

JANE JACOBS IS STILL HERE

Jane Jacobs 100
Her legacy and relevance
in the 21st Century

24 and 25 May 2016
Faculty of Architecture and the Built Environment
TU Delft, The Netherlands

edited by Roberto Rocco



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Proceedings of the Conference Jane Jacobs 100: her legacy and relevance in the 21st century

Conference organised by
Roberto Rocco (TU Delft)
Brian Doucet (University of Waterloo) and
Andre Ouwehand (TU Delft)

Editor: Roberto Rocco

Organised by the
Department of Urbanism, Faculty of Architecture and the Built Environment, TU Delft, the
Netherlands
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Secretary: Karin Visser

Graphic Design: Roberto Rocco and IJsbrand Heeringa
Photos: R.Rocco

ISBN/EAN: 978-94-6186-900-5

Jane Jacobs: an intellectual trajectory

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Abstract Jane Jacobs's trajectory took her very far from the original insights and propositions of *The Death and Life of Great American Cities*. This paper attempts to give both an overview and an assessment of her oeuvre as a whole: her books and actual contributions, the state of empirical verification of her main ideas, and the limits and controversies surrounding her approaches. Throwing light on her diverse facets, this paper examines her place and impact – from a pioneer of the young discipline of urban studies and a theorist in spatial economics to her status as an interdisciplinary thinker.

Key words – Jane Jacobs, urban studies, spatial economics, ecology, culture

Introduction

I should approach these sheets
with reverent eye,
Thinking, with mental halo, how
I sought
The perfect word to clothe the
perfect thought...
(Jacobs, 2016a [1935]: 9)

Jane Jacobs published this early poem in the New York Herald Tribune in 1935, a year after arriving in New York in the mid-1930s depression. She was 19. The girl who used nickels to explore as a *flâneur* the city and its diverse population came to almost singlehandedly revolutionize a discipline, and to achieve a presence in at least another. In fact, no other theorist in urban studies comes close to her influence. She is the only one to come near the volume of citations and mentions of powerhouses in geography and urban philosophy, David Harvey and Henri Lefebvre (figure 1). Jacobs had a long career, and published six books on cities, economics, ecology, politics and culture, another on separatism in Canada, two books for children, and a political history book still at age 25. She passed away in 2006, two years after publishing her latest book, the premonitory *Dark Age Ahead*. Her mind was full of ideas and projects

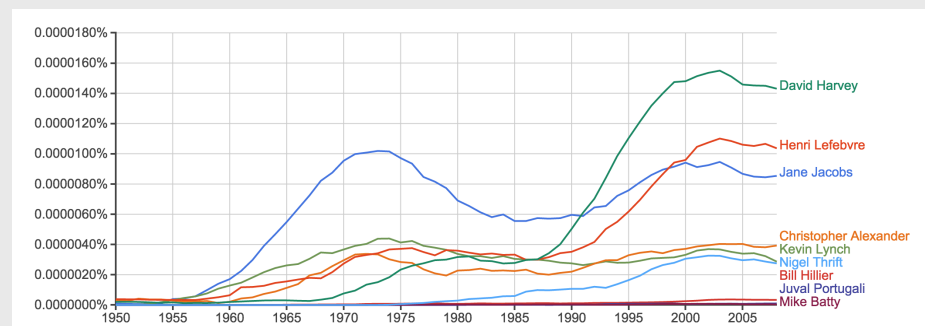


Figure 1 - Percentage of times selected theorists appear among all 'bigrams' in the sampling of books written in English and published in the United States between 1950 and 2008. Source: Google books Ngram Viewer.

for two new books.

This paper will pursue a diverse path, as it must be the case for a work that aims to cover the production of an intellectual who has gone through many phases. It begins with a brief biographical account, reviewing steps that led Jacobs to become an innovator of urban studies. Then we will see her contributions, going through the main arguments of her books. We will visit her controversial status – would she be an observer, a theorist, a researcher, an amateur? Then we will see how her ideas have stood the test of empirical verification, both in urban studies and in spatial economics, and assess her place as a thinker of self-organization *avant la lettre*. Finally, we will see her last hypothesis, which would

remain incomplete, and some final considerations on how to understand her place in our field today.

Jane Butzner goes to New York

The biography of Jane Jacobs seems intertwined with her fascination with language, the city, and the conditions of material life. Born in 1916 in Scranton, Pennsylvania, Jacobs wrote and published poetry at age 9. Jane Butzner (her maiden name) saw New York for the first time as a child, arriving by boat in 1928. She walked on Wall Street at noon, “amazed at all the people on the streets... the city was just vibrating. It was crowded.” After working at a

newsroom in Scranton at age 18, she decided to face the Great Depression and the financial hardship, coming to live in Brooklyn in 1934. In the morning, she crossed the bridge to Lower Manhattan to look for a job. In the afternoons, she explored the city. Her walks through New York became articles, later sold to *Vogue*, between 1936 and 1937. "I was trying to be a writer all the time." The articles described situations and people involved in small-scale production and trade – the networks that seemed to specialize and focus on certain parts of Manhattan: work in leather, shoes, flower preparation and sale, the intricate web of production and sale of jewellery. At age 21, Jacobs made descriptions of urban life and its material networks. She was fascinated by the ways these networks seemed to self-organize in order to survive (Flint, 2009). She did not know then, but this fascination with the practices, organization and ethos that emerge between actors engaged in the material effort of work and exchange would guide her whole future work.

Jacobs began in the magazine *Architectural Forum* (1952-1962) as a publisher specialized in hospitals and schools, and from 1955 onwards, she began to cover urban renewal. Initially favourable to modern urbanism, her *in-situ* observations of executed projects profoundly altered her assessment of modernist precepts. In 1956, replacing her boss, she made a presentation at the *Conference on Urban Design* in Harvard, putting herself openly against the practice of urbanism based on modern normative theory. The lecture had a great effect on the audience, including leading architects and theorists – and Lewis Mumford himself.

So I made a talk and I made an attack on [urban renewal]... It was a real ordeal for me. I have no memory of giving it. I just went into some hypnosis and said this thing I had memorized. And I sat down, and it was a big hit because nobody had heard anybody saying these things, apparently... Mumford was in the audience, and he very enthusiastically welcomed me. I had hypnotized myself, but I had apparently hypnotized them too. (Jacobs, 2016b [2001]: 82).

That unforeseen event was one of the determining factors of her trajectory. William H. Whyte, editor of *Fortune* magazine who would later become a recognized researcher on the use of public spaces, heard about the lecture and invited

Jacobs to write an article (Flint, 2009). The result is "Downtown is for people," published in 1958. Other communications would follow, such as "A living network of relationships," a talk given at the renowned New School for Social Research in New York, flirting with the systemic principles of city self-organization. Jacobs would be ready to write her first book on cities and the fabric of everyday life.

The passage from the 1950s to the 1960s was an extraordinary period in the foundation of urban studies, as we know them today. Original thinkers of the city appeared like a wave. In 1958, Jacobs' articles attracted the attention of the Rockefeller Foundation, which aspired to stimulate the emerging field of urban design. From the conversations between Jacobs and her contact at the foundation, Chadbourne Gilpatric, results the *Penn-Rockefeller Conference on Urban Design Criticism*, at the University of Pennsylvania (Laurence, 2016). In addition to Jacobs, there are both new and established exponents of urban thinking, notably Lewis Mumford, Louis Kahn, Kevin Lynch and economist William Wheaton (figure 2).

The stature that these participants would achieve in their fields suggests an extraordinary meeting (and image, a kind of urban thinkers' 'holy supper'). From it would come the financial support of the Rockefeller Foundation for the production of *The Death and Life of Great American Cities*. In those same years, Kevin Lynch was developing his method in Boston, Jersey City and Los Angeles, published

in 1960 as *The Image of the City*, also supported by the Rockefeller Foundation – and possibly the first book to include empirical research as a scientific study about cities, although it would not resist rigorous empirical standards of today.

Muratori and his colleagues set up the Italian typological school in *Studi per una operante storia urbana di Venezia*, in 1960. Gordon Cullen launched his method of observation in *Townscape* in 1961. In 1964, Christopher Alexander published his first book *Notes on the Synthesis of Form*, an impressive insight into the generation of form, and in 1965 inaugurates the topological vision of the city, parallel to his description of the dualism between reason and intuition in the design process, in the award-winning article "A city is not a tree". Between 1965 and 1968, Leslie Martin and Lionel March published articles on the performance of urban form arrangements, which they would put together in the 1972 book *Urban Space and Structure*. In 1969 Jacobs released her new book on the role of cities in economic life. Experiments with spatial interaction appeared in the work of Alan Wilson in 1967 and Mike Batty in 1976, while, between 1972 and 1976, Hillier and colleagues began to emphasize the systemic role of street topology for societies as encounter systems (figure 3).

