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City Effect and Urban Overload as Program Indicators of the Regional Policy

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Abstract

The paper explores the constraints of an optimal regional policy, and it identifies them through program indicators of city effect and overload.

Based on a 'programming approach' to the regional analysis, and on the "optimal centrality" concept as meeting point of the city-effect and city-overload curves, the paper outlines a *core* list of indicators of city-effect and overload, quantifying their dimensions (as findings of research conducted for the European Commission, from 20 cities in 4 countries of the EU: France, Germany, Italy and United Kingdom).

Further, a "strategy" for an appropriate urban-regional reorganization, and for an appropriate 'ambit' of measuring urban life quality, is outlined.

And finally the misleading risks of comparisons in the wrong spatial 'ambit' of data collecting about quality of life, are discussed.

City Effect and Urban Overload as Program Indicators of Regional Policy

Summary

1. The concerns of urban and regional policy

The attention to the conservation and betterment of the quality of urban life is ever more lively everywhere in the world. In recent times, attention has also been given to the factors which contribute to the *"degradation"* of such quality, especially from the 'environmental' point of view. Less studied are the factors which can assure the supply of a satisfactory quality of urban life. Concerning this last approach, it is not simply a matter of supplying a good quality of life in cities, but a good *urban* quality of life. In other words, it is a matter of taking into account *the city*, or better the *city-effect*, as a *factor of the quality of life*, the lack of which prevents the achievement of targets for quality of life.[1]

A good urban and regional policy does not neglect either of the two conflicting general factors that affect urban quality: the *city effect* which raises it, and the *urban load* which depresses it. Instead, a good urban and regional policy tries to optimize *both* of these factors.

To achieve this optimum situation, (from a "programming approach", and not from a analytical or descriptive approach [2]) a good urban and regional policy needs a supply of good indicators for two purposes: to establish targets in operational terms, and to control (monitor) the situation in relation to those targets. However, progress on making available such instruments of knowledge and control has been very poor. Much has been said about them in academic terms[3], but little about implementation in statistical terms.

Two recent initiatives of the European Union deal with these questions, and therefore, should be disseminated and assessed by scholars interested in the field of urban quality of life. The first of these initiatives is a methodological research on the criteria and modalities for the creation of a system of indicators of urban quality of life, or more simply, "urban indicators".[4] The second initiative is the "implementation of an Urban Audit to measure the quality of life in European Cities." This audit involves 58 European cities in the 15 countries of the EU.[5]

Within the scope of this paper, it will not be possible to give an in-depth report on both initiatives. We will limit ourselves, therefore, to looking at the main findings of the first, and emphasizing the risks of a bad approach for the second.

2. Toward a system of indicators based on the concept of the "optimal city"

As said above, the first step of the *Actvill research*[6] was to deconstruct *city effect* and *urban overload* into their basic components, and from those, derive more specific elements. From these elements, an attempt was made at a first formulation of purely theoretical indicators, the feasibility of which will be verified later in future analysis.

2.1 Indicators of City Effect

Suggested components of city effect, in the background paper of the research were: the demographic component; the use of and access to superior urban services; transport access to superior urban services; public spaces; a mix of spatial functions; urban structure and morphology; and a communication network. These components have been further discussed and elaborated to produce appropriate indicators.

In regard to the *demographic component*, themes of investigation have been identified as:

a) the need to adopt a method of partitioning in which multiple catchment areas for various types of activities (employment, retail, leisure, etc.) are examined and somehow combined in order to arrive at *"basins"* encompassing the *city effect*;
b) the importance of *settlement density* as a measure of critical mass;
c) the question of social structure, both in the sense of sufficient categories of affluent population to support the *superior services*, and in the sense of *social diversity*.

