Where to buy and sell?

Looking at markets through the lens of Henri Lefebvre's work on Social Space

Kumar Aniket*

Faculty of Built Environment, UCL

*** A VERY PRELIMINARY VERSION ***

14 January 2022

Abstract

The first welfare theorem or the invisible hand theorem (Basu, 2010) states that competitive market equilibrium coincides with the Pareto efficient outcome if there is no asymmetric information or externalities. The question that has not often been asked within economics is what is the characteristics of the space within which the market operates, i.e., contiguous space between all potential buyers and sellers through which goods and money flow. More specifically, does the ownership of the market-space influence the outcome of the market. While Economics has largely populated its models within inert Cartesian space, Henri Lefebvre notion of *"social space"* captures the space as humans conceive, perceive and live in it. The paper attempts to explore the hitherto unexplored links between Lefebvre (1974) and Economics. The paper argues that the ownership structure of the social space within which the market operates is key to ensuring that it delivers an efficient outcome. This is because the social space itself, within which a competitive market operates, is non-rival and non-excludable. This is an issue that is relevant both in the context of rural markets in developing countries and the virtual markets that work in social spaces created by Amazon, eBay, Facebook and Google etc.

*Address: University College London,1-19 Torrington Place London WC1E 7HB. Email: k.aniket@ucl.ac.uk

Introduction

Markets are usually assumed to be aspatial and asocial in economics. That is, markets require no existing social process to operate[1] and markets operate over space, but do not in any way change the nature of the space they operate over.[2] This varies with the tradition in philosophy and sociology that followed Henri Lefebvre's seminal contribution in 1974 (Lefebvre, 1974).

Henri Lefebvre's notion of social space is intricately links social processes with space. Lefebvre (1974) central proposition is that the *humans produce social space and are in turn produced by it.* Lefebvre (1974) argues that space, as humans experience it, cannot be delinked from the social processes that shape and influence humans. Lefebvre argues that the verb *produce* is key to understanding the nature of space. As the statement above suggests, Lefebvre argues that space and society have an endogenous relationship with it. While scientific measuring instruments may see an empty Cartesian space, humans experience space in social way, i.e., they way in which they have been socialised and learnt to associate meanings with signs, codes and spatial symbols.[3] While signs, codes and spatial symbols create space, the social process of rebelling against it or escaping from these spaces create new spaces. Hence, the notion of space incorporates power dynamics within it.[4] As we will see, it is fascinating to see how Graddy (1995) captured these spatial power dynamics in her study of New York's Fulton Fish market. Spatial power dynamics associated with markets are captured in numerous papers like Greif (1993), Besley and Burgess (2001), Banerjee and Munshi (2004) and Munshi (2011) amongst others.

The tradition that followed Henri Lefebvre would argue that the terms social and space cannot be delinked in any study of society, as they have been delinked in Walrasian general equilibrium where the implicit assumption is the social processes occur over an inert Cartesian space and appears in its reduced form as a transaction cost. While the market is asocial in Walrasian General equilibrium tradition, Hayek's notion of market equilibrium includes a social process that is moderated by decentralised competition (Hayek, 1937). As far as the author is aware,

[1] if at all, markets make social relationships redundant when they function properly.

[2] This represents the Walrasian General equilibrium framework (Arrow, 1951; Debreu, 1951).

[3] Lefebvre says that the concepts are borrowed from Noam Chomsky's work in linguistics (Lefebvre, 1991, p.33).

[4] This is an obvious parallel with linguistics.

the links between Hayek and Lefebvre's work has never been explored.

The question we would like to ask in this paper is whether the notion of social space is an advantage or a disadvantage in a society's development process. This is relevant because the market mediated process of economic development changes the face of the rural and urban areas dramatically and changes the social nature of its space itself. The question can be put in another way. Does social space complement markets or are the markets simply a substitute for social space[5]. That is, is social space advantage or disadvantage in the market mediated development process. While this question may seem odd looking from the Walrasian General equilibrium tradition, the Hayek's notion of market equilibrium had more social component. Hayek and Henri Lefebvre's oddly complement each other in an interesting way. It is particularly odd given the wide chasm between their personal political stances.