These are some of the approaches that initiated urban studies as a field of scientific knowledge, unlike previous, modern and pre-modern normative theories. It is no exaggeration to say that these works have opened up entire



Figure 2 - Break for reception at the Conference on Urban Design Criticism, Penn Institute, Westchester, NY (1958). Source: Grady Clay in Laurence (2016).

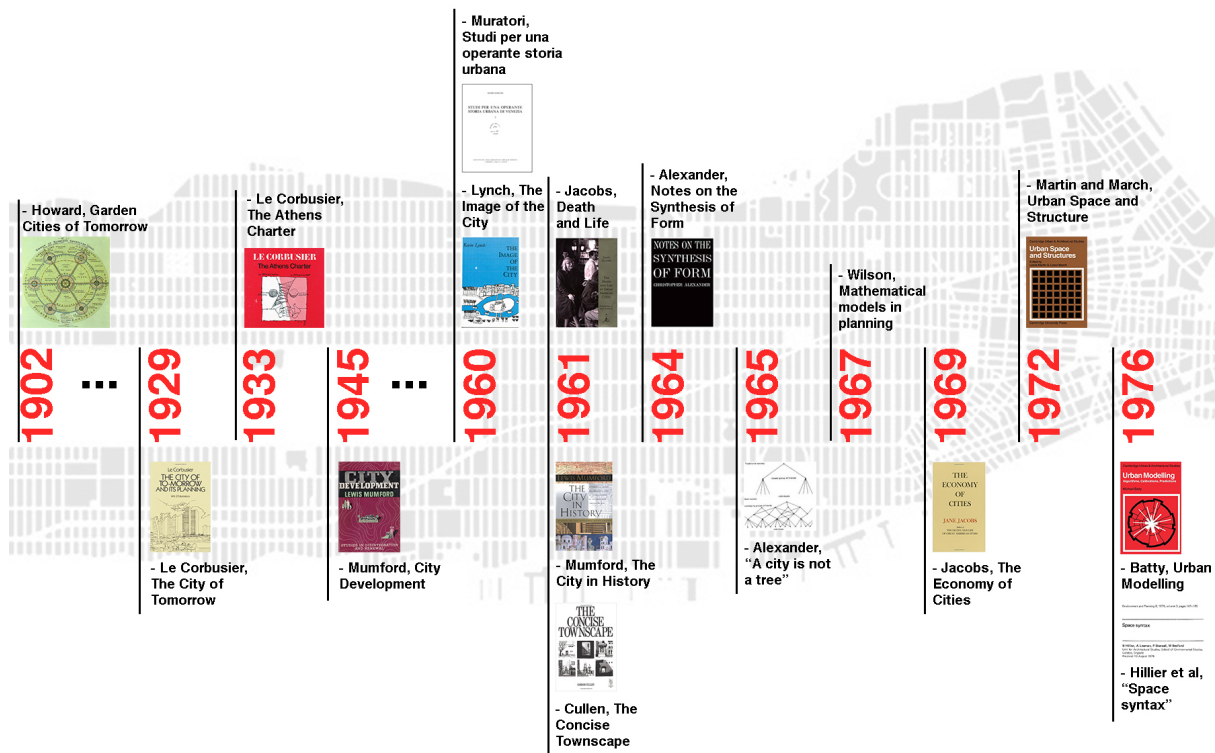


Figure 3 - Timeline for some of the main publications in urbanism of the 20th Century. Source: Author.

lines of investigation, coinciding with phenomenal areas uncovered by these pioneers. However, the status of urban theory is still today questioned as ‘pre-scientific’ or ‘pseudo-scientific’ (Marshall, 2012). Let us look at the status of Jacobs in this scenario.

Main contributions

There is a wonderful consistency of direction in your writings, from the earliest journalism on parks and city corners through the organism of cities to the principles of public life.

David Warren, interviewer for The Idler, 1993 (in Jacobs, 2016a: 324)

Where did Jacobs’ thought go? After years of journalistic work and observations of networks of interdependencies and the role of diversity in many cities in her country, which led her from the status of ‘urban thinker’ in *The Death and Life of Great American Cities* (1961) to her last work as a ‘cultural thinker’ in *Dark Age Ahead* (2004), Jacobs went through distinct phases, progressively expanding her substantive range (figure 4).

Let us visit this Jacobsian trajectory. The author criticizes modern urbanism, and brings alternative theoretical propositions to understand the functioning of

cities, in *The Death and Life of Great American Cities* (1961). Like the articles published in 1958, the book brought ideas utterly foreign to the canon of urban practice and theory – an achievement perhaps more possible to someone coming from outside the discipline orthodoxy. The admirable feat is that these radical propositions would become part of the language and ‘common

sense’ in the discipline today. These include the importance of street and public contact; the idea of ‘eyes on the street’; and the ‘successful neighbourhood’ theory.

Today the idea that diversity is the motor of urban vitality sounds self-evident – but only because Jacobs won her theoretical battle and fed a new orthodoxy, now fixed, from New Urbanism to

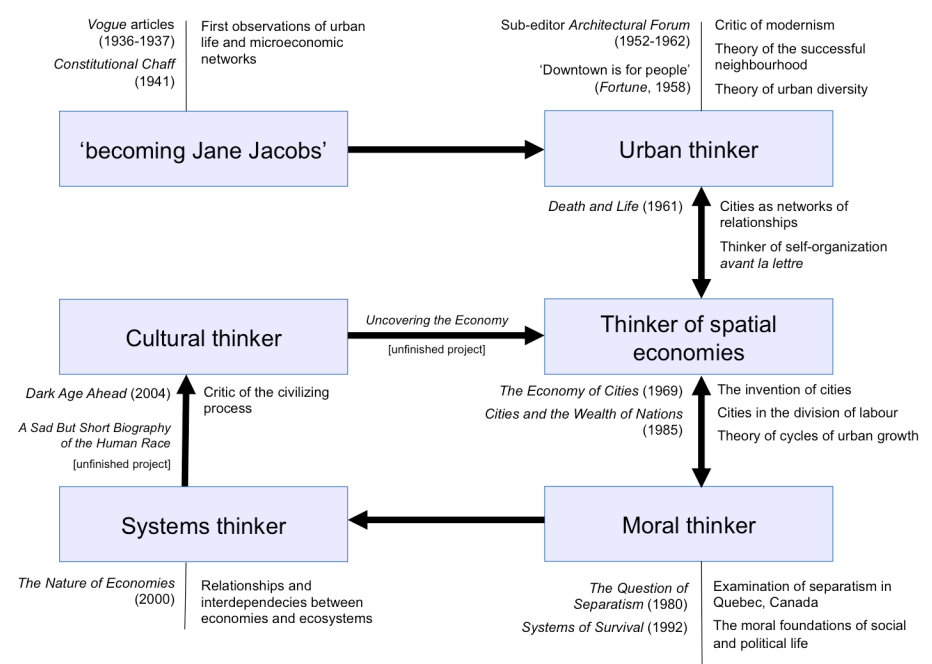
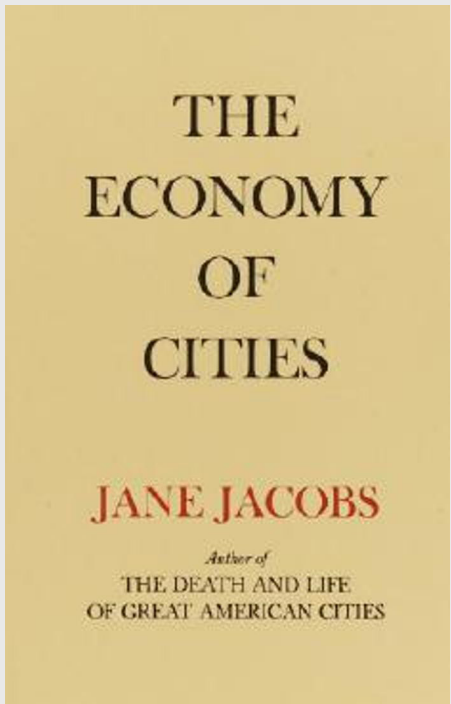


Figure 4 - The Jacobs trajectory: main phases. Source: Author.



the sustainable city debate (Gordon and Ikeda, 2011). I understand that the main contribution of this book, which is often regarded as the most influential in the discipline, is to identify the conditions of complexity as principles of self-organization, animated by microeconomic diversity and urban form. However, we will see that the theoretical system that Jacobs proposed in *Death and Life* is only the beginning of the relationships that she would explore in her subsequent phases. Many contributions were to come later in her work on the conditions of economic, moral, and political life – underestimated in our discipline. Here we have the case where a book is so successful that it ends up eclipsing the work that follows. The fact that Jacobs moved toward the relationship between city, society, economy, ecology and the moral conditions of social life, has possibly clashed with the borders of urban studies and prevailing epistemologies. However, Jacobs attracted interest in another area of knowledge: spatial economics.

