

Cities, Agriculture, and Economic Development: The Debate over Jane Jacobs's 'Cities-First Thesis'

SANFORD IKEDA

Professor of Economics
Purchase College, SUNY

Web: <https://www.purchase.edu/live/profiles/624-sanford-ikeda>
Email: sanford.ikeda@purchase.edu

Abstract: Jane Jacobs (1969) argues that cities necessarily precede agriculture. Smith, Ur, & Feinman (2014) argue that archeological evidence conclusively demonstrates that Jane Jacobs's thesis is wrong. Taylor (2014) takes issue with their definition of a city, while I point out certain limitations on their concept of agriculture. Nevertheless, even if Jacobs is wrong about the precedence of agriculture, I argue that the urban processes that she describes and that I have elaborated on elsewhere can still serve as the basis for understanding the spread and further development of agriculture as well as the central role of urban centers in economic development and innovation.

INTRODUCTION

There is a widespread consensus among urbanists of all stripes that cities have been and continue to be the main drivers of economic development (Glaeser 2011). One of the strongest proponents of this idea, Jane Jacobs, went so far as to argue (1969) that the only sensible explanation for the development of agriculture, perhaps the single most important innovation in human history, is that it is the result of, rather than the necessary precursor to, urbanization. That, of course, is a view contrary to that of most archeologists as well as the general public.

Recently, Smith, Ur, and Feinman (2014) argue that Jacobs's "cities first" thesis is easily contradicted by the weight of modern archeological evidence and expert archeological opinion. It is that assertion and its consequences for the framework Jacobs developed to explain the role of cities in economic development, and innovation in particular, that I wish to explore. Jacobs's analysis incorporated diversity of skill, knowledge and tastes, population density, entrepreneurial discovery, and economic development as part of a dynamic, primarily urban process, in which creativity and innovation is a natural, emergent outcome. If Smith et al. are right, how does it impact Jacobs's thesis and her analytical framework?

JACOBS'S "CITIES-FIRST" THESIS

In the first chapter of her *The Economy of Cities* (1969) Jane Jacobs argues that densely populated cities based on trade and comprised of diverse, socially distant individuals must logically have preceded the appearance of agriculture. That, of course, is at odds with conventional thinking.

The dogma of agricultural primacy says: agriculture first, cities later. Behind the dogma lies the notion that in pre-Neolithic times hunting men lived only in small and economically self-sufficient groups, finding their own food, making their own weapons, tools and other manufactured goods. Not until some of these primitive groups learned to cultivate grain and raise livestock, it is thought, did settled and stable villages emerge, and not until after the villages were built did complex divisions of labor, large economic projects and intricate social organization become possible. These advances, coupled with a surplus of agricultural food, are supposed to have made cities possible (Jacobs 1969, p. 5).

So trade is the genesis of cities, and cities give rise to agriculture. Although her book is concerned mainly with setting out a controversial theory of economic development and innovation based on the provocative idea of "import replacement," most of the controversy appears to issue from

this “cities first, rural development later” thesis (Jacobs 1969, pp. 3-48). I have summarized her theory of economic development elsewhere (Ikeda 2012) and will focus here on the aspect of that theory relevant to the cities-first thesis.

Cities drive innovation

Jacobs defines a “city” as “a settlement that consistently generates its economic growth from its own local economy” (Jacobs 1969, p. 262). For her the essence of a genuine city is the way it drives economic development through innovation, and agriculture and husbandry are the earliest examples of major economic innovations. She rejects the orthodox view that hunter-gathering gives way to small, farming settlements that eventually become wealthy enough to construct the kinds of infrastructure we conventionally associate with a city—monumental buildings, etc. (Childe 1950)—because it was so very unlikely to have happened that way.

I have found it helpful to distill her argument in the following way (Ikeda 2012, pp. 65-8).