Market-space and Market-place. The first welfare theorem[6] or the invisible hand theorem (Basu, 2010) states that a competitive market leads to efficient allocation of resources if there are no externalities associated with the goods and there is is no asymmetric information between the buyers and the sellers.[7] The question that has not often been raised within economics (as far as the author is aware) is what is the characteristics of the *space* within which the market operates. Most markets are not aspatial and require the flow of price information and actual flow of goods and service from the buyer to the seller in exchange for money. The flow of information, goods and money is through space that lies between the buyers and the seller. Let's call this *market-space*. Let's define market-space as the contiguous space between all potential buyers and sellers that enables transactions by facilitating the flow of price information, goods and money.[8] While price information, goods and money may flow through different spaces, buyers and sellers have to be linked through all three for the market to operate. Market-space is different from market-place. *Market-place* is location serving as a focal point where buyers and seller meet gather for the convenience of exchanging price, goods and money instantaneously. While market-place is not critical for the markets and many markets operate without a specific

[5] as the social network literature assumes (Munshi, 2014)

[6] Arrow (1951) and Debreu (1951).

[7] The invisible hand theorem stats that "*If we have a competitive economy, where all individuals choose freely according to the respective rational self interest, then (given a few technical conditions) the equilibrium that will arise will be Pareto optimal.*" (Basu, 2010, p.25)

[8] This includes roads, shipping lanes, telephones and internet etc. It includes any type of space that the buyers and sellers have to traverse to transact with each other.

market-place, market-space is critical for the existence of markets. An example may help gives us a sense of what a potential market-space looks like. As we will see in example below, a change in market-space due to rolling out of a new technology changed the outcome of the fresh fish market on Kerala's northern coast.

Jensen (2007) studies how fisherman decide which of the 15 fish markets along the 225 km Northern coast of Kerala to land their catch of the day on and finds price volatility dropped significantly and markets cleared more often after mobile phone service was rolled out along the coastline. Our interest it to examine the market-space for the fish in the area. The market-space is the space between the fisherman once they have caught their quota for the day and the buyers at their home. Given the difficulty of traversing the distance between them, the 15 fish markets are the market-places that serve as the focal point where the buyers and sellers meet. The sea provides a contiguous space that allows any fisherman to access any market-place at the same cost in terms of time and money. The market-places facilitated the flow of goods and services, but not the price information before the mobile phones were introduced. Hence, the introduction of mobile phones expanded the market-space for the fish market. The fishermen no longer had to travel to acquire the price information. The price information could flow along a newly added spatial dimension that did not exist previously.

Given the population density in urban areas, the market-space may not constrain the urban markets as much as they constrain the low density population in the rural markets. It could be argued that urban areas with their high population density serves a series of interlinked market-places. Herein lies the problem of engendering market led development in rural inland areas across the world. Creating a contiguous market-space inland rural area is resource intensive for any developing country whether through a network of roads (Burgess et al., 2015) or through a network of rail (Donaldson, 2018).

Henri Leferbve's Social space The sociology literature on social space that followed Henri Lefebvre's seminal work Lefebvre (1974) shows that social space is a complicated and reducing it to a uni-dimensional transaction cost may not be a reasonable assumption. While Lefebvre's notion of social space has commonality with both the economics literature on institutions and social network, the notion of social space is more general than the ideas in the these respective

literatures. Both social network and institutions depend on space to flourish. They may change the nature of space as their evolve, creating an complicated endogenous relationship. Yet, space can exist devoid of social networks (for e.g., perfectly competitive thick markets) and institutions (for e.g., anarchy), but social network and institutions cannot exists without space.

The relevant notion of space here is not the simple Cartesian space, rather it is Henri Leferbve's notion of social space (Lefebvre, 1974, 1991). Cartesian space is the physical empty space that can be measured by scientific instruments, whereas Henri Leferbve's notion of social space is the space that humans experience, i.e., the space humans conceive, perceive and live in. According to Henri Leferbve, humans produce space, are in turn produced by it (Lefebvre, 1974). This is a radical departure from the inert nature of Cartesian space which is empty. Economics has largely chosen to use Cartesian space to populate its models. Firms, factories, building and infrastructure are located in an inert space that already exist, without changing its nature. Markets would not exist without market space, a space for goods and money to flow through. When it comes to exploring the characteristic of market-space, the paper is going to argue that Henri Leferbve's notion of social space is more appropriate to use.