“People ignore the common threads that run through economic life” (Jacobs, 2016b [2005]:116). Jacobs opens her book, *The Economy of Cities*, 1969, with a radical hypothesis. It proposes a rejection of the idea that agriculture precedes cities: the assumption that cities depend on a condition of surplus agricultural production to exist. Instead, she proposes that the agricultural practice develops from the demand of the cities that then arose. Cities like Çatal Höyük (7,500 and 5,700 BC), with about

10,000 inhabitants in Anatolia (today, Turkey), would emerge from commercial practices and the increasing division of labour, making the individual family subordinate to larger and more complex social and economic formations. It is the economy of cities emerging that would create new types of work in the rural world. “Rural production is literally the creation of city consumption” (Jacobs, 1969:40). This is an intelligent but also risky inference, made without direct empirical involvement, and without the support of archaeology’s mainstream. Jacobs imagined chains of causes and effects, piling up inference on inference.

In logical terms, the hypothesis is consistent: to believe that human cultures would produce technologies and surplus production without the concrete demand of production makes little sense. It is like inventing supply without demand. But it might be possible to find common grounds capable of incorporating strictly dated archaeological findings (for example, on the objects and utensils used by the first farmers), and the economic sense in agricultural and proto-urban practices investigated by Jacobs. Agriculture, as a practice of artificial intervention in the soil, may be older than the city, but agriculture compatible with larger scales and a technologically charged practice seems to depend on the creation of demand – which in turn depends on large enough populations, also capable of creating technologies for such intensifying practice. In any case, the proto-city found in Anatolia, and later in other regions, would feed the rural activity.

Jacobs’s provocation is just the beginning. This is possibly her richest theoretical book. “How have cities acquired more divisions of labor than other settlements?” (Jacobs, 1969:50). She goes on to describe how new work progressively multiplies the division of labour:

$$D + A = nD$$

where *D* is the division of labour, *A* is the new activity, and *n* is the number of new divisions created from the addition of *A*. Jacobs addresses the spontaneous generation of economies where ‘one kind of labour leads to the other’. This progressive addition increases possibilities of combining existing divisions. It includes accidents and unpredictability, which we now call ‘serendipity’ – incidental innovations stemming from exposure to and connections between ideas that are initially alien to one another, and that cannot be anticipated. “The greater the sheer numbers and varieties of divisions of labor already achieved in an economy, the greater the economy’s inherent capacity [...] for combining the existing divisions of labor in new ways” (p.59) (figure 5).

This is one reason why a top-down, vertically centralized economy hampers the spontaneous generation of new activities or specializations. They block the process of innovation and the deepening of the division of labour in an organic way. Predefined categories and a totalizing planning limit the emergence of new activities and techniques, and the combinatorial processes of innovation. Jacobs addresses here the material conditions of serendipity. On the

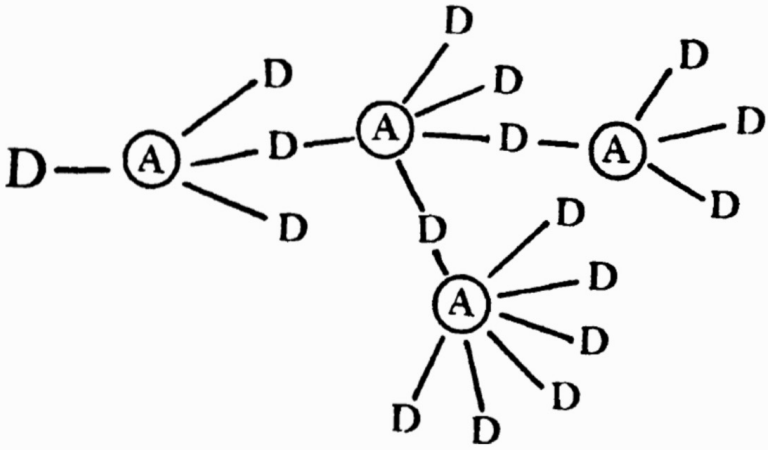


Figure 5 - Progressive multiplications in the division of labour, from new activities. Source: derived from Jacobs (1969a)

other hand, Jacobs is also critical of the understanding of the division of labour originated in Adam Smith, centred on the *organization* of labour. Instead, Jacobs's focus is on the emerging, *self-organized* process of specialization, including the creation and diffusion of new activities and divisions from old ones. The division of labour is lively and relational in Jacobs, a pattern of transformation of the economy from the breakdown of manufacturing processes performed by productive agents. A complex product initially imported to a local economy (a city or region) begins to have its parts produced endogenously, eventually leading to the substitution of the import. Gains from learning processes in import substitution often involve other sectors, diversifying and expanding the local economy, and releasing powerful multiplier effects and new potential exports.

Jacobs believed that this was her main discovery, for which she would like to be remembered (Jacobs, 2001). Interestingly, the idea is directly derived from her earlier findings on the urban conditions of diversity, density and vitality. This new theory took something like two decades to find repercussions, but was interpreted in economic geography in a rather prolific direction: the *spillover effects*, introduced by the economist Alfred Marshall (1890). In contrast to Marshall's emphasis on knowledge and productivity gains overflowing from specialization and spatial concentration of activities within an economic sector (say, in a city that grows by having many activities in the same industry), Jacobs emphasizes the positive gains of the exchanges between *distinct* sectors of the local economy, through the cross-fertilization of ideas. Interactions between people in cities help them to have ideas and innovate. Jacobs also favours local competition because she believes it speeds up the adoption of new technologies. Her theory predicts that industries located in highly diversified areas will grow faster. Like Marshall, Jacobs refers to the value of diversity and complementarity in labour supply to reduce risks generated by economic fluctuations (Rosenthal and Strange, 2004). As we shall see below, the benefits of local economic diversity were later subjected to rigorous empirical verification, and were named 'Jacobs economies'.

The Question of Separatism: Quebec and the Struggle over Sovereignty (1980) brings an

argument about the independence of the province of Quebec and its possible effects on other cities and regions of Canada. The book was criticized in Canada, for its understanding of local politics. Out of print today, it examines historical and political issues of separation, and their economic implications. This is not surprising, given Jacobs's radical thesis on the role of cities in economic life as superior to that of countries – which she would explicitly develop in her next book.

The iconoclast is alive in *Cities and the Wealth of Nations* (1985), title that evokes Adam Smith's classic. Beginning with broad critical reviews of economic theory since Smith and Marx and advancing her assertion of the city in the economic life of a society, Jacobs now questions what she calls the unexamined assumption of economics: the "mercantilist tautology that nations are the salient entities for understanding the structure of economic life" (Jacobs, 1985: 30; 44). Jacobs's main (and radical) proposition is to put the city at the centre of economic analysis, exploring the mechanism discovered in the previous book: the forces set in motion by cities immersed in processes of substituting their imports – forces that will shape networks of cities and regions, with effects on nations. The city should assume this prominence because nations depend on cities as networks of production and innovation – an idea recently emphasized by Glaeser (2010).

This approach is advanced in *Systems of Survival* (1992) by expanding Plato's idea of two radically different but symbiotic systems of fundamental values: the 'trade syndrome' and the 'guardian syndrome' ('syndrome' as in Greek, meaning 'things that run together'). The first syndrome is the 'impulse to trade', the voluntary agreement as the essence of exchange between people, a pillar of concrete material life from the beginning of the formation of complex divisions of labour. Elements of cosmopolitanism emerge from the presence of strangers doing business in commercial places and cities – a "functional necessity becoming a cultural trait" (Jacobs, 1992: 35), an ability to deal with the material reproduction generally ignored in philosophy (Jacobs, 2016a: 295). The second principle, on the other hand, is related to moral life and responsibility over the territory, to the impulse to governmental

organization, to create movements of social groups, and to loyalty to the public interest. Jacobs identifies these two principles as responsible for societal functions, operating around distinct but complementary sets of moral precepts such as the rejection of force, focus on efficiency and creativity, support in voluntary agreements, respect for contracts, ethos of work and collaboration with strangers, in the trade syndrome; and adherence to tradition, rejection of commerce, respect for hierarchy and focus on justice and loyalty, on the guardian syndrome. These two principles govern different instances of social life, such as material reproduction in the first case, and the governance of groups and territories in the second.