Central to the process of innovation is experimentation. First, innovation requires repeated experiment through trial-and-error. Failed experiments in a rural settlement are costly, including starvation and death, and the challenge for the innovator is to minimize those negative consequences. Second, in order to experiment, the innovator needs exposure to novel ideas and habits of thought, but in a rural environment, where peaceful association with socially distant people is rare, inspiration for original thinking is hard to come by. Third, a successful innovation could result in a greater division of labor and specialization of knowledge, but as Adam Smith points out, the division of labor is limited by the extent of the market (Smith 1976, pp. 31-6). In order to successfully implement any new method on the supply-side, therefore, the demand for the goods the new method produces must be great enough to sustain its production, which is unlikely in a region of farming settlements unless trade among them is already extensive. Fourth, if innovation does take place it may not spread very far or very quickly, even within the community of the innovator let alone to more-distant communities, because small, rural villages may be hostile to new ideas and new ways of doing things.

Jacobs argues that it makes sense for hunter-gatherers to begin trading with distant peoples by establishing trade centers, which lowers the cost of acquiring a far greater range of resources and tools. Over time, the opportunities for trade attract a larger number of more diverse peoples

and the settlement evolves into a city in Jacobs’s sense. In the initial stages of the settlement, the residents are primarily hunter-gatherers trading wild or minimally domesticated goods but as the population grows their knowledge and tastes diversify and grow as well. Here we see the beginnings of sophisticated agriculture and husbandry. Why?

First, with a greater range of work (and begging opportunities) than a rural village, the cost of failure from experimentation is far lower in a city than in a rural village (Glaeser 2012, p. 455). Second, contact with socially distant people is much more likely in a city than in a village, so exposure to different ideas and methods is greater, which is a source of stimulus and inspiration for creative thinking largely absent in a village. Moreover, in dense and diverse populations create opportunities for accidental or serendipitous combination multiply. Third, the larger population of the city-settlement can better sustain an extensive division of labor and specialization resulting from innovations. Fourth, in a dense trading environment, ideas diffuse rapidly both because of trade and because of the relatively greater social tolerance for differences in appearances, beliefs, and practices that a city must have in order to thrive. In short, a city in Jacobs’s sense checks all the boxes that encourage innovation, including especially agricultural advance.

The city and agriculture as a spontaneous orders

Specifically, in her story of “New Obsidian” Jacobs explains how agriculture probably emerged in cities before it spread to rural areas (Jacobs 1969, pp. 18-31). It is a story reminiscent of Carl Menger’s theory of the origin of money (Menger 1976, pp. 257-62)—an example of unplanned, spontaneous order driven by self-interest. She imagines a variety of relatively wild goats brought to the settlement by traders, who hire a person to tend them (a new kind of work). In order to minimize his effort, when given the choice the goat tender will slaughter the goats that are the hardest to handle first and reserve the tamest for last. Given the knowledge he acquires from this specialization it would make sense for him then to further specialize by breeding the tamer goats, which in the large, diverse market of New Obsidian could be sold for profit. In this way animal husbandry takes place as an unintended consequence of trade. Jacobs also describes the same kind of process for seed hybridization, and one can see how the application of the “accidental-combined-with-self-interest” story can be applied to new specializations, in different areas including manufacturing, technology, organization, and even religion. All of these ap-

pear to be consistent with Menger's genetic-causal explanation.

THE ARCHEOLOGICAL COUNTER-ARGUMENT

Among the supporters of Jacobs's cities-first thesis is Peter J. Taylor, an emeritus professor of geography at Loughborough University, UK. He has developed a concept called "city-ness" which he describes as

a combination of cluster/agglomeration processes within cities and network/connectivity processes between cities. These processes create unprecedented communication potentials that make cosmopolitan cities the crucibles of new ideas, innovations and inventions. This is what has made the impact of cities so extraordinary today and in the past (Taylor 2012, p. 417).

I will comment on city-ness, and its role in the debate over Jacobs's thesis, later in the paper.

Taylor has written a number of articles extending Jacobs's cities-first thesis, one of which (2012), published in the *International Journal of Urban and Regional Research* in 2014 provoked the following response from three archeologists—Michael E. Smith, Jason Ur, and Gary M. Feinman (2014, p. 7):

Agriculture preceded urbanism. They did not, however, evolve independently. Settlement and agriculture developed in tandem, often making it impossible to say whether one was a response to the other.

