A CRITIQUE OF URBAN ECONOMICS

by

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Chapter I

The Character of Urban Economics

This chapter intends to discuss the character--the purposes and the formal perspective--of a somewhat disorganized body of knowledge nowadays commonly referred to as urban economics.[1]

Just as among the practitioners of the older social sciences--anthropology, sociology, political science, social psychology, history--there exists no consensus over the limits of their professional competence, so it happens among urban economists.

Yet, on one point, at least, all who are conversant with urban economics agree: that, some fifteen years ago, what elevated the economic and financial woes of great American cities (during a long time, a favorite theme for publicists, reformers and muckrakers) to the dignity of a subject meet for academic and scholarly discussion was fear: fear that, if the sicknesses and ailments that came to affect them after World War II were not correctly diagnosed and properly cured, the cities might well perish.[2]

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1. The notion of the "character" of a science is borrowed from Cairnes's Logical Method. Although he does not elaborate on the point, his notion is a direct transcription of the Schoolmen's "material object" and "formal object" of a science.

2. The most complete account of how and why urban economics came into being is still H.S. Perloff's "The Development of Urban Economics in the United States." See also "The Crisis of the City," in W.L. Henderson and L.C. Ledebur, Urban Economics, pp. 3-5; "The Urban Crisis," in H.E. Horton, Introduction to Urban Economics, pp. 1-3; "Preface" to J. Heilbrun, Urban Economics and Public Policy.

Those illnesses were, more or less vaguely, ascribed to various causes: heavily subsidized interstate highway building; facilitated acquisition of suburban homes and passenger automobiles; rapid mechanization of Southern agriculture, engendering a massive migration of unskilled whites and Negroes to the older Northeastern and Midwestern inner cities--all, poorly understood phenomena in their own right. Therefore, about urban economics one thing was certain: that since its inception it was expected to bring fruit more than light, hence neither to indulge in unnecessary or irrelevant abstraction, nor to abandon itself in a desert of detail.

Let us not forget that there is no sodality congregating urban economists, similar to the American Institute of Planners, nor does the profession require the passing of qualifying or entrance examinations; no meeting was ever held, by the American Economic Association, for the purposes of defining the scope of urban economics, like the 1908 round-table on rural economics:[3] consequently, courses being currently taught on the subject, in American institutions of higher learning, cover a multitude of disparate topics, ranging from daily life in ancient Rome to esoteric mathematical models in public economics; finally, the only American scholarly journal devoted exclusively to our discipline, in its statement of the aims, promises to cultivate rather than

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3. American Economic Association Quarterly, Third Series, Vol. 9, No. 1, pp. 59-82.

diminish the confusion.[4]

Because there is no official, or, short of that, generally accepted opinion as to the character of urban economics, anyone interested in the issue has to make a somewhat arbitrary decision: in our case, we resorted to the authority of textbooks. This was because textbooks, with all their limitations, generally present their subject-matter at its most mature; besides, after some time of use in the classroom, they inspire research themselves, constituting therefore a not altogether unreliable point of departure for our inquiry.

Of the ten books listed in the subject catalogue of the Main Library of the University of California, Berkeley, as of December, 1976, under the heading "Urban Economics," whose titles contain the phrase "urban economics," six are intended as textbooks.[5] After perusing and comparing carefully the six texts, it became clear that all of them purported to solve the same problems using the same tools,

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4. Journal of Urban Economics, Vol. 1, No. 1, "Editorial."

5. (i) J. Heilbrun, Urban Economics and Public Policy; (ii) W.L. Henderson and L.C. Ledebur, Urban Economics: Processes and Problems; (iii) H.E. Hordon, Introduction to Urban Economics: Analysis and Policy; (iv) E.S. Mills, Urban Economics; (v) D.W. Rasmussen, Urban Economics; (vi) H.W. Richardson, Urban Economics; (vii) M. Edel and J. Rothenberg, eds., Readings in Urban Economics; (viii) M.R. Greenberg, ed., Readings in Urban Economics and Spatial Patterns; (ix) R.E. Grieson, Urban Economics: Readings and Analysis; (x) Proceedings of the Conference on Urban Economics, Wayne State University: items (i) - (vi) are textbooks.

with differences in emphasis rather than in essence. Thus, hereafter, we shall regard as urban-economic those problems which are recognized and formulated as such in the urban-economics textbooks; attempts at their solution, of course, may be found elsewhere (in scholarly journals, in proceedings of scientific conferences).

Before considering the problems urban economics sets out to formulate and solve, we must dedicate some space and time to the formal perspective from which they have been studied, because it is this perspective that renders their formulation intelligible, and, in most cases, their solution difficult, if not impossible.

Urban economics looks at the cities from the standpoint of "conventional economics," also known as "the neoclassical synthesis,"[6] or "neoneoclassical economics," this curious combination of Walrasian pure economics[7] and Keynes's General

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6. For a very sympathetic account of the "neoclassical synthesis," see P.A. Samuelson, "Post-Keynesian Developments"; for a not-so-sympathetic one, see "Keynesian Economics," in P. Mini, Philosophy and Economics; for a not-at-all-sympathetic one, see J. Robinson, Economic Heresies.

7. L. Walras developed four models of economic equilibrium in his Elements: a model of exchange, a model of production, a model of capital formation and credit, and a model of circulation and money. Strangely enough, his two first models are the most widely expounded, although the two last present many more affinities with Keynes's work.

F. Hahn and K. Arrow devote the last of the fourteen chapters of their General Competitive Analysis to the Keynesian model. Complete though the bibliography therein is, they fail to mention several earlier attempts to reconcile Walraw and Keynes (A.W. Marget's "Leon Walras and the Cash-Balance Approach," and "The Monetary Aspects of the Walrasian System," as well as W. Jaffe's "Leon Walras' Theory of Capital Accumulation"), presumably because of their relative lack of mathematical elegance, even though they discuss

Theory: such synthesis dominates contemporary American thinking and teaching--although by no means economic policy[8] --its main pillar being the notion of perfect competition (in a private-ownership, market economy).

Being the pillar of conventional economics, perfect competition should be a conception clearly and distinctly presented; but works that prefer the mathematical mode of exposition hide it behind hyperplanes and convex sets; those which prefer the literary one limit themselves to vague and superficial references to the "large number" of firms, to "freedom of enterprise," to "consumer sovereignty."

However, since urban economics promises its supporters to present results in the form of scientific explanations (cf. p. 22 below), and predictions about real cities (Newark, Detroit, New York), not about Plato's Republic or

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fundamental matters: this provides an indication as to how complete has been the prevalence of form over content in neoneoclassical economic thinking.

8. A definitive example of the "division of labor" between economic thinkers on the one hand, and practitioners on the other, is to be found in the U.S. Department of Commerce's "Composite Index of Leading Indicators," currently (December, 1976) the most often used instrument of economic forecast in this country. The index combines twelve components: (1) average workweek of production workers in manufacturing; (2) rate of layoffs in manufacturing; (3) vendor performance; (4) change in total liquid assets; (5) change in sensitive prices; (6) contracts and orders for plant and equipment; (7) net business formations; (8) stock prices; (9) money balances; (10) new orders for consumer goods and materials; (11) permits for construction of new private housing; (12) change in inventories on hand and on order: conventional economics has precious little to say about ANY of those variables.

Amaurote, any critique of its achievements must at the outset provide a clarification of the exact assumptions about the real world that the notion of perfect competition entails. Our demand that such assumptions be made clear in terms of outer reality would hardly be deemed reasonable or justifiable: some economists would affirm that "perfect competition" does not refer to the world as it is, but to the world as it ought to be;[9] others, that false assumptions are useful if they yield testable conclusions;[10] others, that the assumptions contained in the notion of "perfect competition" are absolute and self-evident truths, lying above and beyond empirical testing.[11]

Now, those corrections and qualifications having seldom been spelled out, regardless of what "perfect competition" refers to, the assumptions are usually understood as portraying outer reality; so we shall understand them.

The notion of "perfect competition entails nine assumptions about the real world:

(1) Universality of markets

For every commodity, that is, for every transferable thing,[12] there exists a market;[13] there are finitely many

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9. Cf. M. Blaug, Economic Theory in Retrospect, p. 7.

10. See M. Friedman, "The Methodology of Positive Economics."

11. Cf. pp. 31-35 below.

12. N.W. Senior (Outline, pp. 6-13) said that it was the business of political economy to study the nature, the production, and the distribution of all useful, scarce and transferable things: usefulness and scarcity, however, do

commodities.

(2) Individual's strict solipsism

The behavior of any individual consists solely in his maximizing an "objective" function, under certain constraints: consumers maximize utility,[14] or ophelimity,[15] constrained by their capacities to perform labor of various types and skills, and by those to transfer rights of use and exclusion over real and personal property;[16] producers maximize

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not inhere in things; things are useful or scarce, only in relation to human needs and wants: transferability, of course, depends on the mode of economic organization.

Some Continental economists (see M. Pantaleoni, Pure Economics, esp. pp. 58 - 96, and references therein) went an extremely long way to define and classify commodities: nowadays, the problem, although unsolved, is never mentioned.

13. "Market" in this context does not refer to a place at which persons engage in exchanging commodities (the market-place): the term "market" designates what remains of the concept "market-place" after the concepts of "place" and "person" are abstracted away.

14. The question how to measure utility, or even whether it is measurable at all, has never been answered satisfactorily, a nonmeasurable utility, nevertheless, being devoid of any empirical content. At present, some economists affirm (without much commenting) that measuring utility is impossible, undesirable or unnecessary; some, purely and simply, fail to mention the problem; some enshroud the whole issue underneath highly formalized arguments about preference orderings or revealed preferences, which seem quite convincing and compelling. But, since some theories in urban economics presuppose cardinally measurable utilities, we shall discuss the issue in chapter III below.

15. The term "ophelimity" was coined by Pareto: according to him, "ophelimity" designates "the relationship of convenience which makes a thing satisfy a need or desire, whether legitimate or not." (See V. Pareto, Sociological Writings, p. 99.)