In regard to *"superior" urban services,* attention was given to consumer services, producer services, and the public sector. Superior urban services are services that are provided in relation to the major population concentrations needed to support them. Thus, they do not include the "inferior" or everyday services which are spread fairly evenly over the area as a whole. Instead, they can be chosen to reflect the following criteria:

a) being at the top of the service hierarchy for that particular activity;
b) size (turnover, employees);
c) rarity;
d) cost of provision (high cost limits numbers);
e) degree of specialization (quality of employees);
f) catchment area size (drawing power in terms of user population).

The related question of *transport access to superior urban services* is tied to the concept of *"dailiness"*, which in turn must be interpreted in the light of actual frequency and origin of use.

Sufficient public spaces, seen as provision of space that encourages and facilitates the use of the city as a meeting place, involves issues of morphology. Among its aspects, there is also the degree to which mixed uses (including residential) or a center with a mixture of functional zones provide a sufficient basis for conviviality.

The main aspects of the *mixture of fundamental spatial functions* taken into consideration are:

1. a sufficiently diversified economic base;
2. environmental self-sufficiency;
3. adequate access to the countryside.

In regard to *urban structure and morphology*, the analysis of relative degrees of city effect and overload attaching to particular areas will vary (inconsistently), not only with city size, but also with "stage of development". The degree of success urban areas have in retaining or capturing the newer sources of economic growth will also affect this balance.

With respect to *communications networks*, city effect means the attraction of urban areas as offering diversity in terms of employment and the consumption of services. To the extent that these are increasingly provided in a decentralized manner, then the need to be located in an urban area of a certain size is thereby reduced. The 'critical mass' for some type of city effect becomes smaller.

Other aspects of the city effect have been identified as:

a) *Economic dimensions*, including agglomeration economies and economies of scale, innovation potential, supra-regional and international interlacement;
b) *Socio-cultural dimensions*, including socio-cultural diversity, accessibility and availability of services, social mobility, satisfaction with urban living conditions, public opinion and the image of the city;
c) *Demographic dimension*, considered as the demographic attraction of cities.

These have also been taken into account in the formulation of the list of indicators of optimal centrality.

2.2 Indicators of City Overload

Like city effect, the concept of overload, after discussion and joint examination, has been, in the *Actvill* research, broken down into various aspects useful for the elaboration of the appropriate indicators. One way of partitioning it includes the following:

a. *Quality of life,* intended as a balance between access to opportunities/amenities and the collateral disamenities of urban life;
b. *Differential cost,* e.g. housing prices, wages, etc.;
c. *Environmental disamenities;*
d. *Social conflict and control, and social inequality;*
e. *Traffic congestion;*
f. *Migration flows;*
g. *Land use* (dereliction).

A slightly different organization of overload aspects includes:

a) *Impacts on the natural environment* (quality of air, water and soil, city climate, noise pollution, the supply of green and open spaces);
b) *Impacts on the economy* (increases in land prices and rent level, worsening of the accessibility to rare economic establishments and superior urban services, increasing segregation between living and working areas);
c) *Impacts on housing conditions* (household crowding);
d) *Congestion of the transport system* (pollution, time loss, psychic stress, reduced accessibility);
e) *Social disintegration* (social inequality, segregation, increased deviant behavior, etc.);
f) *Other sociological and psychological consequences* (reduction in close social relationships, segmented role contacts, etc.);
g) *Impacts on physical health*;
h) *Demographic consequences* in terms of fertility decline, and new migratory patterns;
i) *Impacts on public safety* (increased crime rates, violent crimes, accidents and fires)
j) *Accessibility and availability of services*, worsened in the poorer districts;

k) *Impacts on social and political participation* (negative impacts on political participation and cooperation in common social institutions);

l) *Constraints of administration* (duration of processing official applications, delays of legal proceedings, etc.).

2.3. Issues in the optimality evaluation

The characteristics of *optimal centrality* can be singled out on the basis of six categories of opportunities and related objectives that cities can offer to their citizens. These can be characterized as the 'city effect point of view'.