Smith et al.: Agriculture first, cities later

In their response, accompanied with some obvious exasperation, Smith, Ur, and Feinman (2014) report on what they regard as conclusive evidence against the cities-first thesis and by implication against Taylor and a host of others who have developed the thesis (Braudel; Reader; Ikeda).

The Smith et al. counter-argument consists of three parts: (1) a definition of what a "city" is, (2) a somewhat broad conception of what constitutes "agriculture," and (3) the latest archeological data on the first appearances around the world of cities and of agriculture.

Regarding cities, Smith et al., unlike Jacobs, use a non-processual definition of a city and explicitly cite Louis Wirth's (1938) essentially functional definition, which char-

acterizes a city as a three-variable problem, with population size, density of settlement, and heterogeneity of population as arguments. In contrast, Jacobs (1961) characterizes a city, we have seen, as a problem of "organized complexity." Smith et al. dispute Jacobs's claims about Çatalhöyük, and its alias, "New Obsidian."

Ultimately what is 'urban' is a matter of definition..., but Çatalhöyük does not meet the criteria of either of the major definitions of urbanism used in archeology and history. Louis Wirth's (1938) influential demographic definition of urbanism requires a high population size and density, coupled with social heterogeneity. As a relatively homogenous village of 15 hectares, Çatalhöyük does not come close to qualifying as urban. The alternative functional definition (Fox 1977; Marcus 1983) requires settlements to have activities and institutions—whether economic, political or religious—that affect a hinterland. Lacking such urban functions, Çatalhöyük does not match this definition either (2014, p. 1530).

As we will see, Taylor (2015) argues that this concept has led Smith et al. to look in the wrong places for evidence of urban emergence.

Regarding agriculture, Smith et al. seem at times to define agriculture as simply "farming," which includes farm management, irrigation, and tilling.

Long before some plants showed the physical traces of domestication, human communities were managing (i.e. cultivating) morphologically wild plants via tilling, seeding, tending, harvesting and storing (Bar-Yosef 2011, pp. 181-2; Zeder 2011, pp. 224-6). As early as 10000-8700 BCE several signs point to such management (2014, p. 1529).

Although they also include plant and animal "domestication," what counts as "agriculture" and especially whether it aligns with what Jacobs is referring to when she uses those terms, remains contestable. While I am prepared to concede to the scientific authority of archeologists on what in the professional literature they consider "agriculture," the Merriam-Webster (online) dictionary offers the following definition:

the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying de-

gresses the preparation and marketing of the resulting products.¹

What constitutes agriculture in the professional literature notwithstanding, let us note, with respect to the ordinary meaning of the word, that while early farmers may have cultivated the soil and raised livestock as a practice or an art, it would probably be a stretch to claim that early Neolithic settlers did so systematically and experimentally in the manner of a science. Thus, whether the archeological evidence rebuts the “agriculture-first” thesis would seem to depend a crucially on whether Jacobs and the archeologists are talking about the same thing.

Regarding the archeological data, Smith et al. first report on studies that show evidence of animal and plant domestication and breeding in PPNA (8500-7600 BCE) which predates Çatalhöyük, but does this really reflect the kind of innovative agriculture Jacobs has in mind in her cities-first thesis? In any case, they assert that “current understandings are nuanced and suggest complicated processes...the overall picture is clear...”

In the Near East, unequivocal cereal domestication (identified on the basis of morphological changes resulting in reproductive reliance on | humans) is clearly attested between 8400 and 7500 BCE for various plant species (Fuller et al. 2012; Willcox 2012).²

To further their argument, Smith et al. claim that such changes follow “management strategies” that occurred thousands of years earlier.

It is now clear that morphological changes to plants and animals are not ‘leading-edge indicators’, but rather the result of less archeologically visible management strategies for plants and animals that began millennia earlier (around 9500 BCE for animals and before 10000 BCE for plants.... (2014, p. 1530).

They next argue that the “conventional understanding of urban origins places the first Mesopotamian city at Uruk” (4000-3200 BCE) where recent archeological work “uncovered a series of enormous and ornately decorated buildings.”