16. Rights of disposition are not regarded as transferable by conventional economics: as a matter of fact, the latter does not deal with any kind of alienation.

profits, constrained by the state of technological knowledge. The only arguments entering an individual's "objective" function are the rates at which he, and nobody but him, consumes or produces commodities.[17]

(3) Irrelevance of noncommodities

Nontransferables--youth, health, sensibility, curiosity, intuition, judgment, memory, perseverance, spontaneity, joy--although they may shape indifference curves, never appear as arguments of the utility functions.

(4) Nondiscrimination in markets

Any individual can exchange with any other individual any commodity for any other commodity.

(5) Uniformity of prices

At any instant of time, there prevails one and only one price for each commodity.

(6) Individual's infinite passiveness

Each and every individual accepts the prevailing price system as a given, not attempting to alter it in any sense; coalitions cannot form;[18] individuals' needs and wants, capacities and technological knowledge are not susceptible of change from within; finally, individuals must maximize

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17. On the difficulties presented by public goods in a market economy, see P.A. Samuelson, "Public Expenditure and Taxation."

18. That spatial economics and perfect competition are incompatible has been known for years (outside urban economics, of course). See H. Hotelling, "Stability in Competition"; "Market and Supply Area Analysis and Competitive Equilibrium" (chapter 7 of W. Isard's Location and Space Economy); M.L. Greenhut, Microeconomics and the Space Economy.

their objective functions.[19]

(7) Quiescence of the economy

If the economy is in equilibrium,[20] there exists no manner whereby it can change from within: all changes have to come from without, which in the framework of perfect competition means without the real world: changes in individuals' objective functions, and constraints, are brought about by a superhuman agency, acting as if it fulfilled a purpose. Here we have teleological explanation at its purest.

(8) Perfect foresight

Every individual knows the whole future history of the economy.

(9) Nonexistence of any government

For one thing, the individuals' assumed behavior renders such an institution useless; for another, public expenditures and taxation do not exist.

In cities, however:

(a) Governments do exist, producing commodities for which markets do not necessarily exist (health care, sanitation and sewerage collection, police and fire protection, park maintenance, public education), and which are paid for

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19. Strange as it may seem, such behavior is referred to as "free" and "sovereign"; individuals are said to be making "choices" and "decisions."

20. A price system and a set of individual rates of consumption and production make up an "economic equilibrium" if, when such a system prevails and individuals consume and produce at such rates, all objective functions are maximized and all markets cleared.

out of taxes, transfers and subsidies (which do exist).[21]

(b) Noncommodities are relevant: fear, insecurity, squalor, unlivability do affect individual behavior, a good prima facie evidence existing that they aggravate the flight to the suburbs (symptomatically, called "flight from blight").

(c) Individuals' behavior does affect directly others' objectives, traffic congestion and smoke pollution constituting the most conspicuous examples.[22]

(d) For one, a landlord does not behave with infinite passivity: he leases a piece of real estate for what it can fetch.[23]

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21. For a formulation in which households "shop around" for government services, see C.M. Tiebout, "Local Expenditures."

22. Such phenomena are usually called "externalities," their study going back to Mandeville's Fable of the Bees (Vol. 1, p. 25), and to Adam Smith's Moral Sentiments (part III, chapter III, pp. 160-183; part IV, chapter I, pp. 209-218). For a recent bibliography on the subject, see Mishan, "Externalities."

23. This behavior, as monopolistic as can be imagined, is transmogrified into a perfectly competitive one by such phraseological expedients as: "This appropriate set [of economic characteristics] yields, for each site, the maximum rent, all of which accrues to the landowner. The competitive process wipes away any surplus profit..." (Isard, Location and Space Economy, p. 196, emphasis added); "If utility is measured by rent (under competition any surplus in excess of costs will accrue to the landlord)...we obtain a concentric pattern of land use..." (Richardson, Urban Economics, p. 59, emphasis added); "...the actual rent gradient in a city is produced by competition among uses..." (Heilbrun, Urban Economics, pp. 108-109, emphasis added).
It might well be argued that in the above quotations "competition" means "imperfect competition": still, it might just as well be argued that the omission of the adjective "imperfect" was contrived to mislead the reader--in our opinion, the insistence on "equilibrium" and "Pareto optimality" tend to favor the latter argument.

(e) Markets do discriminate: choices open to Negroes, in housing and employment, are much more limited than those open to whites, this seeming to be an important reason why black ghettos exist.

(f) The economy is never quiescent, nor does it adjust infinitely quickly: downtown office buildings do not turn instantly into suburban homes.

Now, those simple examples, part and parcel of every urbanite's daily experience, reveal that urban economics set out to perform an extremely difficult task. Nevertheless, some empiric theories have been developed, but all of them had to abandon, at some stage, one or more of the assumptions of perfect competition.[24]

In addition, the virtual absence of explicit recognition of spatial extension in economics, conventional or otherwise, complicates matters even further: individuals and their activities are treated as if they did not occupy any part of space whatsoever (spacelessness), or as if they could be everywhere at once (ubiquity). Clearly, such a state of affairs does not help to develop an economic theory of urban life: above all, cities amount to concentrations over space of human constructions (houses, buildings, plants, streets) which do occupy space, and which are put to use by human beings, who are not ubiquitous.

Having commented upon the formal perspective from which urban economics intends to inquire into the cities' crisis,

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24. Cf. p. 55 below.

we now turn to such problems as it has been striving to formulate and solve scientifically (cf. p. 22 below); these might be divided into three classes: fundamental problems; problems of explanation; problems of prediction.

Fundamental problems pertain to the economic raison d'être of the city, to those economic phenomena which originated it, to the economic functions it performs, the economic purposes it fulfills;[25] problems of explanation (also called "positive problems") relate to the city as it is; those of prediction (also called "policy problems"), to the city as it would be, under alternative conditions.

I) Fundamental Problems

Urban economics views the origin and the raison d'être of cities from two standpoints: from that of commonsense history; from that of conventional economics, whose non-recognition of spatial extension leaves only two choices to the urban economist--either the city is conceived of as a spaceless economic entity, or the notions of extension, friction of space and transportation costs are superimposed upon the conceptual, though by no means upon the analytical, framework of conventional economics. Thus, an even more curious combination is generated, wherein no sooner is some

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25. See, for instance, "The Urban Perspective: Its History and Future," chapter II of W.L. Henderson and L.C. Ledebur, Urban Economics; "Specialization, Trade and Urban Growth Before the Industrial Revolution," in J. Heilbrun, Urban Economics, pp. 8-10.

reference is made to space than it is forgotten: in particular, the notions of economic equilibrium and Pareto optimality, complete with panegyric overtones, are employed as if a theory of spatial perfect competition existed--or could exist. Yet, extension and friction of space bring forth monopoly elements: the supply of land up to a given distance from a center being fixed, landlords cannot seriously be expected to behave infinitely passively. By the same token, the most important--and only--"result" of conventional economics is lost, namely that perfect competition brings about a state of the economy displaying some properties of optimality, defined in some ad hoc manner. Of old, such a state was said to represent the "maximum social utility," but after some unforeseen and undesired egalitarian connotations were perceived in the concept, it was replaced by that of "Pareto optimality," or "efficient allocation of resources": then, all income distributions became "just." It goes without saying that to anyone who did not fight his way through the nuances and niceties of economic equilibrium, the message was clear: perfect competition (read capitalism, preferably without government intervention) is the best form of economic organization conceivable.

On the other hand, commonsense descriptions are much more earthly (let us not forget that common sense is impregnated with spatial ideas), attributing the rapid urbanization in Western countries soon after the onset of the Industrial Revolution, in the last quarter of the eighteenth

century[26] to three advancements: in agriculture; in manufacturing; in transportation. Progress in agriculture released a considerable portion of the labor force to non-agricultural pursuits, as a surplus of food became guaranteed; the advent of the factory system occasioned concentrations of workers over small areas; factories tended to locate alongside the new routes (at first, canals; after, railways), while warehouses, banks, law offices clustered about their points of service (ports, railway heads).

Yet, when those phenomena are forced into the mold of conventional economics, severe difficulties arise: the assumptions of spacelessness or ubiquity render the notions of friction of space and transportation costs meaningless, as well as those of proximity, contiguity and agglomeration, any essay to utilize spaceless or ubiquitous economies of scale, externalities, or increasing returns, for explaining spatial agglomeration being, moreover, self-contradictory; from the standpoint of conventional economics, the only "spatial arrangement" conceivable is complete "dispersion."

A somewhat less bad, even if question-begging, manner of addressing the issue is, after the superimposition of some spatial notions, to assume certain agglomerations at the outset (say, of raw materials or consumers), and to reduce further agglomeration to attempts at diminishing transportation costs. Sometimes such diminutions in costs

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26. By 1776, when A. Smith first published his Wealth of Nations, the foundations of conventional economics had already been laid down.

are called "localization economies," or, when division of labor is contemplated, "urbanization economies."[27]

Still, no description, let alone explanation, of agglomeration economies has been advanced as yet; a number of authors, in a gesture of desperation, state simply that economies agglomerate because of "agglomeration economies," quite like post-Renaissance, pre-Galilean physicists who used to state that some bodies fell because of a "principle of gravity," while others rose because of a "principle of levity." Alas, if such "explanations" were accepted then, they are not so any more: actually, the phrase "agglomeration economies," by itself, does not explain anything--it only names a phenomenon demanding to be explained.

All said and done, the prospect of explaining why cities exist, within the framework of conventional economics (even with its spatial superimpositions), looks rather bleak: it is not for nothing that here and there urban economists avail themselves of Aristotle's "social animal," or more modern "gregarious instincts."