From the City Effect Point of View, the six positive categories are:

1. in public life, to be able to exercise public functions and to play meaningful roles in the context of organized groups (associations, parties, unions);
2. *in community and relational life,* to be able to find a plurality of diversified occasions for exchange and participation in nationally or internationally relevant events and meetings, not necessarily planned ("agora" effect);
3. *in work and leisure related activities,* to be able to attain the widest range of working positions for all levels of professional skill and education represented in the local population, and to be able to access a multiplicity of leisure and cultural activities for free time;
4. *in services,* to find satisfactory and valid service support for security, health, purchases, instrumental assistance, education, culture, information, and above all, in non-conventional sectors;
5. *in the environment,* to be able to live in an environment characterized by sure, recognizable, stimulating, prestigious, as well as healthy connotations;
6. *in society at large,* to feel oneself part of a social context which is as varied and stimulating as possible for composition, professional skill, habits, and tastes.

From the Overload Effect Point of View.

From a negative point of view, characteristics that can oppose the evolution of optimal centrality are mainly to be found in five categories of overload effects:

1. *congestion and overcrowding,* including congestion of transport and information flows, excess residential density, overcrowding of services, energy waste, and overcharge of distribution networks and waste disposal services;
2. *disorganization*, including disorganization and imbalance of assistance and supply of services (both public and private);
3. *relational unease* including the presence of social perturbation and incompatibility between the different collectivities who co-exist within the same urban area, and consequently, difficulties in cultural and political exchange and relationships;
4. *phenomena of ungovernability,* including multiplication of situations of uncertainty about right, production of parallel and often diverted systems of power control and distribution, self-assertion of informal as well as illegal systems of leadership, etc.;
5. *phenomena of environmental degradation*, including degradation of the living and working environment both at the center and margins (formation of ghettos and slums, etc.).[7]

2.4 The Debate on Optimal Centrality

A large part of the *Actvill* research was devoted to the concept of optimal centrality. One issue that was raised in this context is the problem of "point of view", i.e. from whose perspective should optimal centrality be approached. One could almost ask, "Optimal for whom?"[8]

Three main areas of interest emerged. One tended to emphasize the production point of view, that is "companies" and other producers in the urban area. The second was more concerned with consumption, i.e. the household perspective. The third stressed the environmental and cultural aspects of optimal centrality.

These perspectives are not necessarily conflicting. They represent key features of any idea of optimal centrality, and all of them deserve to be pursued. This was in fact the decision, and consequently each of the national groups agreed to give special emphasis to their favored perspective in the selection of indicators. They agreed at the same time to maintain a "core" set of indicators which would ensure the possibility of making comparisons.

2.5 Towards a "Core List" of City Effect and Overload Indicators

A significant discussion, involving all the *Actvill* research “national groups”, was centered on social indicators and their role in a planning perspective.

From a different, descriptive perspective, there is virtually no limit to the number of possible indicators of both city effect and overload. But, from the perspective that characterized this study, it was clear enough to all that indicators had to be selected keeping in mind that there should be some reference to possible policies, actions, and interventions.

Second, indicators had to be compared among different urban situations and different countries. This entailed sacrificing most of those indicators that, being innovative in nature, were unique or without systematic application in widely available statistics. On the other hand, a few innovative indicators were retained, although not applied, in anticipation of a future study, having as its object, the new territorial organization that is the result of the present research.

Third, a logical distinction was made - as anticipated in the previous paragraph - between a set of "core" indicators that *all groups* intended to apply to their selected cases, and a set of "national" indicators that each group wanted to use for an appropriate measurement of the concerned phenomena in their own country.

In the following **Table 1** is the "core" list that was generally agreed upon.

A final remark may be useful in regard to the possibility of a *typology* of indicators.

Many typologies of indicators have been proposed [9]. Some of these are so detailed as to risk making them impossible to use. We will not concern ourselves, therefore, with the sort of classifications which refer to the axis static / dynamic, negative / positive, descriptive / evaluative, qualitative/ quantitative, etc. Rather we will examine a few types that must be kept distinct from each other, to avoid serious ambiguities on the meaning of the information they convey.