Who should own the market-space? While asymmetric information and externalities lead the markets to fail, the relationship of market to market-space is different. Market-space is the prerequisite for the markets to exist in the first place. Further, the pertinent policy question is whether the characteristics of the space within which a competitive market operates is important for the market to function properly. That is, can a decentralised allocation of resources create the optimal market-space for a competitive market to operate on. The key point of interest is whether the ownership structure of the market-space have implication for the the market that operates within it. This is useful to ask this question in two context that may overlap.

1. The first context is the role that markets play in facilitating development in underdeveloped areas, especially the rural areas in developing countries. The question we are interested in whether the rural areas in developing country are linked to the global hyper market-space which would allow it to trade the rest of the world.
2. The second context is the context of the virtual space that the advent of new information and communication technologies have created. Most virtual market-spaces are privately

owned and have rules that reflect the interest of the owners. The question we are interested in whether the private ownership of virtual market-spaces allows the competitive markets to function.

While well-functioning competitive markets facilitate a decentralised allocation of resources that is Pareto efficient, this presumes that an appropriate market-space for the market to operate in exists. The decentralised process of a competitive market cannot ensure that this market-space would exist. To be clear, this is not case of market failure due to asymmetric information or externalities. Neither is this a question of transactions cost. This is a question of whether the market can exist in the first place without the requisite market-space.

This is an important question both from the conceptual as well as policy making perspective if economic development is pursued through markets. The paper hopes to contribute to the economic development literature by laying out the links that are yet to explored between Henri Leferbve's work and economics and setting out how his work can help explains some of the paradoxes that may exist using markets as a building block for economic development.

Market-space and the Second Enclosure Movement

Let's try to illustrate the notion of market-space with a stylised example. Let's say there are 19 families living on an island. The island is divided into 19 farms and each family owns a has a farm they live in. The island has no common or public area and the islanders inhabitants don't use the sea to get around. On this island, even though there is a potential to exchange good and services between the families, the market would not be able to function because there is no space for market to operate on. The families are forced to live in autarky and produce, i.e., produce everything for themselves because they lack access to a market. The market would not work even if one of the inhabitants creates a market-place on their private land. This is because the inhabitants do not have space through which they can access the market place.

This may seems like an extreme example but it is not unrealistic as it seems. It captures the geographical reality of rural areas in developing countries where space is not easy to traverse and the state is very slow in building a transport network that caters to the rural area (Burgess et al., 2015). Further, it also captures the essence of the *Enclosure movement* in England where

common areas were enclosed and privatised using a series of Inclosure Acts in 18th and 19th Century, thus reducing the common public space in rural areas (Boyle, 2003).

> the loss of a form of life; the relentless power of market logic to migrate to new areas, disrupting traditional social relationships and perhaps even views of the self or the relationship of human beings to the environment. – (Boyle, 2003, p.35).

Boyle (2003) associates the current property rights movement age of the second enclosure movement.

> "The genome is not the only area to be partially "enclosed" during this second enclosure movement. The expansion of intellectual property rights has been remarkable—from business method patents, to the Digital Millennium Copyright Act,21 to trademark antidilution rulings, to the European Database Protection Directive." – (Boyle, 2003, p.38)

From our purposes, this can be seen in the market-space moving from the public domain sphere to privately controlled retail spaces within supermarkets and shopping malls. Chassany (2017) is a fascinating case-study that documents exactly this process of the decline of B´eziers, a town in the South of France as the local high street was replaced by supermarkets and the rise of support for extreme parties in the area. While the high street operated as market in public domain where any one could sell goods and services, the supermarket is tightly controlled space which is not accessible to all sellers. While supermarkets in rural areas may expand the local population's right to buy, they curtails the local population's right to sell. There is a burgeoning descriptive literature on food desserts that documents the lack of availability of fresh food in some rural communities in the developed world (Zenk et al., 2005; Cummins and Macintyre, 2002; Larson, Story and Nelson, 2009) and complements the details narrative Chassany (2017) presents in the case of B´eziers. The lack of availability of fresh food in developing countries seems quite counter-intuitive.

