramifications. As the exclusionary power of the suburbs is the basis for capitalizing the benefits of the services they offer, and for bargaining with developers, all jurisdictions have an incentive to upkeep them. But if all suburban jurisdictions uphold these measures, requiring only high quality development and services within them, the ability to finance affordable housing and welfare services, most demanded by inner city residents, is compromised. Thus, in a politically fragmented metropolis spatial inequities may exacerbate the sectoral inequities.

Development has differential impacts not only between classes, but also within them. As mentioned in the previous section, development increases the demand for services. If the average cost function for service supply is upward sloping, then some of the burden of the new development will fall on existing residents. Alternatively, if new comers pay the full marginal costs, current residents may enjoy additional services at the expense of new comers. Thus, the local government's attitude towards new comers will determine the distribution of service costs. In many cases the better off communities are those that do not want to attract new people, thus raising their entree fees to the additional benefit of the current (well-off) residents.

CONCLUSIONS

In recent years the notion of sustainable cities, as a derivative of sustainable development, has been much in vogue. The attractiveness of these terms stems from the combination of environmental equity (both inter-generational and intra-

generational) with economic growth embedded within them. They imply that all these aspects should be taken into account when determining metropolitan growth paths. Yet, in practice much of the discussion either remained at the conceptual level or focused on a subset of issues, such as energy efficiency.

To advance the sustainability concept it is necessary to find ways to address all the facets of metropolitan growth processes in concrete terms. In particular it is important that all facets be defined in program objective and evaluation criteria terms, so that they can be incorporated in the planning and decision-making processes.

This paper attempted to make a first step toward this goal by surveying a wide array of issues that describe various aspects of the benefits and costs of metropolitan growth, and identifying to what extent each aspect is pertinent to the debate today. The issues identified as pertinent should serve as a basis for specifying variables that may serve as planning objectives or evaluation criteria.

The main question with which planners will need to grapple is how to realize the potential benefits of metropolitan growth identified here, and avoid or minimize the costs. That is, how can the opportunities for encounters, innovations, community building and improvement of service levels be realized, as well as fulfillment of people's aspiration and removal of bottlenecks, while at the same time minimizing fragmentation, isolation, negative externalities, loss of amenities and environmental degradation. To this end the issues advanced here need to be further analyzed and specified.

In particular, several research directions can be suggested to facilitate the specification of the main tradeoffs identified here:

1. There is a need to improve the estimates of the benefits of development due to the provision of human needs and desires, and the cost due to environmental degradation and loss of amenities. As the use of market-based revealed preferences estimates is fraught with both theoretical and empirical pitfalls, and does not provide assessments of non-use values, more emphasis on CVM valuations of these issues is warranted;
2. The benefits of eliminating or preventing bottlenecks to metropolitan growth for economic development have to be related to different types of economic growth. Given the rapid flux and diversity of economic growth options, such analysis is needed to identify which path may be suitable in any specific circumstance;
3. There is place for further international comparisons of the distributional effects of various paths of metropolitan growth for different sectors of the population and economy;
4. Due to the effects of inter-jurisdictional competition on metropolitan growth patterns, and especially on the distribution effects of such growth, it is necessary to relate possible paths of metropolitan growth to institutional structures.

The main thrust of these research directions is to provide a coherent framework for evaluating the costs and benefits of metropolitan growth. The complexity and multi-dimensionality of such an evaluation would require any purely quantitative analysis to make many unrealistic assumptions for it to be tractable. A more realistic view is that the question of costs and benefits of metropolitan growth will have to be addressed by showing the tradeoffs between costs and benefits to various sectors of the population and the economy for different growth paths.

In summary, the problem of metropolitan growth is not whether benefits exceed costs on the bottom line, but how to obtain the unassured benefits, avoid the costs and address the distributional issues raised by metropolitan growth. It is for this reason that the comprehensive array of possible benefits, costs, and distributional implications of metropolitan growth needs to be identified and analyzed.

NOTES

1. This era can be divided into two periods, before the second world war and after it, differentiated by the level of state intervention in financial markets. The spatial implications of this shift towards a Keynsian regime for metropolitan areas are analyzed by Harvey (1985, 1989).
2. The extent to which metropolitan form can be modified is a function of the rate of growth relative to the existing built stock. The higher the growth rate relative to the existing stock the more malleable the metropolitan form.
3. It is not the purpose of this paper to review the economic theory underlying this section. This theory can be found in almost any welfare economics textbook.
4. This does not imply there is no concern over future food supplies. However, the current concerns focus on regional environmental deterioration, affecting croplands (Brown, 1994), rather than the direct effects of metropolitan growth.
5. Moreover, energy efficiency in rural areas is often lower than in cities, thus it is possible that metropolitan growth may actually improve total energy efficiency.

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