In our opinion, in the frame of the themes we are dealing with, it is interesting above all to consider:

a) state indicators
b) standards, need and lag indicators
c) target and goal indicators

d) input indicators

e) process indicators (efficiency, effectiveness, etc. - throughput indicators)

f) output (achievement) indicators.

State indicators describe the situation as it presents itself, short of any intervention to modify the existing and active trends, "freezing" it at a selected moment, past, present, or even future.

Standard or optimal indicators will be discussed in the next paragraphs.

Table 1: The "Core" List of Indicators

Thematic Area	**City Effect Indicators**
Economies of Scale	GDP per capita compared with national average
Localization Economies	Proportion of employees in the tertiary sector
Centrality	Retail sale area per capita
Critical Mass	Service threshold
Innovation Potential	1) Number of firms births per capita and year - 2) R&D employment
Supra Regional / International Interlacement	Number of international congresses, fairs, and exhibitions held per year
Socio-Cultural Diversity	1) Number of workers in the arts market - 2) Nationally or internationally relevant live performances
Accessibility/Availability of Public Services	Number of ecographic and computerized axial tomography scanners operating
Social Mobility	University graduates
Urban Morphology	Provision of open public space
Subjective Contentment	Degree of satisfaction
Public Opinion/Image of the City	City image in national media
Demographic Attraction	Annual immigration rate

Table 1 (continued)*: The "Core" List of Indicators*

Thematic Area	**Overload Indicators**
Impacts on Natural Environment	1) Air pollution - 2) Tons of waste produced yearly compared with national data
Impacts on Economy	Level of commercial rent
Impacts on Housing Conditions	Average housing rent/income ratio compared with national data
Congestion of Transport System	Average commuting time to work
Social Disintegration	One person households
Sociological and Psychological Consequences	Number of persons with mental disease
Consequences of Impacts on Physical Health	Life expectancy
Demographic Consequences	Fertility rate
Danger to Life	Violent crimes
Accessibility/Availability of Public Services	Average duration of waiting lists for surgery in hospitals
Impacts on Participation	Electoral participation
Congestion of Administration	Average duration of civil proceedings
Subjective Contentment	Degree of satisfaction
Public Opinion/Image of the City	City image in national media

2.6 Towards a list of optimal centrality indicators

As has been repeated and documented in various parts of the research report, the *Actvill* research has involved a variety of approaches and methodologies to test viable city-effect and overload indicators, in different national contexts.[10]

We have also specified that despite this variety, a "core" set was roughly adopted in all cases, with the necessary adaptation to fit in the existing data system (**Table 1**).

It is not difficult, therefore, to "squeeze" out of this investigation, an ideal list of indicators to propose for utilization at a European scale. What truly proved to be really difficult - but indispensable, was to provide these indicators with corresponding standards for their values, as reference parameters for their application.

The fact that we are working a) in a decision-structured context and b) searching for appropriate territorial dimensions, both qualifies and makes our endeavor harder for quite patent reasons. In fact, by looking for *optimality* within specific - in the process of being designed - *territorial* limits, we are precluded from merely "incremental" solutions (i.e.: the higher the number of public libraries the better, or the higher the number of specialized doctors per head of population the better, etc.), because these are generally at the roots of *overload* phenomena, since they attract an additional load of population from less served areas.

However, ready-made standards are practically non-existent, except for a few environmental standards (noise and air pollution) adopted by the EU.

Setting city effect standards and overload thresholds *to fit the new proposed redistributions of centrality* would require an *ad hoc* study based on data sets that do not exist yet. The *Actvill* research has, therefore, attempted a second-best solution, using a bottom-up approach that is mainly based on:

1. *ex-post* thresholds;
2. the use of the mean value (national mean or sample mean) as the reference value;
3. the use of the minimum values empirically obtained by applying indicators in the study of overload as a reference value (e.g. the minimum value recorded for "number of reported offenses per 1,000 of population");
4. the use of values obtained by individual cities that as a result of the report are considered to be well balanced;
5. reference values for similar indicators found in literature.[11]

The following table, **Table 2**, presents the proposed list of city effect indicators and standards, along with overload indicators and acceptable thresholds.