In a comparable manner, our textbooks sometimes assert that one of the main functions of cities is to permit interpersonal, face-to-face contacts: here again, conventional

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27. This is the approach of "location of industries," a subdiscipline of regional economics; it has been used from Alfred Weber through E. Hoover to M. Greenhut. Location of industries, even though quoted in all textbooks on urban economics, seems to be regarded as falling outside their province, the same applying to spatial duopoly, market areas and urban hierarchies: the only link between regional and urban economics is provided by Thünen's theory of agricultural location.

economics, recognizing only individual-commodity relationships, never individual-individual, is useless.[28]

To sum up, the origin of cities is all but unintelligible even within the superimposed-upon framework of conventional economics (within the non-superimposed-upon, it is absolutely meaningless). For all that, between understanding reality and putting forth "models" and "results" of no empirical significance, but mathematical allure, urban economists appear to lean toward the latter: form continues to prevail over content.

Furthermore, whether or not our textbooks regard urban economic history as part of their discipline is far from clear; at the same time, they devote more and more attention to historical discussions: names like H. Pirenne's and L. Mumford's are frequently quoted. Yet, if conventional economics allows some maneuvering in dealing with "agglomeration economies," its worthlessness in urban history is manifest. But, how could urban growth and decay, deterioration of old neighborhoods, flight to new suburbs, not to mention rural-urban migration trends, be explained, if not in historical terms? Were not these the very phenomena which, in the first place, originated urban economics?

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28. All authors of urban-economics textbooks who mention explicitly the problem of social interaction have to abandon it later. (See H.W. Richardson, op. cit., p. 16, l. 19; W.L. Henderson and L.C. Ledebur, op. cit., Ch. 1.

The latest attempts at considering social interaction within a framework not too different from that of conventional economics have been, in our opinion, a veritable distaster.Cf. G.S. Becker, "A Theory of Social Interactions," and "Altruism, Egoism, and Genetic Fitness," by the same author.

II) Problems of Explanation

(1) Urban growth

The question begs to be asked, whenever urban growth is mentioned, of what is it that urban growth is a growth in: Is it population? Employment opportunities? Aggregate urban output? Aggregate urban money income? Aggregate urban real income? Urban real income per capita? Social utility?

To be sure, growth in the national economy is usually measured in terms of aggregate output, there being an extensive literature on economic-growth models, along with a plethora of relevant data, as well as several techniques of aggregation: conceptualizing the city as a spaceless open economy, an attempt can be made at "transplanting" those models to the study of urban growth(measured in terms of output).

Not many models of this type were developed, and even those models always assume instantaneous adjustment towards an equilibrium state, recognizing no lags. Still, lags do exist, higher-income groups adjusting much more quickly than lower-income.

Thus, the measurement of urban real income involves problems, which, far from having been solved, did not even receive a decent formulation; urban money income would reveal little of any use; social utility, if measurable, would be a much better concept.

A "demographic" approach (to conceive of a city's growth as an increase in its total population, or in its population

within given real-income brackets, or employed in specified occupations) appears to be more fruitful, besides permitting easier measures: as a matter of fact, the tally of persons is the easiest of all sociological measurements.

Some work on urban development, or better, on social changes associated with urbanization, was carried on by sociologists; at first, by the Chicago School of Human Ecology, constituted by R.E. Park, E. Burgess, R. Mackenzie and their disciples; later, by L. Schnore and his students. As should be expected, urban economists regard this work as falling outside the limits of their professional competence. About the so-called "simulation models," like those proposed by Forrester and Lowry, we shall have something to say later (cf. fn. 52 and pp. 59-61 below).

In brief, the problem of urban growth, insofar as urban economists are concerned, consists in explaining (also in predicting and retrodicting) increases or decreases in the urban population, stratified by some social-welfare index.

(2) Spatial arrangement of economic activity within an urban area.

This problem received more attention than any other in urban economics, its formulation being very simple: given that a city's entire land is put to a number of mutually exclusive uses (including possibly vacancy), to explain the city's land-use pattern.

Of all the uses to which urban land can be put, residential are the most important (in terms of percentage of total

developed area), followed by transportation (streets, roads, highways); intrametropolitan industrial location is in a purely descriptive stage; recreational and institutional are seldom mentioned.

III) Problems of Prediction

(1) Housing, segregation and urban poverty

Within the discipline of housing economics, housing is regarded as simply another durable good, even if extremely durable. In contrast to this, the concern of the urban economist is to predict the consequences on the spatial distribution of housing (stratified in terms of some quality measure), population (stratified by race, say) and poverty, within an urban area, of alternative policy instruments such as: urban redevelopment, urban renewal, residential rehabilitation, urban homesteading, public housing construction, exclusionary zoning ordinances, suburb breakup.

Needless to say, it is none of his attributions to prescribe or advocate, let alone provide rationalizations or moral justifications for any course of action or inaction: it behooves the body politic to select, adopt and implement the appropriate policies, after weighing up scientists' predictions and other arguments.

(2) Urban transportation

At least in terms of money spent, this has been the most thoroughly studied problem in urban economics: Several large-scale metropolitan "studies" have been set up (such as the

Penn-Jersey Transportation Study and the Chicago Area Transportation Study) to help predict how different transportation programs would affect metropolitan growth and land-use patterns; results, however, have been disappointing.

(3) Congestion and pollution

Here urban economists attempt to predict the effect of several schemes (tax imposition, subsidy granting and toll levying); to our knowledge no such predictions were tested.

(4) Urban public finance

The man in the street has it that central cities face increasing public expenditures and eroding tax bases: the case of New York City's near bankruptcy is fresh in everybody's memory. Cities, however, as opposed to nations, cannot impose immigration quotas or levy tariffs; nor can they, in many cases, annex their suburbs: of course, under such constraints, the problem is insoluble, ceasing therefore to constitute a problem. However, if some of these constraints are rendered inactive, or if the federal government takes over or finances some of the city's operations, certain solutions are possible, the urban economist having the task of forecasting the consequences of each alternative policy.

His task is nevertheless hindered by the underdevelopment of both public economics and theoretical political science (How does a city council function?), progress as a result having been extremely slow.

Because urban economics sets out to consider its

problems from the standpoint of neoneoclassical economics, and because neoneoclassical economics is considered, by its practitioners, a scientific discipline (cf. fn. 51 below), urban economics promises, by implication, <u>scientific solutions</u>.

Thus, to separate the wheat from the chaff, we turn now to the relations between economics and epistemology.

Chapter II

Urban Economics and the Scientific Attitude

By "contemporary metascientific usage" we mean here the form taken nowadays by metascience (the "science" of science), a branch of epistemology (theory of knowledge). Even though many versions of epistemology have been advanced since antiquity, thereby casting doubt over what does constitute scientific knowledge, it might be said that at present a consensus prevails.

Suffice it to peruse the recent works on the subject--the Proceedings of the International Colloquium in the Philosophy of Science, held in 1965; The Critical Approach to Science and Philosophy, edited by M. Bunge; The Philosophy of Karl Popper, edited by P.A. Schlipp; above all, the splendid expository volumes by M. Bunge, Scientific Research --to confirm this idea.

To be sure, there remain some intramural quarrels, such as the Popper-Kuhn-Lakatos controversy over the evolution of scientific thinking, or the attempts to vindicate some kind of "inductive logic," but otherwise there reigns a complete agreement that the advancement of knowledge, not the attainment of absolute truth, is the aim of science; that, though not infallible, no other style of thinking has been more fruitful than science; that that knowledge alone is empirical, which is intersubjectively accessible; that the strength of science lies in its being self-adjusting and self-correcting, as well as in its capacity to learn from past errors; that

dogmatisms have hindered more than helped the growth of knowledge.

Among the philosophical presuppositions generally recognized by contemporary metascientists are:[29] that the external world (something outside the cognitive subject's mind) is real; that reality is divided into several levels[30] (the physical, the biological, the psychological, the sociocultural) characterized by laws of their own, the higher levels being rooted in, but not reducible to, the lower;[31] that events are lawful;[32] that nothing comes out of nothing or goes into nothing; that reality is cognoscible; that the validity of Aristotelian deductive logic and of mathematics do not depend on experience; that supernatural modes of cognition are not to be countenanced by science.[33]

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29. See M. Bunge, Scientific Research, Vol. I, pp. 291-301.

30. On the notion of "level," as well as on the relations between cognitive and ontic levels, see M. Bunge, Metascientific Queries, pp. 108-123, and M. Bunge, The Myth of Simplicity, pp. 36-48.

31. On the problem of "emergence," posing itself whenever we try to reduce biological to physical phenomena (or economic to psychological), see C.D. Broad, Mind, ch. 2. See also the chapter, "The Autonomy of Sociology," in K. Popper, Open Society.

32. On the notions of "lawfulness," "determinateness," and "causality," see M. Bunge, Causality.

33. On the role of intuition in science, see M. Bunge, Intuition and Science.

So remarkable an achievement resulted from a cooperation among physicists, baffled and intrigued by the turn their discipline had been taking since the beginning of the twentieth century; by philosophers with a penchant for epistemology and its evolution; by historians of science, who are by and large historians of physics.

Yet, the social sciences are rarely touched on in those discussions, presumably because of their alleged prescientific stage, or perhaps because of lack of interest among social scientists in methodological or epistemological questions. At the same time, the rare controversies in economic methodology tend to become bitter and acrimonious, hence difficult to follow, being, moreover, fragmentary, incomplete and over minor points.

Therefore, in order to discuss some questions of method bearing upon urban economics in a not-too-hapahzard manner, we shall follow M. Bunge's metascientific terminology, sequence of ideas, and train of thought, as our main path toward a better comprehension of the relationships between urban economics and the scientific attitude.

To begin with, it should be emphasized that commonsense, or ordinary, knowledge differs from the product of science:[34] commonsense does not transcend ordinary thought and ordinary experience, whereas science concerns itself

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34. Commonsense laws (1) refer to daily life events, (2) presuppose no science, (3) have not been subjected to scientific tests, and (4) are nonsystematic (isolated). Cf. M. Bunge, Scientific Research, Vol. I, p. 354.

with unobservable entities, with hypothetical constructs, and, above all, with theories: in this sense, the latter is much more than a simple extension, however enlightened, of the former, although yesterday's unobservable may be today's commonsense. (Think of "evolution," or "progress.")