Hayek on Markets While Walrasian general equilibrium by construction is asocial, Hayek characterises market equilibrium one where individuals with local knowledge could have plans that did not mutually interfere (Hayek, 1937; Bowles, Kirman and Sethi, 2017). It allows for individual experiment and local knowledge to flourish. Decentralised competition then works

as an mechanism for disbursing knowledge that local experimentation generate. Hayek's vision of the decentralised competition did not preclude social interaction.

> Especially remarkable in this connection is the explicit and complete exclusion from the theory of perfect competition of all personal relationships existing between the parties. – Hayek (1948) as quoted in Bowles, Kirman and Sethi (2017), page 219.

In a interview in 1972, Henri Leferbve bemoans the disappearance of the market places as a place of social interaction and social exchange, a view fits better with Hayek's perspective on market than its does with the asocial Walrasian general equilibrium perspective (L'Office national du film du Canada, 1972). It may be counter-intuitive but rural areas, in spite of their wide open spaces may not have common market-spaces for meaningful social interaction both because of low density of population and the continuation of the intellectual influence of enclosure movement that has becomes the property rights movement. While the property rights movement could increase the incentive tenant farmers have to invest in the farms (Banerjee, Gertler and Ghatak, 2002), in practice, the property rights movement reflects the pre-existing power structure in the space and benefit the large landowners or industrialists more than the marginal farmers. The key question is whether the modern form of Enclosure movement across the development world is allowing for the creation of neutral or common market-space that facilitates the functioning of the decentralised competitive market.

Social Space and Economics

Does the notion of space matter in Economics? To answer that question, it is first useful to think about the answer to the question *"does the notion of time matter in the Economics?"*. In models where the convergence to steady state is quick, time is just am inconsequential detail. Conversely, when convergence takes time, it no longer remains a details that can be abstracted away. The rate at which *measured time* elapses matters in some models, whereas in others it is merely a device to sequence the events.[9] In these cases, the sequence of the events matters and not when they occurred.

While use of time in economic models has varied between use of measured time and as a device

[9] In most dynamic games, stages matters, not the time rate at which time actually elapses that matters.

of sequence events, when it comes to space, economic models have largely stuck to the Cartesian conceptualisation of space. The Cartesian notion of space is that it is an empty container that animate and inanimate objects can occupy. The Cartesian perspective takes space as something that can be objectively measured and its character is not influenced by who or what occupies it. The Cartesian space remains what it is irrespective of who occupies it.

This stands in stark contrast with Henri Lefebvre's conceptualisation of space. Henri Lefebvre spent a lifetime writing and thinking about space and his conceptualisation of space is best captured in his seminal contribution Lefebvre (1974). Lefebvre (1974) defines space from the perspective of how humans experience it and not how it can be objectively measured. As one would expect, humans perceive space subjectively. The subjective perception of time may be slightly easier to understand due to the characteristic uni-dimensionality of measured time. The subjective perception of space is more complicated due to its multi-dimensionality. While scientifically measured space may have only three dimensions, humans may conceive, subjectively perceive and thus effectively live life in more dimensions.

An analogy may help in drawing the distinction between the way in space is defined by Lefebvre and the Cartesian notion of space. Think of an individual entering a room full of well-wishers. Now imagine the individual entering the room full of their enemies. The way the individual would experience the space in the room full of well-wishers would be very different from the way they would experience a room full of enemies. Yet, from a Cartesian perspective, the space in the room remains the same empty container irrespective of who occupies it. Henri Lefebvre's perspective would be that the space experienced by the individual is produced by the humans that occupy it. From that individual's perspective, the space in the room has additional dimensions that go beyond the merely physical. The perception of space, however subjective it may be, matters for economics because it has significant social and economic consequence. This includes the social space within which market operates.

Production of Social Space

Just the way the meaning that a sentence conveys is greater than the sum total of the meaning of each word in the sentence, similarly, Lefebvre's conceptualisation of space is a social one. It

goes beyond the physical characteristics of the space. The social space that is *produced* includes the codes and signs associated with the space as it was conceived, as it is perceived and as it is lived in by people who experience it.

> Everyone knows what is meant when we speak of a "room" in an apartment, the "corner" of the street, the "marketplace", a shopping or a "cultural" centre, a public "place" and so on. These terms of everyday discourse serve to distinguish, but not to isolate, particular spaces, and in general to describe a social space. They correspond to a specific use of that space, and hence to a spatial practice that express and constitute. – (Lefebvre, 1991, page. 16)

Lefebvre (1974) conceptualises the production of space using the triad that distinguishes between the *spatial practice*, *representations of space* and *representational space*.