This table, therefore, can be considered as being somewhat of a summary of the entire research work. It is evident, that having concentrated attention on the analysis of only four countries (France, Germany, Great Britain, Italy), the resulting figures are strongly impacted by the values, objectives, style, culture, and socio-economic and environmental circumstances of the four national communities involved. [12]

Table 2 - City Effect Indicators and Standards, and Overload Indicators and Acceptable Thresholds

City Effect Indicators

Indicator	*Reference value*	*Comment*
Demographic dimension	361,000 inhabitants	City-Effect increases with urban size up to a certain point (361,000 inhabitants) and then decreases.
Population density	10.50 persons per hectare	Average value
Headquarters location: Number of trading premises (headquarters sites of commercial companies located in the area relative to population size)	4,800 persons per companies	Average value
New firm formation	0.00300 registrations per head of population	Average value
Number of applications for firm birth loans	8 per 10,000 heads of population	Average value
Level of employment in the tertiary sector	Over 75%	Average value (national)
R&D Employment	10 per 1000 heads of population	Average value
Occupation in the art market	13 per 10000 heads of population	Average value
Art galleries	33,400 persons per service unit	Exemplary urban system value
Share of population that can reach the following facilities within 10 minutes (%):		Average value
Retail shop/supermarket	Over 90%	
Physician	90%	
School	Over 80%	
Kindergarten	Over 75%	
Public transportation connection	99%	
Pub	Over 95%	
Park	Over 85%	
Retail sale area	Over 1.5 sq.m. per inhabitant	Average value
Night time entertainment	One unit every 30,000 inhabitants	Average value
Number of seats in performance venues	22.24 seats per 1,000 population	Average value
Seats in cinemas and theaters	20 per 1000 inhabitants	Average value
Average time to reach an international airport	45 minutes	Average value
Public transportation closing time	After midnight	Maximum value
Number of beds in surgical services	2.8 per 1,000 population	Average value
Medical specialists	20 per 10,000	Average value

	inhabitants	
CAT scanners availability	One every 100,000 inhabitants	Average value
Percentage of pupils under five in nursery and primary schools and classes	100%	Theoretical value
Provision of open space	300 persons per hectare open space	Average value
Herbalists	One per 180,000 persons	Average value

Overload Indicators

Indicator	*Threshold value*	*Comment*
Demographic dimension	55,000	Urban overload effect shows an increasing trend over this value
Degree of concentration of NO_2	30 parts per billion (ppb)	EU standard
Public transportation average speed		
Peak	15.45 m.p.h.	Best value
Off peak	22.6 m.p.h	Best value
Share of derelict land	0.5%	Adjusted national average
Unemployment ratio	6.4%	Best value
Long term unemployment	24.3%	Best value
Income support rate	4.4%	Best value
Reported offenses (except larcenies)	83.9 every 1,000 inhabitants	Best value
Reported larcenies	43.6 every 1,000 inhabitants	Best value
Violent crimes per 1,000	3.48	Best value
Waiting time for surgery	3.2 months	Best value
Delay before criminal trial	15.3 weeks	Best value
Maximum traveling distance between two points whatever of the metropolitan area	80 minutes	Theoretical threshold

3. A strategy for an appropriate spatial urban reorganization.

The identification of a system of urban indicators and their threshold values leads to the formulation of an appropriate strategy to adapt the spatial structure and organization to those values and to the conception of a policy oriented to creating the optimal conditions of this urban organization.[13]

Thus, this strategy leads to the design of the appropriate delimitations of the existing urban "agglomerations" which meet, as far as possible, the theoretic optimal urban organization. A kind of circular movement is, therefore, produced that, rather than being a motive for logical inconsistency, represents a tool for an appropriate operational

advancement. From one side, we measure, tentatively and "empirically" on the factual field, to which structural conditions some variable behaviors considered as "good" are linked. From the other side, having based the urban indicators on such empirical evidence - but not having given to them any absolute value - we try to extract from them some acceptable standard or normative values in order to "generalize" in normative terms their territorial diffusion. And, based on such standard values, we can proceed to restructure the urban organization, in order to meet these values as far as possible (and with the minimum cost or resources use).