Science would flourish in societies that would attain commercial vitality: the logic of scientific contribution seems to echo and depend on the freedom of economic and cultural exchange in the form of collaborations and initiatives (I would add the guardian's moral oversight preserving commercial disinterest and public spirit in the sciences). The arts could flourish even under more socially controlling conditions of organization. Conflicts emerge when we mix syndromes, or attempt to operate them individually from the precepts of the other syndrome – for example, operating a state as a commercial enterprise, or an economy with the totalizing logic or the centralizing authority of the guardian (Jacobs, 1992; 2016a [1993]: 291). Divided loyalties in a government can lead to corruption: rulers can offer favours motivated by the logic of exchange. These situations lead to what she calls 'monstrous moral hybrids,' such as corrupt governments, governments that disdain the centrality of commercial life in material reproduction, or governments that disdain social arrangements open to the spontaneous emergence of new agencies and actions.

This is an inductive construction, based on observations of people's moral reactions to different social behaviours, published in newspapers and other vehicles. The Platonic dualism of the impulse to trade and the impulse to the responsibility of tradition and territory taken to the category of civilizing functions sounds unusual, but it recalls the categories of social action of Max Weber (1972: 24), such as instrumental action

and action motivated by tradition. It draws mainly on the influence of historian Henri Pirenne's *Medieval Cities: Their Origins and the Revival of Trade* (1925), and his discussion of the tensions between political, economic organization and the transformations that led to unprecedented structures of freedom and democracy (Page and Mennel, 2011).

In *The Nature of Economies* (2000), Jacobs, then 84, problematizes both common sense and disciplinary views about the separation of 'economy' and 'ecology', and seeks to open "a breach in the barrier that separates human species and its activity of the rest of nature" (Jacobs, 2000). Of course, there is the common etymological root: the prefix of both, 'eco', is derived from the Greek *oiko*, meaning 'house'; the suffix 'nomia' means 'management', 'logy' means 'logic' or 'knowledge'. In addition, Jacobs evokes parallels between the two phenomenal fields as "intricate networks of interdependence" (p.20). Her interest is to extend the study of ecology as 'the economy of nature,' introduced by Victorian scholars, toward the study of 'the nature of economics.' Economic science would not yet have understood that nature lays the foundations of human life, as well as its limits. At the same time, natural processes and principles, which are not a human creation, govern economic life. As such, they cannot be transcended.

I equate [the process of economic expansion] to what happens with

biomass, the sum total of all flora and fauna in an area. The energy, the material that's involved in this, doesn't just escape the community as an export. It continues being used in a community, just as in a rainforest the waste from certain organisms and various plants and animals gets used by other ones in the place. (Jacobs, 2001)

Jacobs proposes three universal principles in the continuity and development of ecological and economic systems: (i) the differentiation of natural or economic events emerges from 'generality' as a contextual condition. For example, the fertilized egg is the condition of generality from which repetition and differentiation will emerge in cell reproduction. (ii) Differentiation generates new generalities, from which new differentiations may emerge. (iii) Development depends on co-development. This apparent tautology means that the development of a system operates as a web of interdependencies. The process is open and intensifies the diversity of co-development into more numerous and intricate relationships, expanding these systems. Furthermore, her exploration of concepts such as 'critical mass' and differentiation evokes a spatial component already present in *The Economy of Cities*: the importance of the location of events that make up such processes – a material principle now also extrapolated to biological phenomena.

In her latest book published in life, *Dark Age Ahead* (2004), Jacobs somehow refrains from her

work as a theorist, to take on the role of 'critic of the times'. She was 88 years old. Even not appreciative of exercises in futurology, Jacobs sounds terribly premonitory in this particular book. For example, four years before the recent global crisis in 2008, which started in real estate financing agencies, Jacobs states that: "In any case, sooner or later [the house price] bubble must burst, as inevitably all bubbles do when their surfaces are not supported by commensurate increases in economic production" (Jacobs, 2004:148). She points out five tendencies of cultural crisis – no more restricted to the urban ethnographic universe, but to the trends of practices that, like small everyday events, build systemic relationships that go far beyond the local and contextual.

- *Community and family*: dominance of consumerism over welfare, indebtedness over the discipline of family budgets; search for individual tax advantages at the expense of community welfare.
- *Educating versus credentialing*: a university system more focused on providing credentials than high-quality education.
- *Science abandoned*: retreat of science as a construction of continuous and coherent bodies of knowledge; rise of economics as the main science to consider in making political decisions.
- *Governance practices*: governments are more focused on the interest of groups than on the well being of their

<i>The Death and Life of Great American Cities</i> (1961)	Theory of the successful neighbourhood	The role of block sizes in accessibility Architecture and safety
<i>The Death and Life of Great American Cities</i> (1961)	Theory of urban diversity	Diversity of activities as attractions to pedestrians Relation between buildings and economic activity Cities as living networks: complexity and self-organization
<i>The Economy of Cities</i> (1969)	Urban development and the division of labour	Inversion of origins agriculture x cities Cities and the evolution of the division of labour Cities, economic innovation and human creativity
<i>The Economy of Cities</i> (1969)	Effects of economic diversity	Theory of import replacement Theory of cyclic explosions of urban growth <i>Jacobs economies</i> : spillover effects between sectors
<i>Cities and the Wealth of Nations</i> (1985)	Cities as engines of the economy of nations	Rejection of nations as most salient entities in the economy The centrality of cities in the world economy
<i>Systems of Survival</i> (1992)	Moral foundations of social and political life	The drive to commerce, responsibility over territory, tradition and governmental organization as value systems and civilizing principles
<i>The Nature of Economies</i> (2000)	Relations of ecosystems and the economy	Common principles in the continuity of ecological and economic systems: differentiation, generality, codevelopment
<i>Dark Age Ahead</i> (2004)	Risks of cultural crises	Analysis of fragilities in contemporary societies in five tendencies of crisis

Figure 6 - Main theoretical contributions. Source: Author

populations. Modern political and economic ideologies are no different from those that dominated the past of Western civilization, such as Catholicism in the Middle Ages. Jacobs rejects the concept of ‘ideology’ for offering prefabricated responses, discouraging people from finding rational solutions and scientifically verifiable explanations.

- *Self-regulatory practices*: in opposition to self-observation, groups tend to exert conservative practices in their own preservation, in spite of ethical, collective harm.

This is neither a work of theory nor a normative political project. Here we have an informed analysis of events and volatile structures, and a clamour for attention to the fragilities of contemporary societies.

The economic development approach introduced in *The Economy of Cities* would be resumed in the next project, *Uncovering the Economy*, which we shall visit later. Taken together, Jacobs’s arguments went through markedly different stages, thematic expansion and progression, supported by preceding propositions. Each phase took years to emerge, which occurred during the slow production of the books themselves (figure 6).

Jane Jacobs, theorist?

Theories and other abstractions are powerful tools only in the limited sense that the Greek mythological giant Antaeus was powerful. When Antaeus was not in intimate contact with earth, his strength rapidly ebbed. The aim of [...] this book is to bring rarefied economic abstractions into contact with earthy realities, meaning universal processes of development, growth and stability that govern economic life.

Jacobs, *The Nature of Economics* (2000:ix)

Because Jacobs had no academic training in the fields of urban planning, theory, or design, some rather elitist critics share the impression that she was not a systematic thinker. Her first book was criticized for being ‘unscientific’, ‘anecdotal’ and even ‘amateurish’.¹ However, the ideas I have summarized above would hardly

1 Hoppers (2006); Larice and Macdonald (2007); Harris (2011); see Marshall (2012).

support these impressions. On the other hand, exaltations of Jacobs as ‘a genius of the common-sense,’ as Lang and Wunsch (2009) put it, are not accurate either. Jacobs thought about ordinary life, but with a remarkable understanding of the invisible threads behind everyday events. She did not consider herself an abstract thinker (Jacobs, 2016b [2001]: 77), but invested much of her work in the pursuit of threads *beyond observation*: relations not entirely apparent to anyone, which must be reconstructed by imagination and abstraction.