To summarize, cities in the Near East emerged over more than a millennium, with initial proto-urban agglomerations around 4400-3900 BCE, unequivocal

cities in northern and southern Mesopotamia around 3900-3100 BCE and ubiquitous urbanism in the era of city-states around 2600-2000 BCE (reviewed recently in UR, 2010; 2012). At the start of the sequence, human communities were using an integrated agricultural economy that was already three millennia old (2014, p. 1531).

Thus, they argue that “integrated agricultural economies” predate the first cities by three-thousand years. And this, of course, also hinges on how they define “city.” Three-thousand years prior to the Mesopotamian city-states, for example, would place the emergence of agriculture right about the time of Çatalhöyük, i.e. circa 7000 BCE.

Interestingly, Smith et al. are confident that what they deem conclusive evidence does not detract from Jacobs’s other analytical achievements:

For the most part we limit ourselves to the narrow question of whether the earliest agriculture preceded or postdated the earliest cities within individual world regions. The fact that Jane Jacobs made a basic and elementary error on this question (a relatively minor part of her overall output) has no bearing on the validity or usefulness of her other work. “Her general legacy is not in question.” (2014, p. 1532).

They do not specify, however, what part of that legacy remains. In particular, they do not refer to her theory of economic development via urban innovation and import-replacement as part of that unquestioned legacy.

Hodder: The unintentional emergence of agriculture

In any case, how do archeologists explain the appearance of domesticated plants, for example, in a pre-urban environment? Ian Hodder, who currently directs the excavation of Çatalhöyük, posits a theory that has Jacobsian overtones and that, as I will explain, can actually be seen as consistent with Jacobs’s theory of innovation. In particular, Hodder suggests that

Settlements had increased in size during the warming at the end of the Pleistocene, but the setback of the Younger Dryas forced intensification in order to maintain settled life in agglomerated villages. The result of that intensification was that people domesticated plants and animals—perhaps unintentionally (Hodder 2006, p. 243).

Hodder explains that such an unintended consequence may occur when settlements become more densely populated or when many different settlements locate in proximity to one another.

Indeed, it seems quite possible that people who had come together largely because of the benefits (prestige, exchange, status, control over resources) that this network allowed, ended up “accidentally” domesticating plants and animals. The large agglomerations of people would have depended on a wide range of local resources which increasingly have had to be more intensively collected (just because of the large numbers of people exploiting the same landscape) (Hodder 2006, p. 244).

How might this be related to Jacobs’s overall analysis? Recall that for Jacobs, innovation takes place in the presence of trade, population density, and population diversity, all of which are characteristic of living cities. It is possible that similar conditions might arise, outside of an urban context, in “proto-urban” environments—perhaps Taylor’s “city-ness” network ideas come into play here—that mimic such a context.

THE REBUTTAL

Taylor on “city-ness”

In his response to Smith et al., Taylor (2014) concedes that agriculture preceded the first appearance of cities (a concession that I am not quite ready to make).

My first key point is that I have no disagreement with this evidence; as a non-expert on this topic I can only say that the evidence appears to be soundly based on proven methods (2014, p. 168).

But he does take issue with the concept of “city” that they use. The functional definition of Wirth used by Smith et al. (2014) places too much emphasis on “things”—monumental buildings and such—and not enough on the processes and networks that constitute living cities. He writes:

Following Jacobs (1969) and Castells (1996), I treat cities as a process (economic development) that operates through inter-city relations (networks of cities). This process of ‘city-ness’ (further elaborated in Taylor, 2013, pp. 63—87) is especially conducive to innova-

tion and its diffusion, due to the communication potential within and between cities that totally dwarfs levels of human communication in other types of settlement (2014, pp. 169-70).

