BOOK ONE CHAPTER TWO

You can break the world into two different chunks. Those countries that live in a society that has been fully commoditized, and those countries that have not been fully commoditized. Countries that are fully commoditized are designated as “Mature Markets” by the investor class and countries that are not fully commoditized are designated as “Developing Markets”.

Raw materials flow into commoditized economies of varying degrees between developing and mature, and come from sources that are of national or international origin.

How did this modern system of commoditizing everything develop? Originally, England developed a great need for iron. To sustain iron production they had to import a lot of charcoal, which was superior for making iron than coal. The charcoal was great as a raw material, but charcoal exists in rather limited supply throughout the world. There was thus an economic pressure to try and find a better use of materials to make iron.

Iron had been produced throughout the world for thousands of years. However, it had never been produced on an industrial scale. Heating iron with coal was useless in the production of wrought iron unless careful measures were taken to limit the sulfur impurities that were in the coal from leaching into the iron. At the technology level of the English, it was not possible to do this, nor was the science of why iron produced with coal became brittle understood.

The reason for limited production of any resource that needs raw materials that are in finite supply was as follows. A society could erase a raw material from existence by over-harvesting it. This is what happened as the price of mollusks that made the roman purple. As the mollusks died off they became increasingly valuable, and thus there was more incentive to poach them. The laws of supply and demand do not work in the favor of an economy with limited raw material streaming into the economy that wants to operate on industrial scales.

Thus, the discovery of how to make iron with coal is one of the turning points in history. This intellectual capital would be adopted by the rest of the modernizing world. It essentially freed societies from the trap of the curse of limited natural resources due to the supply of coal. Coal did not become more expensive the more it was mined. In fact, the surprising opposite happened. As more competitors entered into the industry, and they adopted better techniques of mining, the supply of coal became less expensive due to the efficiencies of scale employed by the miners.

What rail cars did is allow more coal to be carried out of a mine at a time. This is what is meant by an efficiency of scale. There is an initial investment, but over time the investment pays off by allowing workers to work more efficiently.

Some key inventions started to develop around the mining industry, such as mechanization. Since the cost of coal at the mine site was close to zero, and there was a ready supply of coal at the mine ready for experimentation, devices like the miners friend were used to pump water out of the mine.

While these early forms of automated mechanical work, were inefficient, even inefficient forms of mechanization were economic, because it meant less laborers pumping water out of a mine. They were also one of a few times in history where automated mechanical work, or automation, has been used in history. Natural energy had been used to turn wheels and grind grain, but fossil fuels would eventually allow automation within cities giving rise to the modern factory.

Before rail cars from mines, which were first pushed by miners or mules, would start to become automated and mobile, the steam engine would have to be invented. This engine was similar to the miners friend or “Newcomen Engine”, which used steam in the pumping mechanism to get water out of a mine (up a grade where energy was required to push the water). Once this was perfected there were greatly increased efficiencies of scale in transportation, driving down the price of goods across society.

Say you were a cattle rancher in England before the invention of the steam engine. You would have to live relatively close to a city in order to supply the city. Most cattle ranchers supplied meat to the towns near their ranches. What modern rail did was greatly increase the supply of goods available to a city. Now the cattle ranchers could load up the cows meant for slaughter into a rail car. The train would take hundreds of other cows to the slaughter yard just outside of the city (one of these junctions, Schlachthoff, is just outside Salzburg). There the cattle would be killed, cut into pieces and sent to butchers all around the city so that they could have a fresh supply in the morning. This is how all modern cities operated before refrigerated rail cars allowed for the preservation of meat over long distances.

A COUNTRIES MODEL OF DEVELOPMENT

A countries model of development envisions engineering solutions based on worldwide intellectual capital that allows for the engineering solutions that solve a particular problem in the production or distribution the goods that are produced and sold. Engineering solutions are obviously based on developments in science. This is because engineering and science are related. Scientists and engineers both discover new uses for materials, including new ways of production like a method to produce sulfuric acid, and new ways of distribution like the railcar.