Second, we need to state what is theory and how it is produced. A theory is a proposition of a coherent system of explanation of a phenomenon. It is not only produced in the classical hypothetic format, followed by empirical demonstration – the so-called *deductive* method. There are *inductive* methods, starting with extensive field observations followed by the explanation. Although her first work was largely inductive, Jacobs produced theory in both ways. Many critics seem to associate ‘theorizing’ with some formal method, such as mathematic ones. But of course this does not have to be the case. Theorizing may involve a range of languages, from verbal to quantitative ones. Jacobs explained phenomena such as urban diversity, the creation of cities, their explosions of growth, and the effects of diversity in fertilizing an economy. She did not propose equations for these matters (except for a small, elegant, probably rhetoric one, as we saw above). But this does not remove the explanatory function of her theorization. Jacobs believed that she operated *within* the scientific method (Jacobs, 2016b [1993]: 319) – but what can be fairly said is that she did not make use of the scientific method in its full extent. Theorizing, whether from observations or from hypotheses, is only *part* of the scientific method. Another part involves rigorous confrontation with the empirical problem – whether inductively, at the beginning of the investigation, or at the end, in the verification of hypotheses. She relied on observations in several cities she visited in the United States in the years leading up to *Death and Life*, and sought economic data support for *The Economy of Cities*. But Jacobs did not test her theories a posteriori. This practice is not uncommon in a discipline in which few theorists verify their ideas with empirical rigour. However, Jacobs understood the necessity of

observing the phenomenon before dictating how it should be in reality. She urged readers to keep a sceptical view of her ideas and confront them with their experiences, and she appreciated the use of evidence as an integral stage of the scientific method.²

In exploring both inductive and deductive propositions, Jacobs constructed a broad theory encompassing the ‘small’ and the ‘large’ conditions – from the microscopic events of urban life to broad propositions such as their role in generating an ‘organized complexity’. Jacobs’s theoretical ability involves deriving principles of abstract relations between events observed in detail, and then embedding them in chains of interaction. This is the spirit of a theorist in the broad sense of the word: someone who expresses herself through language as a way of constructing explanations. Jacobs was not afraid to take epistemological risks. Her theory was not centred on ‘localism’ or ‘communitarianism’, as some might think. It brought an organic view of spontaneous interactions and relationships that included the local but transcended it, building generalizations from observed cases – while emphasizing care in not replicating them without attention to context (Jacobs, 1993 [1961]: 575-6).

Jacobs was not alien to the importance of empirical evidence. She critically understood the relevance of statistics, but also noted that the technique captures correlations rather than causalities. She believed that ‘anecdotal evidences’ made more empirical sense to the reader, which was her great goal (Jacobs, 2016a [2001]: 376). This way of illustrating principles bares little relation to the technical procedures of research today, involving the necessity of demonstrating that an idea is empirically the case. She achieved a number of memorable findings probably because she observed dozens of cities, traveling as a journalist to study economic sectors in the 1950s, which led to reduced risks of error in inductions. But today, after decades of development in the discipline, a *modus operandi* based on ‘naked eye’ observations

2 “Science is distinguished from other pursuits by the precise and limited intellectual means that it employs and the integrity with which it uses its limited means” Jacobs (2004:65; 66-71); cf. Jacobs (2016a [2001]:372).

cannot be considered sufficient as a method. In addition to the need for rigorous methods, Durkheim's (1984) maxim is worth noting: a few selected cases are not enough to demonstrate a theory.

Of course, a body of propositions of this ambition and impact would not be left without challenges. On the one hand, since Jacobs worked at the beginning of a field of knowledge and outside institutional or academic frameworks, some might think that it is not entirely fair to submit her ideas to empirical scrutiny. The studies mentioned below do not diminish her contributions by subjecting them to standards that were not even present at the beginning of her trajectory in the discipline. Jacobs was not a scientist, she was a theorist, opening doors to new understandings. On the other hand, no theory is above the need for verification. A theory might not be *verifiable*, if it deals with elements that cannot be directly observed. This is not uncommon in social theory and philosophy, which deal with things and relationships that often transcend concrete situations. For other cases, to submit a theory to rigorous examination is, in fact, a way of consolidating it. Therefore, let us see how Jacobs's propositions have been viewed empirically.

Verifying Jacobs's urban theory

Jacobs's urban theory faced criticism, of course. Weicher (1973) and Schmidt (1977) seem to have made the first empirical clashes. They tested 'successful neighbourhood' variables identified in *Death and Life* as indicators of crime incidence (namely, juvenile delinquency), mental health (proxy for health, term used by Jacobs) and mortality rates in two American cities, Chicago (sixty-five areas studied by Weicher) and Denver (Schmidt). They also used urban variables like diversity of land use, block size, variation in the age of buildings, and density of residential units (representing sufficient concentration of people). These papers do not provide detailed descriptions of the areas themselves, but point out a number of flaws in the Jacobsian theory in predicting the effects of urban factors on crime, mortality, and health. Schmidt even found a negative relationship between density and diversity, which contradicts spatial economic theory from Alonso (1964) onwards.

On the other hand, Weicher found traces that large blocks seem to have negative impacts on diversity. A later study by Fowler (1987) found more support for Jacobs's theory in Toronto, although it did not confirm or refute the need for the four conditions of diversity (see Marshall, 2012).

The fact that Jacobs has not confronted her theory with the empirical world rigorously, with adequate methodological resources, exposes her theory to risks of imprecision. Yet testing the four conditions of urban diversity for successful neighbourhoods as a 'package' may not be the best way to verify her theory. The key point in any theory check is how to deal with the variables and relationships at stake. First we need to understand how much these variables represent the actual phenomenon. Perhaps the point is not to evaluate neighbourhoods as spatial entities in themselves and to confront them with variables such as crime or health, as Jacobs proposed literally. In order to understand the relationship between form and urban vitality, we should look for more microscopic factors within this package. Causations inferred by a theory may be out there in the real world, but they need appropriate ways to be recognized accurately, and here is the tricky part of making science. Finding the right spatial and social entities to capture meaningful relationships between the factors at play is the most delicate point for success in building a theory, and in its verification.

This is what a study of dozens of areas, seven hundreds street segments and eight thousands buildings in three Brazilian capitals (Rio de Janeiro, Porto Alegre and Florianópolis) attempted to do (Netto et al, 2012; Netto, 2017). It analysed urban form in a more analytical way than categories like 'neighbourhood' and general characteristics such as density. It focused on buildings and a way to

classify them into an architectural typology. As factors of a successful neighbourhood, the study used the number of pedestrians in the streets and the number and diversity of activities in buildings (ground and upper floors). In the three capitals, it found positive statistical correlations between vitality factors and buildings of 'continuous' type (attached to the neighbour, generating more compact blocks), which Jacobs associated with the traditional block, such as Greenwich Village. It has found negative correlations with towers or the 'isolated' type (Jacobs referred to the spaces between modern buildings, and the low occupancy rate, generating discontinuous and more rarefied blocks). Finally, it has also found strongly positive relationships between window and pedestrian densities, between commercial and pedestrian activities, and, to a lesser extent, between the presence of pedestrians and the diversity of activities. Jacobs did not use the concept of architectural types, but the spirit of her reading can be translated by this concept in a more analytical and precise way. The method has found statistical evidence of causality between characteristics of urban space and urban vitality, corroborating central substantive points in Jacobs' theory.

An important exception was the idea of positive effects of the age of buildings on vitality. In Brazil, age variation corresponds strongly with the variation of types: older buildings tend to generate more compact blocks; while younger buildings tend to create more rarefied ones. Age variation correlates negatively with the presence of pedestrians and with the diversity of activities. However, this difference seems to have more to do with the type setting than with age (age is a coincident factor). This could also be present in the case of the American cities observed by Jacobs, since modern buildings were already characterized by spaces in their

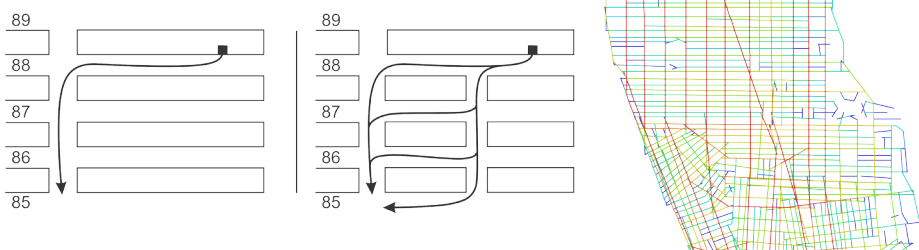


Figure 7 – The Jacobs permeability study (left and centre), and the analysis of topological accessibility in Manhattan (right). The red lines on this last map indicate streets with higher accessibility. Source: Netto and Cacholas, derived from Jacobs (1961) and Hillier et al (2012)

immediate surroundings. Jacobs probably wanted to emphasize the importance of varying the age of buildings as a way of generating variable real estate values and rents, allowing access to distinct incomes, and the opportunity to include young entrepreneurs with a tendency to innovate (“new ideas need old buildings” – Jacobs, 1993 [1961]:245). As we shall see, works in economics found positive correlations in American cities between what they call Jacobs densities and factors of innovation.