From this reorganization, it is possible to get a territorial model which is linked to the reality of things, and connected to its own character, within the research for something that we call an "urban system" or "urban eco-system". This model, in its turn, becomes:

I. an appropriate reference to give significance to measuring the urban quality of life through selected indicators, and to creating comparability among factual situations;
II. an appropriate model of reference for a urban strategy oriented to optimize that urban quality of life.

4. The appropriate "ambit" and the misleading risks in measuring the urban quality of life

4.1 The appropriate ambit question

From what has been said, it follows that if we do not operate in the correct ambit of analysis and measurement, we cannot rightly assess the needs of interventions which are instrumental to strategically achieving the optimal conditions for the city, the right balance among urban effect and urban overload.

The problem of this ambit of measurement becomes the crucial point for appropriate evaluation and programming; and therefore, also the crucial point of the initiative by the European Commission for an *Urban Audit* to measure the quality of life in 58 European cities.

We will discuss now briefly the aims of the European Commission in launching the project for the Urban Audit, and the risks of managing it in the wrong direction.

The aim of the European Commission project is *"to develop a tool for ... diagnosing problems in the form of an urban audit which will measure the quality of life in the*

Community's cities", and to collect, *"information for cities, for conurbations and for some neighborhoods within cities so to be able to compare them*".[14]

The idea seems to be to obtain the possibility of using a common yardstick of evaluation of the (citizen's) needs and welfare in the matter of the quality of urban life. The purpose of this common yardstick would be to orient all public decision-makers and operators in cities, especially the local authorities, as well as to guide the policies of intervention and support by the European Union, itself, through its structural funds.

Consequently, *data comparability* also becomes the basic requirement of the system to be created and implemented. And, in numerous studies already carried out in this direction (and particularly in the *Actvill* research carried out for the European Commission mentioned above), it has been ascertained that data comparability - especially that of a spatial and territorial nature - is strictly bound to the choice of *appropriate units of data collection.*

Another firm point of the conventional research in spatial economics and economic geography is that the traditional *administrative boundaries* (which are often the source of the statistical data available, and therefore, the most used statistical unit of data collection) do not usually represent the "appropriate" units of data collection. Consequently, they do not represent an adequate basis for comparison of the different situations. In many cases, they are also the cause of misleading conclusions. At the same time - as rightly emphasized in the *EC specifications* - … *'the results of the audit are primarily intended to go to the local authorities that are politically responsible, and so the area studied should correspond to the area they are in charge of…'.*

Consequently, we cannot leave out of consideration in the collection of data and in the will to compare it, the issue of administrative boundaries. But, as we have said, we *should* take administrative boundaries out of consideration to render the data usefully significant. This methodological conflict is very old and always present in any action-oriented evaluation that uses knowledge of data which are essentially quantitative.

We have seen that the *Actvill* research has been focused on the study and proposal of better statistical units for data collection, planning and evaluation.[15] These statistical units would allow a better comparability of situations, instead of direct measurements based on uncertain methodological foundations.

In the Urban Audit venture, there is, rightly, a more operational purpose. A more pragmatic approach is justified that aims at implementing a comparison which may be

defective, instead of one that is unfeasible for lack of data, or one that would imply (to be feasible) big reforms in the administrative order in each country. The preferable option, in this case, was, therefore, to find comparisons that could be acceptable even within the existing administrative boundaries; those that would give a significant insight into certain actual urban situations, even if not perfectly comparable to each other.

Notwithstanding the issue deserves attention and special warning.