Engineering solutions can consist of the entire infrastructure in the developed world that the developed world takes for granted. These solutions include the entire road network that allows commodities to travel from producers to consumers, however they exist at such a scale that it is no wonder that people tend to take them for granted. It takes visionaries like Terry Gilliam in his movie *Brazil*(1985) to even imagine a different system like the engineering solution of pneumatic suction tubes that features prominently in the offices of his imagined world.

Such engineering solutions allowed industrialists to achieve efficiencies of scale when England was just beginning to develop factories in cities. Why did these breakthroughs in automation and batch processing happen in England and not in other parts of Europe which had the same technical level?

**Social Priorities**

In each country of Europe that I will be discussing I will go over that countries’ “Social Priorities”. These social priorities are not confined to the particular country in Europe, but are often shared between nations.

As far as the social incentive to use engineering solutions, England was very focused on trade. They were less populated than France, and were trading with China. The unfortunate workaround they found to their trade imbalance with China was the opium trade. The English love of Chinese goods like tea had been depleting the treasury of vital silver. The opium trade was declared illegal by parliament, but there was little enforcement.

Capitalism in the sense of placing dollar amounts on everything is an English virtue, as *Seven Virtues* has shown. This book by ??? shows that the social priorities of the British people was to use good time management which is a way to achieve maximization of time.

Samuel Pepys, a naval officer for the Royal Navy who chronicled his thoughts in his personal diary, which he never thought would be publicly revealed, shows an obsession with time management. For example, he would be frustrated if he scheduled an appointment with someone at an establishment away from his office and the person did not show up.

Everyone would be upset in a similar situation.

Pepys did not direct his anger at the person, he directed his anger at his wasted time. To him, “time was money”.

According to the Seven Virtues we can derive the English social value as being “diligence”. The Latin of this is “industria”, which has the connotations of persistence and effort. The sin of sloth is present in the people who do not have “industria”. (wikipedia of seven virtues) The word industrious contains the full Latin connotations of industria. An industrious person is someone who wants to make best use of their time.

Optimizing for time is actually a vital part of systemic thinking. What they teach in modern economics, like with cut flowers that are cheaper from Columbia than from California within California!https://youtu.be/kIgytT4R1Zg?list=PLqRsI6ELxEucDlQDp8YVKI8cI2vJPg3PW

Monetizing things like time is a good way of getting work out of people. In an example that I will also use below on the multiplier effect, Quakers have occasional barn raisings. What they get in return is help raising their own barn. However, this is not as efficient as capitalism. There is no specialization with the builders, and the builders are not as committed to maximizing the money they make with the time they spend building. Thus there are less incentives to make the process more efficient in terms of time (even though more careful work can be expected if the process takes longer because haste makes waste). Thus there is less incentive to innovate the building process. Instead Quakers will construct a barn for their neighbors as they always have in the traditional way.

**The Multiplier Effect of Cities on the Demand Side of the Economy**

When businesses set up in cities they knew exactly what they were doing. Cities provided what is known as Economies of Density. The velocity of money within a city provided many niches for niche businesses to find a way to differentiate themselves from their competitors.

Cities developed with different areas within the city having a certain reputation. The remnants of these sectors are still around New York, San Francisco and the major cities of Europe.

San Francisco has Italian Town, Japan Town, and China Town. It has the boulevards full of restaurants that cater to tourists in all those old and sometimes current ethnic districts which are close to and to the north of Market Street. Market St. used to be San Francisco's “Main Street”, and some very large hotels and large banks are located there. Then there is Broadway St., where all the strip clubs used to be zoned, and there is the old warehouse district of South of Market, which has since become full of homeless shelters and trendy nightclubs. The Bayfront avenue of Embarcadero St. has harbors, but it has mostly converted itself into a tourist destination.

London has remnants of it's history of upscale and downscale areas. The city was organized into posh streets where rich women would buy high quality fabrics, and other districts where the leftover fabrics were salvaged and sold, as a way of recycling clothing.