Another aspect in which Jacobs’s urban theory shows limitations on the morphological conditions of accessibility. The idea of urban accessibility emerged in those years in urban economics, namely in Hansen (1959) and Alonso (1964), but it would be explored more systematically later, through works on spatial interaction and configuration. Jacobs’s view on accessibility appears in inferences about *the effect of block size on microeconomic diversity*, taking Manhattan as a case: blocks with narrow faces on one side (70m), generating great permeability and pedestrian and commercial success, and with long faces of the other (280m), generally showing less commercial presence. From there, Jacobs apparently constructed the association between block size, permeability, and diversity (figure 7). However, size is just part of the problem. Jacobs did not take into account more systemic dimensions of urban form. The shorter faces of blocks lead to more connective streets. The idea of ‘permeability’ captures this property locally, and here Jacobs is correct. The long faces of blocks, on the other hand, cut across the island of Manhattan from north to south. This geographic condition generates an elongated network, further expanding the number of connections of these streets, and their weight in the accessibility of the entire Manhattan street network, therefore attracting more pedestrians, vehicles and businesses. By not taking into account accessibility as a whole, Jacobs reduced the problem of location of activities to local permeability. In the case of Manhattan, her success was a coincidence. These difficulties in Jacobs’s approach appear in a spatial understanding limited by the knowledge then available – but also illustrate the risk of approaches based exclusively on local observations of a few cases.

However, Jacobs’s ideas

are fundamentally correct as to *the effect of block size on accessibility*, something implied in her attention to permeability. Siksna (1997) found the benefits of smaller blocks (between 60-80m and 80-110m, below 10,000m²) for pedestrian movement in twelve American and Australian cities. He also identified that those blocks tended to maintain their configuration over time, unlike larger ones (over 20,000m²). Karimi (1997) and Hillier (1999) have shown that smaller blocks tend to be found mostly in central areas, and that they improve the overall accessibility of the city – not just local accessibility, as Jacobs and Siksna had seen. Studies in London by Chiaradia et al (2012) also can be interpreted as corroborating Jacobs’s proposition, showing that reduced block sizes reduce travel times. Analyzing a larger sample, from ancient to contemporary case studies, Porta et al (2014) also found evidence of smaller block patterns around main streets. Taken together, these findings suggest that when cities grow, blocks in their centres and around main streets tend to be smaller, creating a denser system, with beneficial effects on accessibility.

There are other factors, such as *safety*, and here the empirical findings in the recent field of urban crime research are still inconclusive. Let us examine the evidence available in light of three of Jacobs’s conditions for a successful neighbourhood (the fourth condition, the age of buildings, does not seem to me to have yet been sufficiently verified). Let us look at (i) the *concentration of people*. The study by Hillier and Sahbaz (2012) in an extensive area in London shows that residential density is the most important variable in the relation between crime and space. Burglary tends to fall with the increase in residential density. Hillier and Sahbaz understand this as ‘safety in numbers’.

The results on the effects of (ii) the *mixture of primary uses* have intriguing variations. Most studies indicate that the higher the number of residential units in relation to non-residential units, the lower the crime rate (Anderson et al., 2013). But the relationship is not so simple. Hillier and Sahbaz (2012) break the problem of crime into *robbery* and *burglary*. Focusing here on the first case, the authors show that there is in fact an initial tendency to reduce crime, when urban areas have more

residential use. Of course, streets with more pedestrians tend to have more crimes. Bettencourt and West (2010) saw this trend in population variation in cities around the world. But this trend finds a turning point. Exclusively residential areas also become unsafe. The proportion in which the number of residential units exceeds non-residential units is the critical point here. Hillier and Sahbaz estimate that pedestrians are 68% safer on predominantly residential streets than they would be on fully residential streets. The relationship between diversity and robbery, therefore, is not linear. And there is another important factor. The absolute *number* of crimes should not be confused with the *risk* of crime: if on the one hand, we naturally find more crimes where there are more pedestrians, on the other hand the individual risk tends to be lower – something that many studies seem to ignore. As Hillier and Sahbaz argue, the key point is to assess *risk*, simply because it indicates how safe people are.

Hillier and Sahbaz (2012) also evaluated (iii) the *effect of block size* using the street segment as spatial entity: the longer the block, the higher the number of robbery cases. Their high-resolution analysis allows us to understand that the use of average areas of blocks in a neighbourhood masks differences between different blocks, a methodological inadequacy in Weicher (1973) and Schmidt (1977). Summing up, residential density (concentration of people), the length of the street segment (small blocks) and the presence of non-residential activities (the mix of primary uses) show negative correlations with the occurrence of crimes in the streets. Examined in isolation, these conditions of successful neighbourhood resist as theoretical propositions. Findings on burglary, in turn, are more diffuse – and also inconclusive.

Verifying Jacobs’s economic theory

Several studies have been dealing with the effect of diversity on urban growth and the development of economies that grasped so much of Jacobs’s interest. Central questions in spatial economics like what are the vectors that produce urban agglomeration also motivated her. Extending her emphasis since *Death and Life*, she advocated the importance of

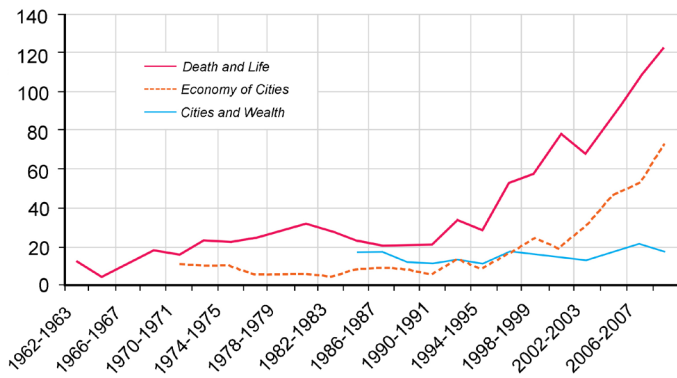


Figure 8 – The growth of citations of *The Economy of Cities*, compared to the classic *Death and Life*, and *Cities and the Wealth of Nations*, according to the Web of Science. Source: derived from Harris (2011)

fertilization across sectors of the economy, animated by new activities and technologies multiplying the division of labour. Different forces can lead to the concentration of industries in specialized clusters and the concentration of activities in the same region or city (Rosenthal and Strange, 2004), and economists have different thoughts about the conditions under which this concentration occurs. According to Marshall (1890), Arrow (1962) and Romer (1986), agglomeration and its gains in the economy intensify with the location of companies of a same industry, generating regional or urban specialization. In contrast, Jacobs (1969a, 1969b) argues that *industrial diversity, usually called ‘urbanization economies’, promotes innovation and productivity growth*, because valuable knowledge transfers would occur across different industries through cross-fertilization of ideas and technologies.

In fact, the discussion of the roles of location (‘specialization’) and urbanization (‘diversity’) in spatial economics has been at times characterized as a confrontation between Marshall and Jacobs (e.g. Panne, 2004; Rosenthal and Strange, 2004). Evidence of the effects of both processes on productivity has been found. For example, doubling the size of a city by *grouping different industries would increase the productivity* of its activities by varying from 3 to 8%, as shown by Sveikauskas (1975), Moomaw (1981), Tabuchi (1986) and Rosenthal and Strange (2004), among others – corroborating Jacobs. Nakamura (1985) found evidence of the effects of size of an industry (specialization) in Japan, in the form of an increase of about 4.5% in productivity, and an increase of 3.4% in *productivity connected with the size of cities (a*

proxy for diversity). Henderson et al (1995) found that *employment growth is slow when a city is not diversified*, and that new industries thrive in large metropolises and, as they mature, decentralize into more specialized cities. Henderson (2003) found evidence of Marshall’s location economies for high-tech sectors, and of Jacobs’s urbanization economies for corporate enterprises in machinery manufacturing sectors. Nakamura (2008) points out that *sectors that receive positive returns from diversity have relatively smaller specialization economies*, and vice versa. Lee et al (2010) identified that firms in relatively *young industries rely more heavily on diversified environments that help them grow* (consistent with Jacobs), while firms in relatively old industries receive greater external benefits in the same industrial cluster.