- *Spacial practice* is the way in which humans perceive the space and interpret what they experience using meaning attached to symbols they see in the space. The process of meanings being attached to symbols occurs through a social process of humans living in the space. Herein lies the potential for spatial simultaneity, where the same physical space can be perceived in different ways when different meanings are attached to the spatial symbols.
- *Representations of space* is the space as it is conceptualised by those who exert power over it. They conceptualise the space through a formal system of signs and codes. In a modern social society, space is conceptualised by experts like scientists, urbanists, technocrats, social engineers and economist. Whether space is realised as it was conceptualised in the lives of its inhabitants depends on the people to live in that space. Hence, lived space is different from the formally conceptualised space.
- *Representational space* is the space as they live in it and adapt it to their own use. The inhabitants use their imagination of mould and appropriate to meet their own requirements.

There are innumerable examples in developing countries where people resist the way in which experts have conceived the space and in the process created a new social space. *Narmada Bachao Andolan* or "Save Narmada Movement" is one such example. Occupy Wall Street is

another example where by physically occupying the space in wall street, the movement played its part in starting a conversation about the role space as conceived by the financial institutions on Wall Street contribute to inequality and unjust outcomes in society. The social and spatial are interlinked in both examples. We discuss the Millennium bridge opening day fiasco below. The example illustrates how people appropriate their own lived space when the space as it was conceived clashes with how people perceive that space.

Bridge on Troubled Cables

The Millennium Footbridge is a 320 meter long lateral suspension bridge across the river Thames in London that connects St. Paul Cathedral on the north bank to the Tate Modern Museum on the south bank. While designing the London Millennium Footbridge, the designers consciously allowed the bridge to vibrate in response to footsteps in order to evoke the experience of walking on an old wooden bridge. On its opening day on 10 June 2000, crowds thronged to experience the new bridge. To everyone's surprise the bridge swayed dangerously from side to side on its opening day as crowds thronged the bridge due to what came to be known as *"pedestrian synchronous lateral excitation"* or *"pedestrian lock-in"* effect.'[10] As the bridge swayed, people stepped laterally to balance. The bridge became a coordinating device that synchronised pedestrians' footsteps, which in turn amplified the amplitude of the sway. It was the large crowd stepping in sync with each other that made the bridge dangerous.

In this way, the crowd became on large passive mass, stepping in coordinated way in reaction to the way in which the ground under their feet was moving. What was meant to be small vibration on the footbridge to simulate the experience of a old wooden bridge got amplified to dangerous levels due coordinated side stepping by a large crowd. The bridge has to be shut down. Extensive passive damping mechanisms were installed before the bridge was considered safe for pedestrians.

Contrast the swaying Millenium Footbridge with walking on a precarious rope bridge in the mountains. If the person in front of you moves, you are likely to try your best to stabilise the bridge and not unwittingly increase the amplitude of the sway. Similarly, while studying the Clifton Bridge, Macdonald (2008) was confounded by the observation that Clifton Bridge's

[10] @dallard2001london

lateral sway increased with the number of pedestrians, rather than decreasing, as would have been expected if the pedestrians collectively were acting as a passive mass.

This leads to the natural curiosity about what it is in the bridge environment that makes people behave either as atomistic individuals unwittingly agents of their own detriment or as a well-functioning social group looking after their interest. The bridge-human interaction is an example of how the built environment *intermediates* individual human actions and reactions, allowing them to either act collectively or forcing them to act individually, even if it is to their collective detriment - a phenomenon well captured in the Pareto inferior outcome being the equilibrium in Prisoner's dilemma and coordination games.

Norman (1998) coined the term *"conceptual model"* to describe the bare bones knowledge a person needs to know to use something. Further, the rules of usage should be congruent with the object in use. People know the conceptual model of the rope bridge but not the Millennium Footbridge. The British Army taught its soldier the rule that was congruent with the conceptual model of the bridge and asked them to follow it without questioning it.