The point is that people traveling to a city knew where to go to get specific items that they needed. While in that specific area of the city, they could shop the competition to see if they were getting the best deal.

In cities you could find all the services you needed like a rich manor owner in the countryside who had a house full of servants. However, instead of just working for one customer, these servants hired themselves out to work cleaning six different houses each day of the week. In addition, there were businesses in the city specializing in doing laundry for many different customers.

Cities have economies of density. If you were to visualize the economies of cities you could visualize them as a whirlwind of money that is blowing around, with businesses sticking their hand out blindly and seeing if eventually some money will land on it. As long as the business fulfills a need, no matter how trivial, it will get at least some money. Businesses specializing in food of a particular ethnicity can cater primarily to the ethnicity that is used to buying that food in their home country even if this is a need that only one in a thousand people who live in that city have. The sheer amount of people that live in the city means that there will be enough customers to sustain the business.

Cities benefit from the multiplier effect. This means that money is recycled several times as people who live in cities depend on others for services. The multiplier effect in the US is assumed to be around seven, which means that, in general, every dollar of increased wages to a person working in a factory in a city will increase the money spent in the city by approximately seven times. A factory worker making a good income can support seven people making the same income living in the city with him. Incomes vary, of course, but the general principle is that cities become magnets for economic activity from this multiplier effect.

Cities also develop specialists, and have for some time in Europe where their professionalism was valued. These professionals organized themselves in guild halls. There were guilds for carpenters, masons, and other construction workers, but most important was the Merchant's Guild. Here is where the original ideas of “laissez faire” economics and free makets took hold. The merchants were obviously unhappy about being taxed and having their businesses interfered with to the point where they decided the government was more a liability than an asset.

In the past, since the income is distributed unequally, certain businesses catered to rich people making high incomes and others to poor people who could only afford the bare minimum. Rich people were able to afford specialty products. This developed the consumer market. An increase in the minimum wage in a city has the potential to further develop the consumer market within that city as long as the supply of housing can adjust. In the long run run the supply of housing will adjust as apartment houses are built that the inhabitants of the city have to settle for since they cannot afford to live anywhere else.

Goods besides the price per square foot of an apartment actually become cheaper in a city as some retailers become volume discounters. They sell more product per day and are able to undercut the competition and still make a decent amount of revenue.

In addition people are able to find a large amount of recycled goods. One has heard the expression “dressed in rags”. This is because women who worked at home in their tenement flats used to occasionally dedicate themselves to tearing out any bit of usable cloth that they could from old clothes and reusing it in patches and repairs. There was even a market for these bits of old cloths. The “rag market” is defined by the English Oxford Living Dictionary as “A market selling rags; (now also) a market selling various second-hand articles, a flea market.”

In English society everything of utility was used and re-used. Everything, no matter how horrible, gained status as a commodity. In addition to having a diet of horrible cockles and mussels found in the ocean, bone-crushing was performed in several English workhouses. The bone meal was used by farmers for fertilizer. However, a government inquiry into conditions in the Andover workhouse in 1845 found that starving paupers were reduced to fighting over the rotting bones they were supposed to be grinding, to suck out the marrow. The resulting scandal led to the withdrawal of bone-crushing as an employment for those living in workhouses and the replacement of the Poor Law Commission by the Poor Law Board in 1847.(Wikipedia workhouses)

This commoditization of materials was useful, because it allowed for creation of job niches for the impoverished and desperate. The cities of England can be praised in that society achieved full optimization in the use of the limited resources that were available. This was not an economy of surplus production and waste. This state of full utilization of available resources was not confined to England or unique. Humans will naturally settle into lower “trophic levels” as they get increasingly more desperate for work and sustenance. They will lick the algea off rocks for food if they get desperate enough. However, the country did come up with some creative ways of managing society by manufacturing work for the people in workhouses. Society with limited resources and workhouses full of paupers had a sort of organized desperation, not a chaotic desperation but desperation none the less.