Developing a measure of the diversity of industries in a city, applied in observations between 1956 and 1987 in 170 American cities, Glaeser et al (1992) identified that distributing the same type of employment in more firms increases local competition, and consequently, the diffusion of knowledge, a finding that supports Jacobs’s hypothesis that *local competition promotes growth* (also corroborated by Feldman and Audretsch, 1999). Still consistent with Jacobs, Glaeser et al attest that smaller firms grow faster, and that *economic sectors in a city grow faster when the rest of the city is less specialized* (see also Rosenthal and Strange 2004). Scherer (1982) presents systematic evidence indicating that about 70% of the inventions in a given industry are used in other industries, which supports the Jacobsian hypothesis of innovations via cross-fertilization. There are other studies seeking to

recognize the empirical effects of diversity on productivity, innovation and growth, leading to a significant increase in the number of citations of *The Economy of Cities* since the 1990s (figure 8).

One of the greatest recognitions that researchers can receive is to have a phenomenon with his or her name – for example, the Higgs Boson or the Doppler effect, in physics. The gains of diversity in the space economy have come to be called ‘Jacobs economies’, apparently suggested in Glaeser et al (1992). The authors argue that Jacobs’s dynamic externality theory is attractive because it attempts to explain simultaneously how cities are formed and why they grow (p.1128). Ikeda (2012) adds to this her emphasis not just on how economies grow or produce more, but develop and produce *different* and better things. Recently, using a more disaggregated, sub-city unit of population density to capture more of the differences in the ‘flat’ averages of variables across broad geographical areas generally used by economists, Gordon and Ikeda (2011) point out that the morphology suggested by Jacobs, capable of creating a diversity of attractors, enabling interactions and forming networks spontaneously, would further support innovation and diffusion, evaluated in numbers of patent records and professionals with advanced degrees, among other factors. They called this environment of maximizing the potential informal contact in public space ‘Jacobs densities’.

One important nuance in Jacobs is that she avoided demonizing the economy. In her early observations of New York, she was already interested in the material threads behind urban life, via ethnographic readings of microeconomic life. She realized how much our actions are linked to the activities and interactions that mediate our material survival in societies with a complex division of labour. Jacobs saw continuity between actions of association and actions of material reproduction. She realized that economic life does not exclude the heterogeneities of the social – rather, it creates the fabric that puts different social fields and classes in contact. Networks of exchange animate public spaces and mix groups that otherwise could be segregated. She was not based on an a priori rejection of the acceleration and standardization of

consumption, such as the taking of streets by chain stores that undercut microscopic networks of the local economy, making places more similar to each other. Jacobs knew that as a complex system, no entity could fully design the social and economic fabric, emphasizing the necessary adaptations between actors and the need for open interactions and change.

If the reversal of the importance of top-down dynamics controlled by a centralizing agent to the bottom-up processes emerging from the interactions of large numbers of actors had already been intuited in the economy since Adam Smith, Jacobs made this inversion in relation to the functioning of cities. Jacobs was not only a leader in grassroots political movements, but also in the understanding that societal processes are collective, rather than guided by the few. She saw a deeper order: that of profusion and complementarity along with the importance of unpredictability and the city as an open system. In her decades of activity, she theorized about systems – in streets, cities, economics and ecology – and on ‘organized complexity’. Jacobs was a theorist of self-organization *avant la lettre* fascinated by the evolving fabric of collective life, and a pioneer publicly opposing its destruction (see her 1958 essay, “A living network of relationships”, and the 1967 speech at the Royal Institute of British Architects, “The self-generating growth of cities” in Jacobs, 2016a).

Jacobs’s inferences have attracted, and for the most part, resisted the empirical test – a feat for any theorist, which sounds more striking if we consider that they were built up from local observations. My discussion of these studies should be seen as the beginning of a much-needed mapping of the verifications of Jacobs’s theories. That said, the importance of her theories goes beyond whether individual ideas are right or wrong: it lies in what they have opened as research agendas and planning practices.

The last hypothesis

I have an entirely new hypothesis on how economics, macroeconomics, form themselves and organize themselves, and where this kind of life comes from. But it’s so different from the standard idea of economic life [...]. Everything in the hypothesis is out there, happening, and it accounts for so many things that are just slid over and ignored in regular

economics... I feel some urgency in my new hypothesis, yet I’m dubious it will be accepted”
(Jacobs, 2016b:114-8).

Theorists know that insights are like jewellery: they come with great cost and immersion, and when they come, they illuminate things in a new way. Jacobs had more than her share of insights: there were many propositions throughout an intellectually restless career – since the uneasiness probably felt by the young girl who challenged the authority and conservatism of school life. Not converted to a book, her latest insight appeared in interviews in 2004 and in a chapter recently published in the recent commemorative collection of her one hundredth anniversary in 2016.

This is an economics textbook. It sets forth a new way of understanding macroeconomic behavior: how it organizes itself and operates at urban, national, continental, imperial and global levels, sustains – or fails to sustain – itself. Macroeconomic life is also large-scale in the sense of time. (Jacobs, 2016b [2004]:406)

The hypothesis ties findings from her earlier economics books of 1969 and 1985: the pattern of sporadic urban growth in *explosions of diversification and economic recombination, the import substitution process, and city import shifting*. These processes would now be integrated into one, which would also organize networks of macroeconomic activity in a chain reaction. The available text boils down to the introduction – possibly an outline. I interpret her reasoning by relating the aspects it brings. As ‘incidental fractals’ intertwine, networks would connect, crossing different scales: individual cities, city networks, rural spaces, regions... “self-organizing like a biological process” (p.430). Jacobs wanted to find the roots of macroeconomy in the actions of ordinary people, who act with the resources they have, from improvisation and creativity “as an integral part of innovation” (p.431). She was still looking for hypotheses.

Conclusions: thinking with Jacobs, to go beyond Jacobs

There are many authors who seem to us to merge with their objects. They are authors who have unveiled the existence of entire phenomenal fields. Foucault rediscovers power in its microphysics, disciplining bodies. Chomsky identifies deep cognitive structures of the operation of mind and language. Weber describes the centrality of social action as the unit of production and interpretation of a society. Habermas reconstructs the place of communication and rationality in life and social reproduction. Jacobs does something similar with *the discovery of the effects of morphology* in instances more microscopic than the powerful centripetal forces known to economists. Her findings open the way *cities become mergers of material and social systems*. Urban studies as a discipline do not yet have the corpus of knowledge and recognition of areas such as sociology or economics – but if it ever achieves that status, Jacobs will be occupying a central place among its founders. While many struggle with obscure language and small additions, and their work remains ignored, we can say that the lady with no credentials has become the most quoted and important theorist of a discipline – and has gone beyond it. I cannot think of a story that shows more clearly the power of ideas.

Of course, it is hard to make justice to Jacobs’s intellectual trajectory in a single paper. If I were to try to summarize it, I would say that she was an iconoclast, demolisher of established assumptions and orthodoxies, who felt freedom to move smoothly between themes and fields. She had an independent intellectual posture, rejecting worldviews given as a priori, alternating moral responsibility and appreciation of the material world. She was a theorist with an eye for the small and ordinary, but capable of weaving them into relations that exist beyond observation – a thinker of *diversity as the engine of systems transformation, and of the autonomy and materiality of collective life*.

This article could not explore some of the limits of the Jacobsian theory, such as the problem of gentrification, or risks of material determinism. Nor was it able to explore possibilities for its expansion. What would

allow us to expand beyond the edges of her ideas? What are the directions, prospects, connections between Jacobs's themes and other approaches, extending the 'living networks'? In any case, the contributions of Jacobs, among those of other original authors, is a step in reinventing and deepening the discipline – thinking with Jacobs, to go beyond Jacobs.