Going back to Lefebvre's triad, how people perceive the bridge is the *spatial practice*. People distinguish between how they perceive a rope bridge and a standard footbridge. They know that they have to be careful on a rope bridge. Conversely, they perceive a modern footbridge as something that they simply have to walk on like they would walk on solid ground. *Representations of space* is the way in which the designed of the bridge conceived the space. Their computer modelled conception had humans breaking the step and the bridge vibrating with a small amplitude. The *representational space* is the way in which people adapted the space their found themselves in. The ground moving beneath their feet confounded them and they did the best they could to adapt, i.e., counter-act the movement by stepping laterally in a direction that opposed the movement. Their perception of the space lacked a conceptual model of how the bridge actually functioned. If they had been learnt that they should not step laterally when the bridge moves, then the bridge would have functioned as it had been conceived by its designers.

After The Broughton Suspension Bridge broke in April 1831 as a brigade of soldiers marched in step across presumably due to the aforementioned *lateral excitation*, British Army issued orders for Soldiers to break their step when crossing a bridge Howell (2013). This is an example of a social norm instilled by the British Army to ensure the soldier's perception of the bridges

did not clash with the way the bridges were conceived. It prevented bridges being damaged by soldiers stomping their on the bridges as they marched across them.

In the next example of the Fulton Fish market, we explore how markets may fail to function as competitive markets if there is class between the space as it was conceived and it is perceived. The market-space as it was conceived by the entities that can exert power over it play a key role in the market failing to function as a competitive market.

Fulton Fish Market

Graddy (1995) collected data on whiting transaction in in New York's Fulton Fish Market during the 1991-92 period with the objective of examining whether the law of one price hold for the whiting transactions. Fulton Fish Market remains one of the largest wholesale fish markets in the world (Graddy, 2006). It is a wholesale market where the restaurant and fish shops owners in the New York area buy their fish. The buyers are well informed and buy fish in large quantities. On the face of it, the Fulton fish market fulfilled all the conditions of a highly competitive market when Kathryn Graddy collected her data on whiting fish transactions in the 1991-92 period. At that point in time, there were about 60 fish sellers with about 35 sellers operating actively. Only 6 sellers dealt with whiting.

There were two main groups of buyers, an Asian group and a white group. Graddy (1995) found Asian buyers paid 7% less for whiting as compared to the white buyers after controlling for quality. Her analysis shows that it was because the Asians were more coordinated as a social group and were able to sanction or boycott a dealer collectively who they felt had cheated them. Conversely, there was no such coordination amongst the white buyers. Asians were able to pay lower prices because they were operating as a social group. The mystery is why didn't some sellers exploit the arbitrage opportunities by offering white buyers lower prices. To understand this, we will have to understand the power dynamics operating in the market space.

Graddy (1995) cites numerous New York Times articles that document how the mafia controlled the street parking around the Fulton fish market (Raab, 1996; 1995a; b). The control of the street parking allowed them to control the loading operation in the Fulton fish market.

A seller who wanted to operate in the Fulton fish market was required to have the approval

of the mafia. Presumably, the approval of the mafia came with its own cost. The mafia's hold over the operations of the market kept a check on the entry of new fish sellers in the market. It ensured that the arbitrage opportunity in the Fulton fish market was not exploited due to the high cost of entry. The mafia was able to exert power over the operations of the Fulton fish market by exerting power on the space that surrounded it.

Individuals experienced the market-space through their own social space. While the Asian buyers were able to create and maintain their social space that was superimposed on the market-space, no such social space existed for the white buyers. The Asian buyers were able to use leverage their social space to their advantage. The mafia was able to create its own social space and use it to exert power over the operations of the Fulton fish market. It is interesting to note that the only reason Asian buyers were able to use the social space to their advantage was due to the fact that the mafia was using the social space to its own advantage. In this way, the power exerted by social spaces on the markers undercuts decentralising property of the market.

> **Conjecture**: *A decentralised market dissipates power and creates a power vacuum, creating lucrative opportunities for social groups to exert power over the market-space by fragmenting along the lines of social space.*

This dynamic process of market-space fragmentation is an entirely endogenous process, i.e., any market decentralised market creates an opportunity for social groups the fragments the market-space in order to take advantage of it. The market-space in Fulton fish market got fragmented into the respective social spaces of Asian and White buyers due to the power exerted by the Mafia on the space around Fulton fish market.