4.2. Misleading risks in the wrong delimitation of areas

Suppose we assume as an indicator of urban quality, the ratio between the population which has access to certain urban services - say, certain specialized health services or certain recreational and cultural services such as theaters and universities - within a given access time (an isochrone) and the total population of the territorial entity which has been assumed as the basis of measurement ("cities", "conurbations", or "NUTS 5")[16]. This kind of assumption is present, in one form or another, in almost all attempts to measure urban quality.

Such an indicator, obviously, will be composed of the number of units of supply of services taken as reference (the numerator of the ratio) and the population, or units of demand, or customers of the services in question (the denominator of the ratio) existing within the boundaries of the territorial unit taken as reference.

This ratio of services/population, or otherwise, supply/demand, is the ratio that will be the object of any possible evaluation and comparison or audit among two territorial entities. Obviously, the ratio, and any comparison made with it, will be strongly influenced by the nature of data that comprises the numerator and the denominator.

Assume now, that in one of the two territorial entities of the comparison (entity A), the services (in the numerator) serve the entire population but only the population of entity A. While in the other entity of the comparison (entity B), the services serve, in addition to its population, even an additional "external" population which will not be officially included in the calculation. This "external" population could be, for instance, (a) the population from bordering territories which do not belong to any other entity (because we have excluded territories below a certain definition/threshold of a "city" from our analysis); or (b) the population from the measured territorial entity which, for one reason or another, prefer to be served with services located outside their territory of residence.

What reliable results will come from this kind of comparison? None. On the contrary, from this kind of comparison, there will emerge numerical data that is quite misleading and inaccurate with respect to the existing reality. Let us study some examples for entity B.

In case (a) - which does not include a certain amount of external population in the denominator for entity B (that we compare with entity A) - entity B could appear to be much better served than entity A. In this case correctly including the "external" population in the calculation, the result would be the exact opposite: that entity B is worse served than entity A. In this case the value of the audit is useless, and worse, inaccurate (i.e. equal to zero).

Continuing to look at case (a) we should also ask ourselves where this hypothetical "external" population of entity B is served in regard to those services taken into consideration as indicators of the quality of life (it is a real population of the "non-urban area"). Somewhere they must be served! Or do we accept that they do not have access at all to the above-said services? And, in this case, is an audit acceptable that measures the quality of life in terms of certain services, only for a portion of the population, without taking into account the impending impact of the entire population which presses on the cities to get access to services from which, right now, they appear to be excluded?

This is the reason why every form of audit of urban quality should be based on "co-extensive" data, that is to say, the entire population and the entire territory should be included (and not just a part of it) in order for the audit to be meaningful.

In case (b), where some of the population goes outside their territory of residence for services but is still counted in the denominator even though they do not use the services, the inaccuracy and misleadingness of the audit would be even greater and more sensational. Entity A would appear to be much better served than entity B, while in the reality it is much worse. And, this happens not only because of a defect of "co-extensivity" of the calculation but because we have not calculated the real flow between the entities. This results in a statistical mistake inherent to the calculation itself, in effect because of the wrong methodological approach of the audit.[17]

5. A reference framework for the strategic spatial organization of the city system

In the effort of *Actvill* research to provide a more rational and consistent framework for data collecting and for planning, a *scenario* has been furnished for a future strategy of urban reorganization at a national scale (unfortunately only for the four countries of the Union involved in the research). Therefore, a reorganization of the boundaries of "urban systems" largely comparable to each other has been suggested (for the four countries) that could be used as a guide for future interventions for territorial requilibrium and recovery.[18]

It would be a pity to completely lose - because of excessive pragmatism - the reference to this further effort of rational territorial delimitation, which corresponds to some requirements that are even more elaborated than those of the NUTS 5 level (outlined by Eurostat to obtain a more comparable foundation for data and measurement than that given by the traditional administrative boundaries). In short, it would be wise to take into account not only the well-known three "official" levels of data collection referred to in the EC specifications for the Urban Audit, but also a "fourth" level corresponding to the "urban system" developed in the *Actvill* research. We could call this level the *Actvill/PSC level* (or the ‘urban system’ level).