Economics, in contrast, say, with physics, has been developed and divulged at all levels of abstraction, from the most casual and folksy commonsense to the most abstruse formualtions. On the commonsense side of economics we find the majority of the Mercantilists:[35] they discussed specific barriers to international and intermunicipal trade (river and road tolls, town dues); the balance of particular trades; protection of some crafts: they were too close to action for any universal concept or law to emanate from their writings; if their policy recommendations seem today self-contradictory, it is only because reality appeared so to them; they did not busy themselves with closed economies, or with barter exchanges, for no simpler reason than that such phenomena did not exist.

Only from this vantage point is it possible to evaluate their "confusion" of national power with national wealth, identified with the accumulation of precious metals: the efforts of modern scholars like Loria,[36] J.M. Keynes,[37] and

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35. The most complete account of Mercantilism we are aware of is E.F. Heckscher, Mercantilism.

36. A Loria, "Italian School of Economists," in Palgrave's Dictionary. See, in particular, his account of Antonio Serra's work.

especially Spengler,[38] to read theoretical considerations into their pamphlets and tracts miss the point completely, in our opinion.

Also, common sense plays a large part in such economic treatises as A. Smith's Wealth of Nations and J.S. Mill's Principles; in the works of the German Historical School, and American Institutionalism: among the living economists, the most commonsensical is J.K. Galbraith. The great drift away from common sense (as well as from reality tout court) befell economics with the pontificate of "the neoclassical synthesis" (at least in this country).

In the vicinity of urban economics, commonsense arguments impregnate pioneer works written in the late nineteen-fifties, like E.M. Hoover and R. Vernon's Anatomy of a Metropolis, and J. Gottman's Megalopolis; more recent examples are J.W. Hughes's Urban Homesteading and H.R. Lottman's How Cities Are Saved.

Yet, the most important and interesting activity in contemporary science is the construction of theories (hypothetico-deductive systems of propositions): data gathering and packaging, once seen as the main function of a scientist, play no significant role nowadays, when data are collected to test theories with (not to extract theories from).

Because they constitute the components of theories,

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37. J.M. Keynes, General Theory, pp. 334-351.

38. J.J. Spengler, "Mercantilism and Physiocratic Growth Theory."

some annotations upon the nature of hypotheses might be to the point. Hypotheses in the factual sciences[39,40,41] are formulae (1) referring to facts unexperienced (often unexperientiable), and (2) corrigible in consideration of the advancement of science; they purport to transcend the evidence accounted for by them; the requisites for their formulation are: (1) they must be well-formed and meaningful in some scientific context; (2) they must be empirically testable (directly or indirectly), given the presently available body of theoretical knowledge and empirical procedures;[42] (3) they must be grounded on,[43] or at least compatible with, accepted scientific knowledge: by virtue of condition (1), isolated generalizations are not scientific hypotheses;[44] condition (2) keeps off crackpot ideas,

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39. In the distinction between formal sciences (deductive logic, mathematics) and factual sciences (physics, psychology), see M. Bunge, Scientific Research, vol. I, pp. 21-24.

40. Factual sciences are usually called "empirical sciences."

41. Factual hypotheses may be observational or nonobservational; phenomenological or representational. See M. Bunge, op. cit., pp. 247-248.

42. Empirically testable hypotheses may be: purely confirmable; purely refutable; both confirmable and refutable (ibid., p. 266).
In economics "testable" means, in general, "refutable."

43. In increasing order of groundlessness we have: corroborative hypotheses, plausible hypotheses, empirical hypotheses, guesses (ibid., p. 256).

44. In the vicinity of urban economics, isolated generalizations (statements outside any scientific context) such as "'supply restrictions' on Negro residential choice is largely responsible for the wide discrepancy between

rendering testability less critical; (3) makes illegitimate the "use" of science-fiction devices, like time machines or mind-reading computers, to confer scientific status to a statement.

Furthermore, scientific theories aim at: (1) systematizing knowledge, especially by deriving lower-level hypotheses from higher-level ones; (2) explaining facts;[45,46]

ownership rates for otherwise identical black and white households," (J.F. Kain, "Housing Market Discrimination"), "blacks have more difficulty obtaining mortgages in single family homes [than whites]," (J.F. McDonald, "Housing Market Discrimination"), "the property tax is progressive," (H. Aaron, "Property Tax"), "whites prefer not to live near nonwhites," (M. Bailey, "Effects on Race"), "nonwhites pay more than whites for equal quantities of housing," (R. Haugen, "Market Separation"), are called "hypotheses": some of them (like McDonald's and Bailey's) are simply low-level generalizations, in whose formulation no unobservable appears; yet, stray statements involving unobservables (supply restrictions, quantities of housing) are epistemological monstrosities, because nonobservational statements are never testable directly, stray nonobservational statements not being testable at all: thus, a frequent stratagem is to replace the unobservable by some "proxy" (say, quantity of housing by floor space), thereupon testing the resultant low-level generalization. (Of course, if the proxies substituted for the more high-sounding unobservables in the statements to begin with, these would lose much of their glamor, hence their impact.) Finally, a common characteristic feature of such stray-statement "testing" should be mentioned: the exhibition of a glittering and resplendent statistical armory, more often than not contrived to conceal the argument's conceptual and theoretical indigence. Yet, it is based upon procedures of this sort that many far-reaching policy recommendations are advanced.

45. Against this view, see K. Pearson, who, in his Grammar of Science states it to be the aim and method of science "the classification of facts, the recognition of their sequence and relative significance," (p. 6) in order to discover "some brief formula from which the whole group of facts is seen to flow." (p. 31) Explanations, at least causal explanations, should not be the business of scientists--on this Pearson agrees with E. Mach, G.R. Kirchhoff, and H. Poincaré.

(3) increasing knowledge by generating predictions; (4) enhancing the testability of hypotheses; (5) guiding research:[47] in urban economics, the so-called trade-off theories of residential location could be said to fulfill these aims. (See chapter III below.)

In addition, a representational theory (translucid-box theory), that is to say, one intending to represent the mode of operation of its referents (the mechanisms responsible for overt behavior),[48] ought to be preferred to a phenomenological (black-box)[49,50] one.

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46. In the enormous and deleterious influence of Pearson's Grammar upon agricultural-economic research, see L.A. Salter, Critical Review.

47. Cf. M. Bunge, op. cit., p. 383.

48. The term "mechanism" here does not designate, nor does it signify a commitment to, the seventeenth-century philosophical programme (ontological mechanism), claiming that all reality is physical, not to say mechanical. Thus, we talk about the mechanism of photosynthesis, the mechanism of biological growth, the mechanism of the evolution of animal species (spontaneous variations plus natural selection, the variations being in their turn explained by genic and chromosomic mutation). Needless to say, the deeper the explanation, the more likely the presence of unobservables.

49. Phenomenalists and descriptivists, by virtue of their self-imposed tenets, are barred from advancing representational theories, at least insofar as they involve hypothetical constructs or intervening variables. According to Pearson, for example, the three primitives of Newtonian mechanics ("point particle," "force," and "mass," all unobservable) are nothing more than relics of medieval metaphysics.

50. "Black-boxism," because it inhibits the asking of why-questions, is essentially obscurantist.

With such a conception of science, present-day economists, at least those abiding by the neoclassical canons (excepting von Mises and his most uncompromising followers), would tend to agree, if only they took the pains to think about it:[51] the presence in the scholarly economic literature of measurement-without-theory arguments,[52] and of

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51. As a matter of fact, methodological discussions are rather rare in economics: from J.N. Keynes's Scope and Method up to L. Robbins's Nature and Significance, there seems not to have existed much of an interest in philosophy of science: it is in 1938, with the publication of T.W. Hutchison's Significance and Basic Postulates, that a purely metascientific rule (K. Popper's "falsifiability criterion") enters the economic-theoretical scene. In 1953, Milton Friedman, resentful over the miserable failure of the maximization-of-profits-by-businessmen assumption in empirical tests, launched an attack, in his "Methodology of Positive Economics," against any attempt at testing the neoclassical assumptions: provided they produced falsifiable predictions, false assumptions should be accepted; he even hinted that the falser the assumptions the better.

Since then the controversy has tended to concentrate on minor points: all participants agree that economic theory is a hypothetico-deductive system of testable propositions. Thereon, see F. Machlup, "Problem of Verification," T.W. Hutchison, "Machlup on Verification," G.C. Archibald, "State of Economic Science," E. Rotwein, "Methodology of Positive Economics," E. Nagel, "Assumptions in Economic Theory," P.A. Samuelson, "Comment on Ernest Nagel's 'Assumptions,'" J. Melitz, "Friedman and Machlup." See also S.R. Krupp, (ed.), Structure of Economic Science.

52. In addition, the literature on urban areas is littered with measurement-without-either-theory-or-data "arguments," the most famous example being J. Forrester's Urban Dynamics. Those we shall not comment upon.

drawing-factual-conclusions-from-formal-assumptions discussions, seems to be more a consequence of ignorance, apathy, inertia, or sheer intellectual dishonesty, than a commitment to a particular epistemological programme (classical empiricism, in the first case; classical intellectualism, in the second). Both stances, nevertheless, could be defended--although they are not--by resorting to the authority of Descartes and to that of Francis Bacon.

The better to understand drawing-factual-conclusions-from-formal-assumptions discussions, as well as the extreme apriorism of L. von Mises, we might go back to Descartes' 1628 "Rules":[53] there he sets out to "search for the direct road towards truth [in those objects] about which we [can] attain a certitude equal to that of the demonstrations of [a]rithmetic and [g]eometry."[54] For this, he admits only two operations: intuition and deduction. While "intuition" designates "the undoubting conception of an unclouded and attentive mind, and springs from the light of reason alone,"[55] "deduction" designates "all necessary inference from other facts that are known with certainty."[56] "These two methods are the most certain routes to knowledge, and the mind should

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53. In the "Rules," written before Galileo's condemnation (June 22, 1633), and published posthumously, we perceive a more candid Descartes. Thereafter, he came always to keep an eye on the censor.