The authorities in New York city administration that were responsbile for the Fulton Fish market *conceived* it as a space for the market to operate freely, i.e., any seller with a shop in the market could sell to any buyer who was willing to buy. Yet, this was at variance with the way the Mafia conceived the space. They *conceived* it as a space that would work in their interest. They exerted power over the space by dominating the street parking around the fish market and ensuring that only they would unload the fish brought to the market. The Asian and White buyers perceived the space in different ways. While the white buyers *perceived* it as a decentralised market, the Asian buyers *conceived* it as a place where they could benefit bargain by bargaining collective. The market worked because the way the Mafia and the Asian

buyers *conceived* the space did not mutually interfere. Hence, the market worked in the sense in which Hayek (1937) had conceptualised it. What is fascinating is that different groups had different lived experiences in the same same space. Creating a market-space that facilitates the functioning of a decentralised market requires *conceiving* it as decentralised space, ensuring that it is *perceived* as a decentralised space and people experience or *"live in it"* as a decentralised space.

Market-space and Power

> **Conjecture:** *The market space for a competitive market is a public good, i.e., it is non-rival and non-excludable for market participants.*

If there is rivalry in market-space, the then transaction by one pair of agents would preclude the transaction by another pair of agents and efficiency would be never reached. A competitive market is one where anyone can participate in a mutually beneficial trade. Hence, the market-space for a competitive market by definition is non excludable.

The fact that the market requires the existence of non-rival and non-excludable space within which the market transactions take place, undercuts the main import of the invisible hand theorem that merely exchanges between self-interested parties can attain efficiency. The provision of the market-space cannot be left to self-interest parties. The invisible hand theorem is silent on how a market-space that facilitates the decentralised transaction can be created and what is the ownership status of the market space itself. So, the ownership of the market-space becomes critical in determining how the market operates.

The markets in the modern world operate in a range of varied spaces. On one hand there are public markets and high street that are facilitated and regulated by the state. On the other hand there a supermarkets, where the retail space is very tightly controlled by the owners of the supermarket. In a supermarket, the rules of the space are determined by the owners of the space and not by the buyers and sellers would transact within it. Similarly, the rules for the market space on Amazon and ebay are determined by the owners of the market space.

> **Conjecture:** *Market decentralisation creates a power vacuum, giving incentive for entities to try own or exert control over the the market-space.*

The appealing aspect of a competitive market is that it dissipates power. Neither the buyers nor the sellers have the power to influence the outcome of the market. This naturally creates a power vacuum in space in which the markets operate and giving entities incentive to exert power over the market space and tilt the transaction in their favour.

> **Conjecture:** *The market is only able to facilitate decentralised transactions if the market space is owned by a benevolent entity, which chooses not to influence transactions.*

The benevolent entity could either be the a benevolent state or an inclusive community that is able to agree to rules that apply to the market space. When the state or the wider community set the rules the within the market space, the market can potentially deliver an efficient outcome. Conversely, if private entities exert influence over the space, then the efficient outcome is no longer guaranteed.

The circumstances in the Fulton fish market changed very soon after the period 1995 (Graddy, 2006). It is likely that the mafia chosen to operate in the field and fishmarket because it was largely unregulated. The Giuliani adminstation held a sealed-bid auction to award unloading licenses in 1995. A new company unrelated to the mafia won the bid, thus bring the influence of mafia in the Fulton fish market to an end (Graddy, 2006). The Fulton fishmarket example illustrates how regulated market space creates a power vacuum. If a private entity takes advantage of this power vacuum, it undermines the potential of the market to deliver an efficient outcome.

References

Arrow, K.J., 1951. An extension of the basic theorems of classical welfare economics. In: *Proceedings of the second berkeley symposium on mathematical statistics and probability*. University of California Press.pp.507–532.

Banerjee, A. and Munshi, K., 2004. How efficiently is capital allocated? Evidence from the knitted garment industry in tirupur. *The Review of Economic Studies*, 71(1), pp.19–42.

Banerjee, A.V., Gertler, P.J. and Ghatak, M., 2002. Empowerment and efficiency: Tenancy reform in west bengal. *Journal of political economy*, 110(2), pp.239–280.

Basu, K., 2010. *Beyond the invisible hand*. Princeton University Press.

Besley, T. and Burgess, R., 2001. Political agency, government responsiveness and the role of the media. *European Economic Review*, 45(4-6), pp.629–640.