Since such networks and processes may not leave lasting traces, so that existing artifacts may be missing what is essential about living cities. He writes:

Basically what I am arguing is that inter-city relations are better described by central flow theory than central place theory. Second (and more important), it is the nature of cities that is at issue. City-ness is built upon a relational approach to understanding cities; archaeologists as represented by Smith and his colleagues use what Jacobs (2000, pp. 32—4) calls a ‘thing theory’—definition by content rather than process. Here we get the only reference to a social science view of cities (Smith, et al. 2014, p. 1530), Wirth’s (1938) three criteria of size, density and heterogeneity. Particularly in the archaeological argument, the ‘things’ emphasized are what are found in early Mesopotamian cities—see, for example, reference to other sites that ‘have not revealed any monument architecture’ (ibid. p. 7)—so that settlements not containing these things are deemed not to be cities, ipso facto Mesopotamia has a head start in claiming the first cities (2014, p. 169)

I find Taylor’s line of argument valid but weak. While it is true that processes and networks themselves may not leave measureable traces, it seems reasonable that artifactual evidence of “things” traded over those networks over great distances or sophisticated and rapidly changing tools or commodities produced via those processes would point to the existence of those networks. The burden seems to be on Taylor to specify what kind of artifactual evidence would, even if only in principle, corroborate his assertion. Otherwise, his defense of city-ness in this context would appear to render it immune from refutation.

Price and Bar-Yosef: Another archeological view on the origins of agriculture

Despite these reservations, I do favor Taylor’s way of conceptualizing what a city is, which is I think much more consistent with the way Jacobs looks at urban processes as incubators of ideas, experimentation, innovation, entrepreneurship, and economic development. However, as I indi-

cated earlier I will instead take issue with the way Smith et al. characterize “agriculture.”

First of all, their statements about the consensus among archeologists on the first appearance of agriculture appear to be at least somewhat overstated. In their introduction to a symposium held in 2011 on “The origins of agriculture: new data, new ideas” which appeared in *Current Anthropology*, T. Douglas Price and Ofer Bar-Yosef (2011) offer a much broader and evidently more representative view of the archeological evidence on the first-appearance of agriculture than do Smith et al.—one that reflects a great deal more caution. They observe, for example that

There is yet no single accepted theory for the origins of agriculture—rather, there is a series of ideas and suggestions that do not quite resolve the question. At the same time, of course, the evidence we have is scanty and limited. (2011, p. S168).

Elsewhere in their overview they report:

In spite of extraordinary advances in a variety of fields, many detailed at the symposium, *we really know very little about the origins of agriculture.*[...] We are still at the early stages of the process of identifying and understanding this transition from hunting to farming.³

There is another aspect of their summary, which when combined with Hodder’s observations on the conditions that may be conducive to domestication, is broadly consistent with the essence of Jacobs’s cities-first thesis:

Another commonality among the cradles of agriculture is the rich environments in which farming originates. Experiments in domestication do not take place in marginal areas but *amid concentrations of population and resources* across the globe. It also appears that in each area where several different species are involved in the transition to agriculture, there are multiple centers of domestication within the region. A number of groups appear to be manipulating their natural world.⁴

So, in various places around the world, plentiful resources and a high diversity of groups or settlements within a region appear to have been most conducive to the emergence of agriculture. Price & Bar-Yosef observe, moreover, that on

the list of conditions the participants in their symposium analyzed, wealth accumulation ranks last.

The most important factors in the transition from the perspective of the authors presented here include, in order of suggested importance, available protodomes-ticates, human sedentism, higher population density, resource abundance, geographic and/or social constraints, processing and harvesting technology, storage, and wealth accumulation (2011, p. S172).

This is at least consistent with Jacobs’s argument that high-levels of capital accumulation were more the result of than a precondition for cities. Nevertheless, these areas are still not cities in Jacobs’s sense, and the archeological orthodoxy Jacobs criticized appears to maintain that wealth accumulation is at least a weak precondition for cities.

But the essence of Jacobs’s analytical framework emphasizes high concentrations of people from socially distant backgrounds who are economically secure enough to (un-intentionally) experiment with different forms of plants and animals, and that useful discoveries they made would be able to diffuse throughout the region at low cost.

Also, I earlier gleaned from Hodder his observation that agriculture may have first arisen “unintentionally.” In addition, Price & Bar-Yosef point out that

It is important to separate the origins of agriculture from the process of domestication and to distinguish biology from culture in the transition from hunting to farming (2011, S171).