54. Descartes, "Rules,"pp. 5, 11, 28-31.

55. Ibid.,pp. 7, 11, 16-18. (Emphases added.)

56. Ibid.,pp. 8, 11, 6-7.

admit no others."[57]

But how can man know whether or not what seems true and clear is not really false? In other words, what links thought with objective reality? Or, in modern terms, how is the mind-matter dualism solved?

Descartes makes himself very clear in the "Seventh Set of Objections": "...if I do not know whether God exists, and, if he exists, whether he may be a deceiver, I clearly am incapable of ever being sure about anything else."[58] There he confirms what he had declared in the "Principles": "...it is certain that we shall never take the false as the true if we only give our assent to things that we perceive clearly and distinctly. Because since God is no deceiver, the faculty of knowledge that He has given us cannot be fallacious..."[59]

Thus, in the last analysis, "[e]verything is true which [is perceived] very clearly and distinctly."[60]

It goes without saying, were the existence or the veraciousness of God denied, the whole edifice of Cartesianism would collapse. Still, the faith in reason <u>alone</u> lingered on long after God left the philosophical scene: Cairnes, referring to some economic thinkers, says: "Those principles of the science [political economy] which require no proof, depending directly upon consciousness, as, for example, the

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57. <u>Ibid</u>., p. 7.

58. Descartes, "Seventh Set of Objections," p. 262.

59. Descartes, "Principles," p. 236.

60. Descartes, "Seventh Set of Objections," p. 262.

desire to obtain wealth at the least sacrifice, they have, in general, silently assumed..."[61] Robbins, albeit paying lip-service to "everyday experience" asserts: "We do not need controlled experiments to establish their validity; they [the postulates of political economy] are so much the stuff of our everyday experience that they have only to be stated to be recognized as obvious."[62]

But, by far the most apriorist of all economists (he would call himself a "praxeologist")[63] is L. von Mises: of praxeology he affirms: "Its statements and properties are not derived from experience. They are, like those of logic and mathematics, a priori";[64] on the other hand, "[p]raxeology conveys exact and precise knowledge of real things."[65] Here, in the manner of a Descartes without God, von Mises gives a rather impressive example of the drawing-factual-conclusions-from-formal-assumptions "method."

In urban economics, this line of reasoning is found in those papers which discuss optimum land-use patterns within

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61. Logical Method, p. 100.

62. Nature and Significance, p. 79.

63. J. Zielenewski, in his "Remarks of a Polish Praxeologist on the Subject of a Paper by C. Gutierrez," begs that von Mises' "praxeology" not be confounded with the "science on the conditions of efficiency of human action," which he also calls praxeology; this he traces back to Martin (Le travail humain), Bourdeau (Théorie des sciences) and Espinas (Les origines de la technologie).

64. Human Action, p. 32.

65. Ibid., p. 39.

a city,[66] especially in J. Mirrlees's "Optimum Town": therein, after examining the solution of a problem in the classical calculus of variations (the maximization of an uninterpreted functional),[67] he concludes, without qualifications: "...the technological desirability of geographically concentrated production activity is, in itself, and apart from all considerations of diverse tastes and skills, a reason for advocating some inequality of incomes."

Here, it seems, we have a remnant of classical intellectualism: even Mirrlees's "critics," such as Dixit,[68] accept, in principle, this "spontaneous generation" of empirical content; so far as we are aware, no refutation of Mirrlees's anti-egalitarianism has been advanced reminding the reader that syntax and semantics do not coincide.[69]

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66. See, for example, R. Solow, "Congestion Cost," Y. Oron, "Optimum vs. Equilibrium," A. Dixit, "Optimum Factory Town."

67. To those who would affirm that Mirrlees does interpret (somewhat implicitly) his functional, we ask: why does he not utter a single word about the existence of a cardinal measure, or about the meaningfulness of interpersonal comparisons, of utility, both of which he would have presupposed, had he interpreted his functional? Why that functional and not any other?
To say simply that a sum of cardinal utilities denotes welfare by convention, would lead us outside the realm of factual-scientific inquiry.

68. See A. Dixit, "Optimum Factory Town."

69. Following a similar path, Hegel "proved," from the metaphysics of Plato's Timaeus, that there could not exist more than seven planets. Commenting on Hegel's "miraculous" feat, Popper says: "A master logician, it was child's play for his powerful dialectical methods to draw real physical rabbits out of purely metaphysical silk hats." (Open Society, Vol. 2, p. 27.)

With minor (if any) modifications, our syntax-is-not-semantics argument applies to all so-called mathematical models involving "social utilities" (not to be confused with Central Planning Board's utilities)--models of optimal economic growth, for example. By the way, the use of a notion like "utility" at the sociocultural level entails problems of interpretation that the majority of writers on "optimal urban policies" appear to ignore absolutely.

Thus, all said and done, classical intellectualism, like every other kind of infallibilism, failed.

The other infallibilist epistemological programme met with in the economic literature is classical empiricism, usually ascribed to Francis Bacon. In his Novum Organon, published in 1620, he sets out to interpret (to read the book of) nature: "[m]an...does and understands so much as he may have discerned concerning the order of nature by observing or meditating on facts: he knows no more, he can do no more."[70] Moreover, "just as the sciences which now prevail [mechanics, mathematics, medicine and magic] are useless for the discovery of results, so the logic also which now prevails is useless for the discovery of sciences":[71] here Bacon's position with respect to logic is the exact opposite of Descartes's.

Nature will reveal itself if only we dispossess the phantoms (presuppositions), those of the theatre

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70. Novum Organon, p. 11.

71. Ibid., p. 13.

(philosophical systems) being especially dangerous: once our mind is free, then we are able to dis-cover the truth in two steps, of which only the first ("discovery of axioms by experience") is treated in the Novum Organon; such discovery proceeds by nine "mental aids," again, the first ("collection of prerogative instances) being the only one drawn out in the Novum Organon: the remaining eight are only enumerated,[72] and, to our knowledge were never developed by Bacon in any other work; thus, we have only a very small fragment of his system, consisting in the advice of merely collecting instances (observations), followed by himself in his investigation on heat, wherein, after a seemingly endless list of instances, he discovers nothing. Furthermore, his own example shows how difficult it is to "dispossess the phantoms": in his "Table of Declination," he refers to the phenomenon of antiperistasis ("resistance or reaction roused by opposition or by the action of an opposite principle or quality," according to Webster's Third New International Dictionary), a phenomenon modern scientists have been unable to observe.

Be that as it may, the path of collecting instances to arrive at the "truth" enjoyed some popularity among Victorian scientists; among the few Victorian economic methodologists, however, Bacon's advice was not considered very fruitful:

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72. F. Bacon, Novum Organon, book II, aphorisms 21 and 52.

Bagehot names it derisively the "'all-case' method";[73] the elder Keynes had a peculair conception of Baconianism, rather possessed by phantoms.[74]

In economics, what resembles most a following of the Baconian programme are the business-cycle studies that tried to dispense with anticipations and prejudices, like those conducted by Juglar,[75] Kondratieff,[76] Mitchell,[77] and Burns:[78] in the vicinity of urban economics, studies purporting to determine which variables (besides distance from the center) affect population densities in cities,[79] or those attempting to determine what constitutes "housing quality" and "blight."[80]

Their success was moderate, for if on the one hand they reached some interesting propositions, these found no place in any preexisting theoretical framework; nor did their authors develop any theory, some of whose conclusions were the dis-covered hypotheses, or whose concepts included the

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73. W. Bagehot, "Postulates," pp. 100-101.

74. J.N. Keynes, Scope and Method, pp. 150-156.

75. C. Juglar, Des crises commerciales.

76. N.D. Kondratieff, "Long Waves."

77. W.C. Mitchell, Business Cycles.

78. A.F. Burns and W.C. Mitchell, Measuring Business Cycles.

79. R.F. Muth, "Spatial Structure," "Distribution of Population," "Urban Residential Land," and Cities and Housing, chapter 7.

80. J.F. Kain and J.M. Quigley, "Quality of Residential Environment," and "Value of Housing Quality."

newly-found-relevant variables.

The truth is that knowledge does not grow without preconceptions--data are gathered with some outcome in mind: then, since it is impossible to dispossess the phantoms, let us keep them under control, that is, let us specify with the greatest precision what it is that we are searching for--and preferably why.[81]

Now, after having seen how unconvincing are both stray-question asking and the "applications" of classical infallibilism in aiding the solution of scientific problems, we turn to the few scientific theories urban-economics has produced.

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81. On a possible case of data-faking to produce a desired conclusion, see "An Epitaph for Sir Cyril?"

Chapter III

Scientific Theories and Urban Economics

Urban economists would certainly have overstated their case, had they affirmed that their endeavor has been advancing scientific theories: as a matter of fact, in view of what it has been promising, urban economics has delivered very little science indeed. Therefore, if we desire to find, within the realm of urban economics, a system of propositions worthy of being named scientific, we had better search the literature strenuously: even then, scientific theories are to be found, if anywhere at all, only among those models of urban land use, which derive from Thünen's work on agricultural location.[82]

In the first part of his Isolated State (first published in 1826), Thünen postulates "...a...town, at the center of a fertile plain....Throughout the plain the soil is of the same fertility..."[83] Moreover, "[t]he...town must...supply the rural areas with all manufactured products, and in return it will obtain all its provisions from the surrounding countryside."[84] Thereupon he asks: "What pattern of cultivation will take place in these conditions?; and how will the farming system of the different districts be affected by their distance from the town? We assume

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82. Also known as "trade-off theories of urban location."

83. J.H. von Thünen, Isolated State, p. 7.

84. Ibid.

throughout that farming is conducted absolutely rationally."[86,87] Thünen then anticipates the answer: "[F]airly sharply differentiated concentric rings...will form around the town, each with its own particular staple product,"[88] because "[w]ith increasing distance from the town, the land will progressively be given up to products cheap to transport in relation to their value."[89]

What the last clause in the preceding quotation was intended to mean, is far from obvious,[90] in spite of the modern consensus that it signifies: "Crops are ordered according to land rent."[91]

Thus land rent presumably constitutes the backbone of Thünen's agricultural location theory (which is sometimes referred to as "Thünen's agricultural rent theory"); we might expect to find therein an explanation (a theory) of why it is that rent arises. Instead, after Thünen's having postulated: (a) that all crops are sold at one, and only one, point in

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85. Thünen often uses the passive voice, as if to avoid any commitment to defining who the economic agents involved are (as well as their claims).