Bowles, S., Kirman, A. and Sethi, R., 2017. Retrospectives: Friedrich hayek and the market algorithm. *Journal of Economic perspectives*, 31(3), pp.215–230.

Boyle, J., 2003. The second enclosure movement and the construction of the public domain. *Law & Contemp. Probs.*, 66, p.33.

Burgess, R., Jedwab, R., Miguel, E., Morjaria, A. and Padró i Miquel, G., 2015. The value of democracy: Evidence from road building in kenya. *American Economic Review*, 105(6), pp.1817–51.

Chassany, A.-S., 2017. The french town that shows how marine le pen could win. *Financial Times*. [online] Available at: <https://www.ft.com/content/309292d4-1a28-11e7-a266-12672483791a>.

Cummins, S. and Macintyre, S., 2002. 'Food deserts'—evidence and assumption in health policy making. *BMJ: British Medical Journal*, 325(7361), p.436.

Debreu, G., 1951. The coefficient of resource utilization. *Econometrica: Journal of the Econometric Society*, pp.273–292.

Donaldson, D., 2018. Railroads of the raj: Estimating the impact of transportation infrastructure. *American Economic Review*, 108(4-5), pp.899–934.

Graddy, K., 1995. Testing for imperfect competition at the fulton fish market. *The RAND Journal of Economics*, pp.75–92.

Graddy, K., 2006. Markets: The fulton fish market. *Journal of Economic Perspectives*, 20(2),

pp.207–220.

Greif, A., 1993. Contract enforceability and economic institutions in early trade: The maghribi traders' coalition. *The American economic review*, pp.525–548.

Hayek, F.A., 1937. Economics and knowledge. *Economica*, 4(13), pp.33–54.

Hayek, F.A., 1948. The meaning of competition. In: *Individualism and economic order*. University of Chicago Press.

Howell, E., 2013. Why do soldiers break stride on a bridge? *Live Science*.

Jensen, R., 2007. The digital provide: Information (technology), market performance, and welfare in the south indian fisheries sector. *The quarterly journal of economics*, 122(3), pp.879–924.

L'Office national du film du Canada, 1972. *Entretien avec henri lefebvre*. Available at: <https://youtu.be/CiHfntd7jIs>.

Larson, N.I., Story, M.T. and Nelson, M.C., 2009. Neighborhood environments: Disparities in access to healthy foods in the US. *American journal of preventive medicine*, 36(1), pp.74–81.

Lefebvre, H., 1974. *La production de l'espace*. Paris: Éditions Anthropos.

Lefebvre, H., 1991. *The production of space*. Translated by D. Nicholson-Smith. Cambridge, MA: Blackwell Publishers.

Macdonald, J., 2008. Pedestrian-induced vibrations of the clifton suspension bridge, UK. In: *Proceedings of the institution of civil engineers-bridge engineering*. Thomas Telford Ltd.pp.69–77.

Munshi, K., 2011. Strength in numbers: Networks as a solution to occupational traps. *The Review of Economic Studies*, 78(3), pp.1069–1101.

Munshi, K., 2014. Community networks and the process of development. *Journal of Economic Perspectives*, 28(4), pp.49–76.

Norman, D.A., 1998. *The invisible computer: Why good products can fail, the personal computer is so complex, and information appliances are the solution*. MIT press.

Raab, S., 1995a. *Merchant feud sheds light on fish market's workings. New York Times*. Available at: <https://www.nytimes.com/1995/08/21/nyregion/merchant-feud-sheds-light-on-fish-market-s-workings.html>.

Raab, S., 1995b. *Two loaders evicted from the fulton market. New York Times*. Avail-

able at: <https://www.nytimes.com/1995/12/31/nyregion/two-loaders-evicted-from-the-fulton-market.html>.

Raab, S., 1996. *Loaders are new front in fulton market conflict. New York Times.* Available at: <https://www.nytimes.com/1996/01/07/nyregion/loaders-are-new-front-in-fulton-market-conflict.html>.

Zenk, S.N., Schulz, A.J., Israel, B.A., James, S.A., Bao, S. and Wilson, M.L., 2005. Neighborhood racial composition, neighborhood poverty, and the spatial accessibility of supermarkets in metropolitan detroit. *American journal of public health*, 95(4), pp.660–667.