I read this as acknowledging that agriculture and domestication are different things and that they may have arisen at different times, which further muddies efforts to date precisely their origins against the first appearance of cities.

I suggest that by combining these two observations it may be possible to tentatively conclude that, while the archeological evidence shows clearly that plant mutation occurred before the Çatalhöyük became a major settlement, nevertheless in order for the agricultural innovation and diffusion to take place on the scale that Jacobs describes still requires the urban process of a Jacobsian city.

TAKING STOCK

It seems to me that there are three ways to respond to Smith et al.'s argument. The first to question, as I have just done, whether their definitions of city and agriculture agree with those of Jacobs and Taylor.

One could also investigate, if indeed Smith et al.'s critique is definitive, what part of her "general legacy is not in question."

Thus, a second way to respond to them would be, again as I have just done, to suggest that Jacobs's framework, in which density and diversity give rise to processes that foster innovation, might be applied to a non-urban situation. While this response abandons her cities-first thesis, it retains the essential elements of her explanation of how innovation of all kinds happens, for which Jacobs's account of "New Obsidian" is really just a paradigm. Thus, while her broader thesis about the role of cities in innovation may not be true of the earliest forms of agriculture, it may well be valid for a wider class of innovations, e.g. literacy, numeracy, calendrical sciences, hierarchical governance, monumental architecture, and organized religion, and so on, all of which are part of V. Gordon Childe's ten characteristics of what a city is.

Similarly, a third response might be to again abandon her specific thesis, but to argue that, while millennia of incremental change may have resulted in some domestication (perhaps a la Hodder) that long predate the appearance of cities (rightly understood) Jacobs's framework would suggest that the existence of those cities exponentially accelerated the process of innovation of all kinds, including agriculture. [Adam Smith argued that compared to manufacturing agriculture would see comparatively little innovation.] This suggests that we look for evidence of a significantly greater variety and volume of goods consumed after true cities were established and that likewise agricultural innovation accelerated and spread quickly via trade throughout any given region.

NOTES

- 1 <http://www.merriam-webster.com/dictionary/agriculture>
- 2 References original at 2014, pp. 1528-9.
- 3 Emphasis added S172
- 4 Emphasis added S169

REFERENCES

- Childe, Gordon 1950. The urban revolution. In: Richard T. LeGates and Frederic Stout (eds.) *The City Reader* (2000) 2nd ed., New York: Routledge.
- Glaeser, Edward 2011. *The Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier and Happier*. New York: Macmillan.
- Hodder, Ian 2006. *The Leopard's Tale: Revealing the Mysteries of Çatalhöyük*. London: Thames & Hudson, Ltd.
- Ikeda, Sanford 2012. Economic development from a Jacobsian perspective. In: Sonie Hirt with Diane Zahm (eds.). *The Urban Wisdom of Jane Jacobs*, New York: Routledge.
- Jacobs, Jane 1969. *The Economy of Cities*. New York: Vintage Books.
- Menger, Carl 1976[1861]. *Principles of Economics*. Trans. by James Dingwall and Bert F. Hoselitz. New York: NYU Press.
- Price, T. Douglas and Ofer Bar-Yosef 2011. The origins of agriculture: new data, new ideas. *Current Anthropology*, Vol. 52(4): S163-S174.
- Smith, Adam 1976[1759]. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Indianapolis: Liberty Fund.
- Smith, Michael E., Jason Ur, and Gary M. Feinman 2014. Jane Jacobs' 'cities first' model and archeological reality. *International Journal of Urban and Regional Research*, Vol. 38(4): 1525-35.
- Taylor, Peter J. 2012. Extraordinary cities II: early 'city-ness' and the invention of states. *International Journal of Urban and Regional Research*, Vol. 36(3): 415-47.
- Taylor, Peter J. 2014. Post-Childe, post-Wirth: Response to Smith, Ur and Feinman. *International Journal of Urban and Regional Research*, Debates and Developments, Vol. 39(1): 168-71.
- Extraordinary Cities: Early 'City-ness' and the Origins of Agriculture and States. Also online at <http://www.lboro.ac.uk/gawc/rb/rb360.html>