86. This last clause is held to mean that land rent is maximized; unfortunately, Thünen's fuzziness on who the agents are, casts some doubts on what is rent, and what is profit. See, however, (P. Hall's) note 1 on page 8 of Thünen's Isolated State.

87. Thünen, op. cit., p. 8.

88. Ibid.

89. Ibid.

90. Cf. P. Hall's "Introduction" to the Isolated State, pp. xxx-xxxiv.

91. R. Artle and P. Varaiya, "Location Choice," p. 423.

space; (b) that each crop fetches a single price at the market, irrespective of the farming system used ("cheap" corn fetches the same price as "dear" corn); (c) that farming is conducted absolutely rationally; (d) that property is privately owned; (e) that resources are needed to overcome the friction of space; after all these assumptions, rent becomes all but a primitive of Thünen's theory: he does not explain rent--he hypothesizes it.

In this respect Thünen differs considerably from Ricardo. (Both have been lumped together of late, Mills talking openly about "Ricardo-Thünen models.")[92] Here it might prove valuable to draw some parallels between Thünen's treatment of land rent, and Ricardo's. First, whatever we may think of them, Ricardo's considerations on population growth, on technological progress, on land fertility, on diminishing returns, on landlord innovativeness, supplied an explanation of rent--rent was, definitely, not a primitive for him.[93] Second, unlike Thünen, who defines land rent as a surplus, as a residue, in the manner of the Physiocrats (he even equates rent with net product [produit net]),[94] Ricardo defines rent as a price paid by a definite economic agent (the tenant) to another definite economic agent (the landlord) for a definite, albeit unobservable, commodity

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92. E. Mills, Urban Economics, p. 42.

93. For an excellent exposition of Ricardo's doctrine on rent, see M. Blaug, Economic Theory in Retrospect, pp. 68-91, 668.

94. Thünen, op. cit., p. 23.

(the original and indestructible powers of the soil):[95] both definitions would be reconcilable only if a commodity could be contrived whose price equaled Thünen's surplus; but even then we would run into some difficulties, for advantages of situation are neither original nor indestructible, as Carey pointed out more than a century ago, citing the example of Carthage.[96]

On the other hand, Thünen and Ricardo alike envision the land rent of a site as stemming from its superiority over that least favored site which is still producing for the market.[97]

Both theories were abandoned when J. Bates Clark's marginal-productivity theory of income distribution (in which land was viewed as a kind of capital) swept the economic profession, only to reemerge, during the nineteen-sixties, in some studies on urban location: at that time, working independently, three American social scientists put forth models of urban location and land use, exhibiting unmistakably Thünenian modes of thought.[98] Of the three works, we shall examine only Muth's and Alonso's, Wingo's book (in our opinion, one of the most unintelligible books on economics

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95. D. Ricardo, Principles, p. 67.

96. H.C. Carey, Political Economy, Vol. I, p. 191.

97. Cf. Thünen, op. cit., p. 147, and Ricardo, op. cit., p. 73.

98. L. Wingo, Transportation and Urban Land; W. Alonso, Location and Land Use; R. Muth, Cities and Housing.

ever written) being much more a crazy-quilt of statements than a theory.[99]

Both Muth and Alonso assume in their analyses: (1) a featureless plain upon which sits a city dominated by a single pole of attraction--the CBD[100]--outside which no good or service (except housing) is available; (2) a population occupying the land surrounding the CBD, and composed partially of utility-maximizing households, each of which has exactly one member working in the CBD; (3) that exactly three arguments enter each household's utility function, namely: the rate[101] of consumption of a composite commodity, whose price is uniform throughout the city; the rate of consumption of an unobservable commodity called "housing services," whose price <u>does</u> depend on distance from the CBD (the price of housing services is called "rent"); the rate of enjoyment, or better, of fruition, of an <u>in</u>accessible CBD; (4) that each household faces a budget constraint: the sum of the outlay rates for the purchase of the composite commodity, for the purchase of housing services, and for commuting to the CBD, must not exceed a given income rate--both commuting costs and income include "psychological components."

Although appearing, under the cloak of mathematics, to be just another problem in the Hicks-Allen formulation of

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99. It should be mentioned, however, that unlike Muth and Alonso, Wingo regards rent as a surplus, not as a price.

100. <u>C</u>entral <u>B</u>usiness <u>D</u>istrict.

100. Unless otherwise stated, "rate" means herein "rate per unit of time."

consumer theory, the above maximization-of-utility problem presents two distinctive features: (a) the consideration of noncommodities (commuting time and accessibility); (b) that of subjective (indirect, nonpecuniary, psychological) costs, in addition to objective (direct, pecuniary, nonpsychological) ones. Needless to say, the concept of "psychological costs" is perfectly meaningless in conventional economics. To understand the meaning, if any, of the above maximization assumption, as well as that of statements like "the household values commuting time at 30% of its wage rate," visible all over the urban-economic landscape, we must know more about the concept of "utility," the keynote of the trade-off theories.

Writing in 1874, soon after Jevons had published his Theory of Political Economy, Cairnes made the following comment on the "doctrine of utility": "In my apprehension [such doctrine] amounts to this, and no more--that value depends on utility, and that utility is whatever affects value. In other words, the name 'utility' is given to the aggregate of unknown conditions, which determine the phenomena, and the phenomenon is stated to depend upon what this name stands for."[102] Then, having remarked, quite correctly, that, under such circumstances, any other noun in the English language could substitute for "utility," he declares himself unable to discern the importance of such

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102. J.E. Cairnes, Leading Principles, p. 21.

an announcement.[103] Not much less than a century thereafter, Joan Robinson, treating the very same subject, states: "Utility is a...concept of impregnable circularity; utility is the quality in commodities that makes individuals want to buy them, and the fact that individuals want to buy commodities shows that they have utility."[104]

Therefore, the concept does not seem to have undergone a great deal of clarification, during almost one century: in fact, its vagueness has only continued to increase since the hedonistic economists (W.S. Jevons, F.Y. Edgeworth and M. Pantaleoni) proposed it as the explanation of value: with all their ties to utilitarianism, the British classical economists explained value exclusively in terms of cost. "[T]hings of which the cost of production is the same, must be of the same value," we are told by John S. Mill.[105]

Thus, "utility," which among the aforementioned hedonists designates, undisguisedly and unequivocally, "pleasure," becomes more and more ambiguous, or is replaced by another term: in the later Marshall it becomes "satisfaction";[106] in Wicksteed, "significance";[107] in Wieser, it designates "every quality that is calculated to bring about the

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103. Ibid.

104. J. Robinson, Economic Philosophy, p. 48.

105. J.S. Mill, Political Economy, Vol. I- p. 557.

106. A. Marshall, Principles, p. 122.

107. P.H. Wicksteed, Common Sense, Vol. I, p. 45.

satisfaction of need, or that merely prepares it effectively";[108] in Böhm-Bawerk, "everything that in [an individual's] eyes appears worth striving for."[109]

The reason for the concept having lost so much of its intension, while having gained so much extension, is to be found in the desire to render it as independent as possible from psychological underpinnings (especially hedonism), this being all the more true among the Austrian writers on subjective value theory; as a result, no explanation of value could be expected which depended on utility.[110]

Yet, general equilibrium theory has always discharged extremely important ideological functions, its scientific indigence notwithstanding: as long as its credibility lasted, a good case could be made that any governmental intervention would disturb, nay, destroy, the "economic harmonies," above all of which rose the impossibility of persistent unemployment.

Be it a coincidence or not, 1934, the year when the unemployment rate in the U.S. peaked (at 25%), was one of the best years ever for general equilibrium theory: two articles, by Hicks and by Allen, showed that the concept of

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108. F. von Wieser, Social Economics, p. 39.

109. E. von Böhm-Bawerk, Value and Price, p. 82 n.

110. On the numerous epistemological diseases plaguing Austrian subjective value theory, see G. Myrdal, Political Elements, pp. 80-103. Another deep analysis of the question is provided in A.R. Sweezy, "Subjective Value Theory."

"utility," whatever it referred to, could be dispensed in the derivation of the consequences of general equilibrium;[111] both authors turned subjective value theory into a logic of choice, inasmuch as the old idea of utility allegedly lost any psychological connotation, having given place to the idea of a scale of preference (which idea, incidentally, went back to Edgeworth and to Pareto, but whose importance somehow became clear only during the Great Depression), observable--so we are told--either by actual market choices, or by studying budgetary data, or by asking subjects questions about their hypothetical choices. Still, insofar as Hicks and Allen's formulation made choices depend on preference scales, at the same time inferring the preference scales from the choices themselves, it constitutes a perfect example of circular reasoning--here any semblance of explanation is farther than ever, Cairnes's comment describing the state of affairs better than ever. But, the demon of circularity was supposedly exorcised by two terminological spells: first, any word connoting pleasure or satisfaction was avoided, whenever that mysterious something households maximized had to be mentioned; second, it was repeated ad nauseam that this new formulation was ordinal, not cardinal. (Now, it is we who own ourselves unable to discern the importance of such an announcement.) In this manner, maximization assumptions became immune to any threat of refutation by reality; they

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111. J.R. Hicks, "Reconsideration," and R.G.D. Allen, "Demand Analysis."

turned into an absolute truth: people act as they act.

Although this evolution represents, from a metascientific point of view, a complete debasement and degradation, the apologetic power of those formulations was not at all negligible:[112] they could well "support" Robbins's contention that all policies holding wage rates rigid be abrogated.

Be that as it may, our interest does not lie in all this disgusting chicanery: it lies in whether the assumption that households maximize utility is meaningful, grounded, and testable. Therefore, we must ask several questions, to begin with: (a) What, after all, does the term "utility" designate? (b) Is the designatum of "utility" susceptible of numerical quantification? of measure?[113] Direct or indirect?[114]

Of the four approaches touched upon above (hedonism, Austrian subjective value theory, preference-scale consumer theory, revealed-preference consumer theory), only the first provides a decent designatum for the term "utility," namely pleasure. Furthermore, post-Renaissance hedonism makes up a well-known chapter in the history of moral philosophy.