References

- ALEXANDER, C. (1966) *A City is Not a Tree*. Design. London: Council of Industrial Design, 206.
- ALONSO, W. (1964) *Location and Land Use: Toward a General Theory of Land Rent*. Cambridge, MA: Harvard University Press.
- ANDERSON, J.M.; MACDONALD, J.M.; BLUTHENTHAL, R. & ASHWOOD, J.S. (2013) Reducing crime by shaping the built environment with zoning: an empirical study of Los Angeles. *University of Pennsylvania Law Review*, Vol. 161. 699-756.
- ARROW, K.J. (1962) The Economic Implications of Learning by Doing. *Rev. Econ. Studies* 29: 155-73.
- BATTY, M. (1976) *Urban Modelling: Algorithms, Calibrations, Predictions*. Cambridge, UK: Cambridge University Press
- BETTENCOURT, L. & WEST, G. (2010) A unified theory of urban living. *Nature* vol. 467. 912-913.
- CHIARADIA, A.; HILLIER, B.; SCHWANDER, C. & BARNES, Y. (2013). *Compositional and Urban Form Effects on Residential Property Value Patterns in Greater London*. *Urban Design and Planning* 166(3), 176–199.
- FELDMAN, M.P. & AUDRETSCH, D.B. (1999) Innovation in cities: science-based diversity, specialization and localized competition. *European Economic Review* 43: 409–429
- FLINT, A. (2011) *Wrestling with Moses: How Jane Jacobs Took on New York's Master Builder and Transformed the American City*. New York: Random House.
- FOWLER, E.P. (1987) Street management and city design. *Social Forces* 66(2): 365–389.
- GLAESER, E. (2010) *The Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier and Happier*. New York: Penguin.
- GLAESER, E.; KALLAL, H.; SCHEINKMAN, J. & SHLEIFER, A. (1992) Growth in Cities. *Journal of Political Economy* 100(6), 1126–1152.
- GORDON, P. & IKEDA, S. (2011) Does Density Matter? In *Handbook of Creative Cities* edited by D. Andersson, A. Andersson and C. Mellander. Cheltenham: Edward Elgar, 435–455.
- HANSEN, W.G. (1959) How Accessibility Shapes Land Use. *Journal of the American Institute of Planners* 25(2), 73–76.
- HARRIS, R. (2011) The magpie and the bee: Jane Jacobs's magnificent obsession. In: M. Page and T. Mennel (eds.) *Reconsidering Jane Jacobs*. Chicago, IL: Planners' Press, pp. 65–82.
- HEILIE, M. (2010) To walk the path of Jane Jacobs. Review of *What We See, Advancing the Observations of Jane Jacobs*. Online. acessado em março, 2017.
- HENDERSON, J.V. (2003) Marshall's scale economies. *Journal of Urban Economics*, n. 53, p. 1-28.
- HENDERSON, J.V.; KUNCORO, A.; TURNER, M. (1995) Industrial development in cities, *Journal of Political Economy*, 103, pp. 1067–1090.
- HILLIER, B. (1999) Centrality as a Process: Accounting for Attraction Inequalities in Deformed Grids. *Urban Design International* 4(3), 107–127.
- HILLIER, B.; YANG, T. & TURNER, A. (2012) Normalising least angle choice in Depthmap. *The Journal of Space Syntax*, Vol. 3 (2) 155-193.
- HILLIER, B. & SAHBAZ, O. (2012) *High Resolution Analysis of Crime Patterns in Urban Street Networks: An Initial Statistical Sketch from an Ongoing Study of a London Borough*. www.ipam.ucla.edu /programs/chs2007/ acessado em Fevereiro 2017.
- HOSPERS, G.J. (2006) Jane Jacobs: Her life and work. *European Planning Studies* 14(6): 723–732.
- KARIMI, K. (1997) *The Spatial Logic of Organic Cities in Iran and the United Kingdom*. In *Space Syntax: First International Symposium* edited by M.D. Major, L. Amorim and F. Dufaux. London: University College London.
- IKEDA, S. (2012) Economic Development from a Jacobsian Perspective. In: *The Urban Wisdom of Jane Jacobs*. Edited by S. Hirt. London: Routledge.
- JACOBS, J. (1961) *The Death and Life of Great American Cities*. New York: Random House. [1993] Modern Library edition.
- JACOBS, J. (1969a) *The Economy of Cities*. New York: Random House.
- JACOBS, J. (1969b) Strategies for helping cities. *American Economic Review*, 59(4):652-56.
- JACOBS, J. (1980) *The Question of Separatism: Quebec and the Struggle over Sovereignty*. Random House and 2011 Baraka Books.
- JACOBS, J. (1985) *Cities and the Wealth of Nations*. New York: Random House.
- JACOBS, J. (1992) *Systems of Survival: A Dialogue on the Moral Foundations of Commerce and Politics*. New York: Random House.
- JACOBS, J. (2000) *The Nature of Economies*. New York: Random House, The Modern Library.
- JACOBS, J. (2001) "City Views: Urban studies legend Jane Jacobs on gentrification, the New Urbanism, and her legacy". Interview with Bill Steigerwald. *Reason*, June 2001.
- JACOBS, J. (2004) *Dark Age Ahead*. New York: Random House.
- JACOBS, J. (2016a) *Vital Little Plans: The Short Works of Jane Jacobs*. Editado por Samuel Zipp e Nathan Storrington. New York: Random House.
- JACOBS, J. (2016b) *The Last Interviews and Other Conversations*. New York: Melville House.
- LANG, G. & WUNSCH, M. (2009) *Genius of Common Sense: Jane Jacobs and the Story of The Death and Life of Great American Cities*. Boston: Godine.
- PAGE, M. & MENNEL, T. (2011) *Reconsidering Jane Jacobs*. Chicago, IL: Planners Press.
- LARICE, M. & MACDONALD, E. (2007) *The Urban Design Reader*. Abingdon, UK: Routledge.
- LAURENCE, P. (2016) *Becoming Jane Jacobs*. Philadelphia: University of Pennsylvania Press.
- LEE, B.S; JANG, S. & HONG, S.H. (2010) Marshall's Scale Economies and Jacobs' Externality in Korea. *Urban Studies* 47 (14) 3131-3156.
- LYNCH, K. (1960) *The Image of the City*. Cambridge, MA: MIT Press.
- MARSHALL, A. (1890) *Principles of Economics*. London: MacMillan.
- MARSHALL, S. (2012) Science, pseudoscience and urban design. *Urban Design International* , 17 pp. 257-27.
- MOOMAW, R.L. (1981) Productivity and city size: a critique of the evidence. *Quarterly Journal of Economics* 96: 675-688.
- NAKAMURA, R. (1985) Agglomeration economies in urban manufacturing industries: a case of Japanese cities. *Journal of Urban Economics* 17: 108-124
- NAKAMURA, R. (2008) *Changes in Agglomeration Economies and Linkage Externalities for Japanese Urban Manufacturing Industries: 1990 and 2000*. RIETI Discussion paper.
- NETTO, V.M. (2017) *The Social Fabric of Cities*. London & New York: Routledge.
- NETTO, V.M.; SABOYA, R.T.; VARGAS, J.C.; FIGUEIREDO, L.; FREITAS, C. & PINHEIRO, M. (2012) "The convergence of patterns in the city: (isolating) the effects of architectural morphology on movement and activity". In: *Proceedings of the 8th International Space Syntax Symposium*. Santiago, Universidad Católica de Chile.
- PANNE, G. (2004) Agglomeration externalities: Marshall versus Jacobs. *Journal of Evolutionary Economics* 14: 593-604.
- PORTA, S.; ROMICE, O.; MAXWELL, J.A.; RUSSEL, P. & BAIRD, D. (2014) Alterations in Scale: Patterns of Change in Main Street across Time and Space. *Urban Studies* 51(16), 3383–3400.
- ROMER, P.M. (1986) Increasing Returns and Long-Run Growth. *J.P.E.* 94: 1002-37.
- ROSENTHAL, S. & STRANGE, W. (2004) Evidence on the nature and sources of agglomeration economies. In: Henderson, J.V.; Thisse J.-F. (Org). *Handbook of Urban and Regional Economics*.

- New York: North Holland, n. 4, p. 2.119-2.171.
- SCHERER, F.M. (1982) Inter-Industry Technology Flows in the United States. *Res. Policy* 1: 227-45.
- SCHMIDT, C.G. (1977) Influence of land use diversity upon neighborhood success: an analysis of Jacobs' theory. *The Annals of Regional Science*, Volume 11, Issue 1, pp 53-65
- SIKSNA, A. (1997) The Effects of Block Size and Form in North American and Australian City Centres. *Urban Morphology*, 1(1), 19-33.
- SVEIKAUSKAS, L. (1975) The productivity of cities. *Quarterly Journal of Economics* 89,393-413.
- TABUCHI, T. (1986) Urban agglomeration, capital augmenting technology, and labor Market equilibrium. *Journal of Urban Economics* 20, 211-228.
- WEBER, M. (1978) *Economy and Society Vol.1*. Berkeley: University of California Press [1920].
- WEICHER, J. C. (1973), A Test of Jane Jacob's Theory of Successful Neighborhoods. *Journal of Regional Science*, Vol. 13, No. 1, pp. 29-40.
- WILSON, A. (1967) Mathematical models in planning. *Arena*, 82, 260-265.
- ZIPP, S. & STORRING, N. (2016) Introduction. In: J. Jacobs, *Vital Little Plans: The Short Works of Jane Jacobs*. New York: Random House.