For this level, the collection of data would be even more problematic than imagined for the other three levels forecast by the EC research specification. But, where possible, it would be useful to control the comparability and their degree of meaningfulness. In summary, this level will constitute an even more advanced tool of knowledge and evaluation than will emerge by the data collection at the other three levels.

[1] On this point, I would like to mention the treatment of this problem in a recent work of mine which examines the relationship between "the ecological city and the city effect". This work discusses the *requirements* of urban planning for a sustainable city (Archibugi, 1997).

[2] Even if this distinction is not satisfactorily perceived nor largely appreciated in the 'regional science literature', the 'programming approach' (firstly outlined as epistemological question by Ragnar Frisch, 1976) falls outside of the scope of this paper. In any case, being at the base of the concept of optimality developed here, I have to refer to other writing of mine in which 'programming approach' is also developed: one with reference to economic policy issues (Archibugi, 1999); others with special reference to regional sciences (Archibugi, 1994) and urban economics (Archibugi, 1996b).

[3] More details in my textbook on 'Principles of Regional Planning' (Archibugi, 1979).

[4] This research, of which I was the coordinator and the Planning Studies Centre (PSC) of Rome was acting agency, was concluded at the 1996, in the framework of a Research Programme of the European Commission called 'City Action Research' (*Actvill Programme*). The main results of the PSC research are available on the PSC website [<**htpp://www.geocities.com/ColosseumTrack/6010**>] A book is being prepared that summarizes the research findings. A draft edition of the *Research Report* to the EC is also available (Planning Studies Centre, 1996).

[5] See the motivations which have guided the launch of this initiative in contract specification of the call for papers (EC, 1997). See also a broad study by Eurostat titled, 'Supply and Demand of Urban Statistics in the European Union" (Eurostat, 1997). Other related documents include: Pumain et alia, (1991,1992); Nurec, (1995). We have not yet been informed of the final results of this inquiry.

[6] See above Note N.4

[7] The *Actvill* research included discussion of other relevant phenomena and the elaboration of indicators of city effect and overload. Each main category listed above was deconstructed and split into several facets. In this paper, at the moment, it is not relevant to list and comment on all these. See, in any case, the research report already quoted (Planning Studies Centre, 1996). Other classifications can be found in classical studies: Oecd (1973, 1974, 1978); United Nations Statistical Office (Unso), 1975), Unesco (1978). Institut d' Urbanisme de l'Universitè de Montreal (1988); see also Archibugi, (1974).

[8] At large, useful documentation on this debate is found in several studies and documents of the EC Commission (1990; 1994a; 1994c).

[9] See Archibugi, 1996, for a specific treatment of *programme indicators*.

[10] That means above all different availability of statistical sources and data. For difference of concept, styles, and values, see Boyden, Miller et al. (1981), and Eurostat (1997). See also Berger et al. (1987).

[11] The classic work on the matter is the old book of Perloff (1969). Interesting comments in Gehl (1993), Peter Hall (1978), EC Commission (1994b).

[12] On this point a large amount of literature has been produced: for instance, Berger et al. (1987); Breheny (1993); Cicerchia (1996); Gehel (1993).

[13] See Fox (1967), Cicerchia (1996), Archibugi (1995 e 1997), Breheny (1993).

[14] See the contract specification of the call for proposals. (EC, 1997)

[15] On evaluation methods see Lichfield (1996), Michalos (1997), and the revolutionary approach of Fox (1974).

[16] NUTS 5 is the fifth territorial level of statistical territorial data collecting from Eurostat. See Eurostat (1997).

[17] For discussion see Archibugi (1996 and 1997).

[18] Again we suggest examining the findings of this research, in which are reproduced, very synthetically , the *maps* of the above-mentioned territorial reorganization of the *Actvill* research into homogenous (though very different) *urban systems* with which it makes sense to compare the urban conditions. The visual layout of these maps is more easily readable on the PSC Web Site:
<**http:// www. geocities. com/Colosseum/Track/6010>.**

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