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112. The Samuelson-Houthakker revealed-preference approach to the theory of consumer behavior is the same as Hicks and Allen's. Cf. H.S.H. Houthakker, "Revealed Preference," p. 173.

113. On the by-no-means-trivial question of measurement, see M. Bunge, Scientific Research, Vol. II, pp. 171-174, 194-249; on the specific case of psychological measurement, see S.S. Stevens, "Mathematics, Measurement, and Psychophysics."

114. An example of indirect measure (correlate) is that of "fear" by the adrenal level of the blood.

There exists no better frame of reference for discussing hedonism than James Mill's Analysis of the Human Mind: from there we can look back to Locke, Hartley and Bentham; forward to psychophysics and physiological psychology. The Analysis presents a sensationalist, associationist, and utilitarian approach to human behavior: Sensationalism (that doctrine which postulates all human knowledge as originating in sensations or sense perceptions)[115] can be traced at least as far back as to Hobbes,[116] Locke[117] and Hume,[118] having, moreover, exercised, through the account given by James Mill, a strong and lasting influence upon the classical economists, from Malthus on; of associationism (that doctrine which postulates all ideas as springing up from combinations or concatenations of revived sensations)[119] much the same could be said; utilitarianism, in contrast to sensationalism and associationism, received different definitions, the most precise being one of John Stuart Mill's, namely that utilitarianism asserts "that happiness, meaning by that term pleasure and exemption of pain, is the only thing desirable in itself; that all other things are desirable solely as means to that end...that pleasure and pain are the sole agencies by which the conduct

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115. Cf. James Mill, Analysis of the Human Mind, Vol. I,p. 78.

116. T. Hobbes, Leviathan, part I, chapters I-IV.

117. J. Locke, Human Understanding, book II, chapter I.

118. D. Hume, Human Understanding, section II.

119. Cf. James Mill, op. cit., Vol. I, p. 115.

of mankind is in fact governed...whether he is aware of it or not";[120] James Mill's treatment, however, is unsurpassable in its allure.[121]

As we pointed out earlier, the close ties between utilitarianism (which then implied sensationalism and associationism alike) and British classical economics did not prevent the explanation of value (read exchange-value) solely in terms of costs of production: it is of hedonistic economics that James Mill's psychology (at the time of its articulation a part of moral philosophy) constitutes the very foundation; and, ironically, just when economics came to rely critically on hedonism, psychology began to acquire the character of a distinct factual science--in fact, the whole "new" psychology was physiological.

The forebears of physiological psychology were: (a) the physiologist and anatomist E.H. Weber, whose known law (The least discernible increment of a stimulus is a constant proportional to the original stimulus)[122] was presented for the first time in 1834; to him is due the notion of "just noticeable difference" (j.n.d.); (b) the philosopher and experimental psychologist G. Fechner, the founder of psychophysics (reportedly inspired by the Zend-Avesta), whose

120. John Stuart Mill, "Remarks on Bentham's Philosophy," p. 5. (Emphases added.)

121. James Mill, op. cit., Vol. II, pp. 181-403, esp. pp. 398-399.

122. Cf. E.H. Weber, "Sense of Touch," pp. 557-561.

modification of Weber's law (The intensity of the sensation is proportional to the logarithm of the stimulus) dates from 1860.[123]

Although Fechner's contributions to psychology--his methods of psychological measurement--could hardly be overestimated, the science of psychology was born when W. Wundt established the world's first psychology laboratory. Would hedonistic psychology be vindicated as Wundt and his disciples emphasized the study of measurable stimuli and responses?

Jevons left no doubt in his readers' minds that he perceived himself as a hedonistic economist: "In this work I have attempted to treat economics as a calculus of pleasure and pain...";[124] "The theory which follows economics is entirely based on a calculus of pleasure and pain; and the object of economics is to maximize happiness by purchasing pleasure, as it were, at the lowest cost of pain";[125] "Pleasure and pain are undoubtedly the ultimate objects of the calculus of economics...; to maximize pleasure...is the problem of economics."[126]

On the measurability of pleasure and pain, Jevons took a less uncompromising stance. He asserts that "there can be no doubt that pleasure, pain...are all notions admitting of

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123. Cf. G. Fechner, Elements of Psychophysics, Vol. I, pp. 46-58.

124. W.S. Jevons, Theory of Political Economy, p. vi.

125. Ibid., p. 23.

126. Ibid., p. 37.

quantity";[127] that "...pain is the opposite of pleasure, so that to decrease pain is to increase pleasure; to add pain is to decrease pleasure";[128] still, he hesitates "to say that men will ever have the means of measuring directly the feelings of the human heart,"[129] granting, in addition, that he "can hardly form the conception of a unit of pleasure or pain..."[130]

Edgeworth seems to have been the first hedonistic economist to invoke the authority of physiology. (Even though it is sometimes insinuated that Jevons based his considerations on the "variation of the final degree of utility" upon the Weber-Fechner law,[131] no evidence supporting this appears in his Theory. Besides, Jevons's ideas were already formulated in 1860,[132] the year in which Fechner's Psychophysics was published.) In his Mathematical Psychics, Edgeworth introduces a unit of utility (quoting Wundt): its "just perceivable increment" (none other than Weber's j.n.d.).[133] The difficulties associated with actual measurements he discusses, in a none-too-satisfactory manner, in an appendix

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127. Ibid., pp. 9-10.

128. Ibid., p. 32.

129. Ibid., p. 11. Here Jevons seems either to abjure sensationalism, or to consider "sensation" and "feeling" synonymous.

130. Ibid., p. 12.

131. Cf. M. Blaug, Economic Theory in Retrospect, p. 309.

132. Cf. B.B. Seligman, Main Currents, Vol. II, p. 259.

133. F.Y. Edgeworth, Mathematical Psychics, p. 7 n.

called "On Hedonimetry."[134]

Finally, Pantaleoni, who considered it somehow self-evident that pleasure and pain were measurable, did not address the question of actual measurement at all.

To sum up, hedonistic economics stands or falls with hedonistic psychology, which asserts, among other things, that: (a) human behavior is governed solely by pleasure and pain; (b) both pleasure and pain are sensations; (c) augmentation of pleasure equals diminution of pain, and conversely: quantifiability, of course, is assumed throughout.

Yet, the development of physiological psychology did not help hedonism at all: (a) pleasure, unlike pain, is not a sensation, but a feeling;[135] (b) far from being mutually exclusive, pain and pleasure may coexist as incomparable qualities;[136] (c) responses to stimuli depend not only on the stimuli themselves, but also on the state of the organism. (The old S-R formula was replaced by an S-O-R one.)[137]

That the repeal of hedonism by psychology, as a consequence of the introduction of scientific experimentation, occurred exactly when marginalism began to spread among economists, constitutes a strange and somber

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134. Ibid., pp. 98-102.

135. Cf. W.B. Pillsbury, Fundamentals of Psychology, pp. 449-451.

136. Cf. W. McDougall, Social Psychology, p. 156.

137. Cf. C.R. Noyes, Economic Man, Vol. I, pp. 27-29. Incidentally, the word "hedonism" appears less than a dozen times in this 1443-page book.

irony;[138] marginalist, hence conventional, economics remains the last and only citadel of psychological hedonism, all denials notwithstanding.[139]

Therefore, the assumption that households maximize utility, when not meaningless, is neither directly testable nor grounded on contemporary scientific knowledge.[140]

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138. On the proliferation of psychological laboratories after the establishment of Wundt's in 1879, see W.S. Sahakian, History and Systems, pp. 138-140; on the spread of marginalism after the eighteen-seventies, see M. Blaug, op. cit., chapter 8.

139. To evaluate how amazingly little psychology has changed in the minds of marginalist economists during the last eighty years, compare H.W. Stuart, "Hedonistic Interpretation," (December, 1895) with G.S. Becker, "Altruism,"(September, 1976).

140. He is then skating on very thin ice who asserts that individuals value a noncommodity (such as commuting time) at some function of its marginal utility: here, it is impossible to have recourse to prices, for noncommodities, by definition, are not transferable. (For an example of such "psychological valuations," see A.W. Evans, "Valuation and Allocation of Time," and, by the same author, Residential Location, p. 40.)

Noncommodities, by the way, were banished from economics a long time ago, when J.-B. Say criticized severely H. Storch's concept of "biens internes." (See H. Storch, Cours, Vol. I, pp. 92-94; Vol. III, pp. 224-247: the 1823 edition includes J.-B Say's criticisms.) Now, in 1974, G.S. Becker declared, in his "Economics of the Family," that economic theory was far more "with it" in 1974 than in 1900 because of the "recent" recognition of noncommodities. What about 1823?

Still, with respect to noncommodities, Louis-Auguste Say (Jean-Baptiste's brother) provided a valuation criterion applicable to them: the value of things can be estimated according to the degree of discomfort attendant on the deprivation of them (L.-A. Say, Richesse individuelle, p. 29): a similar approach was worked out (diagrammatically) in L.N. Moses and H.F. Williamson, Jr., "Valuation of Time," apparently without knowing the old Continental economists.

The situation being so, the trade-off theories can be tested only by their conclusions; since Muth alone develops at least one testable conclusion, we turn now to his work.

To assumptions (1)-(4) above, Muth adds the following: (5) Producers of housing maximize profits at any given site; (6) each parcel of land is devoted to that use which pays the highest rent;[141] (7) firms choose their locations in such a way that their incomes cannot be increased by any move; (8) demand equals supply in the housing market; (9) the money income of all workers is the same, regardless of the location of their residences; (10) all households have the same log-linear demand functions for housing; (11) all firms have the same Cobb-Douglas production functions; (12) the elasticity of the constant-real-income demand function for housing is equal to -1; (13) marginal costs (which include psychological costs) of commuting are constant with distance from the CBD. Then, from these thirteen assumptions, Muth concludes that population density decreases negative exponentially with distance from the CBD: to this proposition, and to this proposition alone, is reduced everything scientific in urban economics.[142]

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141. Here the assumption of perfect competition is discreetly dumped. When Alonso, in a similar context (Location and Land Use, p. 77) talks about landlords changing the prices of their lands, his dumping is much more unceremonious.