The old way of repair instead of replacement can be seen in the city of Guadalajara. In addition to the shops in the city center that offer shiny new goods, numerous repair shops are distributed throughout the city outskirts. These repair shops cater to computers, shoes, picture frames, etc.. In addition if you buy new shoes in a shoe store they will happily take your old shoes. There is a general sense that less things are thrown out, and that at least an attempt will be made to repair a broken computer or cell phone before it is thrown out.

**The Walmart Principle of the Supply Side of the Economy**

Remember back to the last chapter when experts from Wikipedia gave this quote on economic development:

“Increases in productivity are the major factor responsible for per capita economic growth – this has been especially evident since the mid-19th century. Most of the economic growth in the 20th century was due to increased output per unit of labor, materials, energy, and land (less input per widget). The balance of the growth in output has come from using more inputs. Both of these changes increase output. The increased output included more of the same goods produced previously and new goods and services.”

Utility of money becomes higher because these hidden “shortcuts” are not obvious in the final product. Chinese labor is used for manufacturing, and for the lower price for this labor it is hard to see the difference in the final product. That is: less input of monetary capital was used in manufacturing giving the consumer the benefit of a lower than ordinary price.

The Walmart Principle is to compete on price alone. It is to compete on volume of sales. Walmart can be seen as a microcosm for the whole demand side of an economy, which has increased the utility of money for the working class since the mid 19th century. New industries have developed to take advantage of an expanding market, like that for consumer electronics. Lowering prices has the advantage of giving people more disposable income. This factors into the multiplier effect, which I discuss in the next chapter.

Here are the ways that Walmart maximizes efficiency.

First, they have a variety of performance benchmarks that managers are evaluated on. Managers at the stores used to be autonomous, but their powers have become increasingly limited over time. Today being a store manager or an assistant store manager is not a cushy job. To justify their high incomes they have to ride their employees hard. Central will always know the employee hours and other metrics like the amount of goods unloaded under the managers supervision. The poor employees who have to unload the trucks have their nose to the grindstone. Every break that they take is noted down. How fast they unload the truck is noted down. This is all due to the metrics of the information that Walmart collects to improve in-store efficiency.

Second, they maximize the value of their shelf space. The best selling products are replaced within days from a regional warehouse, and the computerized stocking system will alert the store that inventory has to be replaced before the shelf space sits empty.

This is why the store has places so much importance on having their own dedicated fleet of trucks in addition to forcing their non-dedicated truckers to be timely through punitive measures. They want to ensure that there is reliability in the supply system so that they can get their replacement inventory right when they need it. This will reduce inventory in the stock room, but still allow enough inventory to be on hand to replace what is sold from the racks.

The whole problem of supply reads like a typical profit maximization problem that people studying business science encounter. Central warehouses can have a large amount of inventory on hand, where inventory space is cheaper then at the store stockroom. Thus, it theoretically makes sense to keep a lot of inventory at the central warehouse. However, if a product runs out at a store it won't be immediately replaced from the stockroom because the store will be out of it. Then the empty shelf space represents potential income lost. The stores brand will also take a hit, because never running out of anything means that people will be confident that they can find anything they need at the store.

Money is saved by maximizing efficiency. Note that this is the same as minimizing cost. Costs in terms of employee hours are reduced, maximizing an employees efficiency because they will spend less time idle. Revenue, in terms of volume of products sold, is increased by only stocking shelves with products that sell.

Almost all of the money saved with this system goes to reducing prices of the in-store goods. This means that the company will eliminate competition because other stores cannot compete with their level of efficiency. The Walmart Principle means eliminating inefficient competitors.

If we were to take the Walmart Principle of competing on price alone because it is hard to tell American quality from Chinese quality to the farm sector it would fit in well there. Produce in the farm sector is fungible. This means that a carrot is a carrot no matter how it is produced. The efficiencies that a farmer can use to produce more carrots, like using fertilizer, are hidden from the consumer. In fact, farmers that do not use fertilizer will eventually be driven out of business.