142. This proposition (also known as the "Bleicher-Clark law") has been tolerably well confirmed. See C. Clark, Population Growth, pp. 349-350.

On how the income of a household may affect its residential location, the discussion runs as follows: Muth derived,[143] from roughly the same assumptions as (1)-(13) above, a rather complicated relation involving, among other things, elasticities of compensated-real-income demand functions for housing, income-elasticities of demand for housing, proportion of income spent on commuting, elasticities of demand functions for total commuting costs (inclusive of psychological costs), and elasticities of demand for marginal commuting costs;[144] the satisfaction of such relation would entail that rich households live further from the CBD than poor ones.

Yet, the elusive and fleeting notion of "psychological costs," whose theoretical meaningfulness is doubtful at best, now appears in <u>both</u> the assumptions and the conclusion, thereby standing in the way of any attempt at testing: in order to bypass this obstacle Muth invokes the authority of some articles, which were not only written outside <u>any</u> scientific context, but which also bear a connection with his theory that, although not unfathomable, is certainly difficult to fathom; and this invocation is passed off as testing.[145]

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143. Whether his derivation is flawless will not concern us here.

144. R. Muth, <u>Cities and Housing</u>, p. 30, eq. (14).

145. See R. Muth, <u>op. cit.</u>, pp. 309-310, and references therein; as a good example of theoretical indigence, see M.E. Beesley, "Value of Time."

Subsequent writers, aware of how perverse and awkward Muth's conclusion was, sought expedients to render it operational. "Suppose," says Mills, "that the disutility of a mile of commuting is proportionate to the wage rate, and that the factor of proportionality is no greater for high- than for low-income workers. Then, if the income elasticity of demand for housing exceeds 1, high-income workers live further from the CBD than do low-income workers."[146] And later on: "[T]he theorem may not hold if high-income workers value travel time higher in relationship to the wage rate than do low-income workers..."[147] According to Solow, "...the rich must be the outer suburban group and the poor must live nearer the CBD, because at the boundary [between the residential ring occupied by the rich and that occupied by the poor],[the marginal cost of commuting] is the same for both groups [rich and poor], and so are all the other prices; [moreover], [s]ince housing is a normal good, [consumption of housing] must be higher for the rich than for the poor; hence they live on [the] outside."[148] Thus we finally seem to have a testable proposition, inasmuch as only pecuniary costs of commuting are considered. Not so: in a small-print footnote, Solow writes that his argument fails if time costs bulk lareg in commuting costs and if the rich value their time at

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146. E. Mills, Urban Economics, p. 71.

147. Ibid., p. 88. (Emphasis added.)

148. R. Solow, "Equilibrium Models," pp. 11-12.

a much higher figure than the poor..."[149]

In sum, no testable proposition, hence no scientific explanation of why the rich live in the suburbs.

To further scramble the picture of urban economics, some pseudoscientific practices enjoy considerable popularity in some outposts of the trade. Among the most notorious the following two could be singled out: (1) admission-ejection "econometric analysis," and (2) that class of models which has come to be known collectively as "the Lowry model."

In econometric analysis, so say the most reputable texts, statistical inference begins with some set of statements, often called "a priori knowledge," "model," or "maintained hypothesis," accepted as correct and not questioned during the inference process.[150] Put differently, the "structural equations," the "endogenous and exogenous variables," must originate elsewhere, presumably in economic theory; furthermore, empirical data, supposedly selected by a random process, perform the duty of helping the test of a theory--never the duty of formulating the theory itself.

But, given the well-known sterility of economic theory, how can econometric analysis be of any avail? One (illegitimate) procedure, followed by many economists, consists in putting forth (using "professional judgment" or other mysterious modes of cognition) a set of structural equations

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149. Ibid., p. 12, fn. 1.

150. Cf. Christ, Econometric Models, p. 7; E. Malinvaud, Econometrics, p. 3.

involving a certain number of exogenous variables, about which some quantitative information is believed to exist. Then, the "ejection" process begins: if a variable is not significantly different fron zero, it is eliminated, until a "reasonable" result is attained; otherwise, new exogenous variables are "admitted," and the process continues: since the data usually remain the same during the whole manipulation, all sorts of biases build up into the model.

Some, nay, the majority of economists would find a redeeming "pragmatic value" in this procedure. Perhaps it has one; but (even when data are chosen randomly) it does not constitute a scientific theory, although it is passed off, naively or maliciously, as such. In urban economics, one example among many others is furnished by L. Moses and H.F. Williamson's "The Location of Economic Activity in Cities." (See especially the "explanatory" equation employed in the analysis of destinations: it appears to have come completely out of the blue.) In a similar vein were written J.M. Mattila and W.R. Thompson's "Toward an Econometric Model of Urban Economic Development," as well as E. Mill's discussion of the determinants of employment density functions.[151]

In his "short course," I. Lowry points to the differences between a "model-builder" and a "theorist": whereas the latter aims at deriving empirically relevant propositions from scientific hypotheses, the former aims at

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151. E. Mills, Studies, chapter 3.

generating empirically relevant output from empirically based inputs.[152] Therefore, models provide at most a "black-box theory."

Lowry's most celebrated model of urban structure (the origin of all the "Lowry model heritage") was developed as part of the Economic Study of the Pittsburgh Region.[153]

"The model allocates three classes of retail employment and one of residential population among mile-square tracts of the [Pittsburgh] urban region. The resulting pattern is claimed to be uniquely consistent with a given spatial distribution of basic [site-oriented] employment":[154] Once the spatial distribution of basic employment is given exogenously (a preposterously enormous assumption), employees are allocated to residences, households to services, and employees to services, according to certain "gravity functions," conveniently "calibrated." Finally, the (iterative) solution of the model is compared with inventory values for the endogenous variables.[155]

Now, either the "gravity models" rest on some scientific basis, the operation of "calibration" (commonly called "curve fitting") being then totally uncalled-for, or it does not; if it does not, then the curve fitting could be obtained more

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152. See I. Lowry, "Short Course," p. 160.

153. I. Lowry, A Model of Metropolis, p. iii.

154. I. Lowry, "Seven Models," p. 166.

155. See, for instance, the comparison between distributions of residences in I. Lowry, A Model of Metropolis, p. 106.

directly by having recourse to one of the usual interpolation formulae. On the other hand, opinions about "gravity models" differ: ours is that they rest on a fallacy, namely attributing to a species a wider denotation than that of its genus.[156]

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156. Cf. Aristotle, Topica, 121[b]; I. Gredt, Elementa Philosophiae, p. 74; L. Petrazycki, Law and Morality, pp. 18-21.
An excellent discussion on ontological mechanism, of which the "gravity models" are a relic, can be found in P. Sorokin, Contemporary Sociological Theories, pp. 3-62.

Conclusions

Having finished our long, and sometimes circuitous voyage through urban economics, we can only say that this is a meretricious subject indeed: after promising pie in the sky by and by, it delivers nothing. Even worse, it obscures and distorts what it should explain.

Partly, such a fiasco is due to the complexity of urban life itself, long looked down upon by social scientists of all persuasions; still, to be blamed above all is the self-defeating attempt to find the wherewithal to explain how cities work, and grow, in an essentially apologetic and panegyric literature.

Furthermore, cities reveal their secrets to no specialist: only polymaths, or more realistically, multidisciplinary research teams, could discover something. Even then, the only way seems to be the engagement in idiographic research, the investigation of particular cases, a path followed recently by the economics and the politics of underdevelopment.

Appendix

Advantages of Situation in Economic Theory: Comments on Some Writings Relegated to Oblivion

The nineteenth-century American economist and sociologist Henry Charles Carey, perhaps the most ferocious adversary ever of Ricardo's doctrine on rent, went an extremely long way to prove that the Ricardian system "...[was] based upon the assertion of the existence of a single fact [that in the progress of society men first till the most fertile soils]...[that did] not exist; that...ha[d] never existed in any country whatsoever; and [whose existence would be] contrary to the nature of things...":[157] among the arguments Carey used to combat Ricardo, looms large the alleged disregard by the latter of "advantages of situation."[158] Furthermore, Carey points to the negligence of situational factors by Malthus, Mill, Say, Torrens, Wakefield, Chalmers, McCulloch, Scrope and Senior.[159] Thereafter, Carey's doctrine evolved into a closed system of mechanistic sociology, advantages of situation being then regarded as a mere facilitation of "changes of matter in place."[160]

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157. H.C. Carey, The Past, the Present and the Future, p. 23.

158. H.C. Carey, Political Economy, pp. 27-48.

159. Ibid., pp. 158-268.

160. H.C. Carey, Principles of Social Science, Vol. II, pp. 263-364.

Carey's charges of plagiarism against F. Bastiat, published in the May, 1851 issue of the Journal des Economistes, called the attention of the French economist M. Wolkoff, who, three years later, edited a collection of articles on land rent, under the title Opuscules sur la rente foncière. In 1861, four years after his translation of Thünen's Isolierte Staat, part II, section I, appeared, Wolkoff issued his own Lectures d'économie politique rationelle, where he discusses the relations between emplacement (location) and rente foncière (rent); in this same book he sets out to divulge Thünen's results.

Alas, Wolkoff's efforts notwithstanding, Thünen's doctrine on land rent remained completely unknown on the Continent outside Germany, and much more so in England. It was not until 1872, with the publication of E. Nazzani's Saggio sulla rendita fondiaria, and that, in 1880, of A. Loria's La rendita fondiaria, that advantages of situation returned to the economic-theoretical scene: Loria, in 1888, issued his "Intorno all'influenza," and, ten years later, his "Ricerche ulteriori."

After that, advantages of situation vanished from the literature on economics, to reappear only in the nineteen-fifties, in the United States.

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