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Ramen Noodles: A New Frontier in Commodity Money

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1) Introduction

When in 1519 Herman Cortès and his Spanish conquistadors invaded Mexico, the Aztecs who had lived there in an isolated human society, quickly noticed that the foreigners had shown an extraordinary interest for a particular metal: gold. The natives had been familiar with gold for its beauty and malleability. They were accustomed to occasionally using it to trade with each other, however much preferring the highly valued cocoa beans and cloth. The Spanish infatuation with it had seemed inexplicable. What was so attractive about a metal that couldn't be eaten, woven or used to make tools? When asked about the origin of their obsession Cortès would reply: "We Spaniards know a sickness of the heart that only *gold* can cure"¹. Unless the sickness he referred to was greed, the Spaniard had lied to Aztecs to take advantage of their usage of a more "primitive" medium of exchange, to instead obtain the much more precious gold.

Whether it is Gold or Cocoa Beans, the Spanish and the Aztecs both traded a commodity. Neither of these two commodities can truly be considered more primitive or more advanced than the other. Cortès' fallacy stemmed only from the fact that the yellow metal was considered highly valuable in almost all European countries. Two societies separated by an ocean over time, had 'agreed' on two different commodities to utilise as money. In addition to their respective intrinsic utility, the value of one commodity over another is only truly established by the preferences and desires of the two different societies.

Of course today most economic systems are based on fiat money, a type of currency whose value is solely dependent on its credibility as money, lacking any intrinsic utility as a

¹ Harari, 193

commodity². The most well known fiat money is the United States dollar, under the control of the Federal Reserve, which is utilised by the almost 350 Million US citizens as well as de facto in other 11 foreign countries and territories. Despite this, as of 2016 over 2.3 million³ US residents (roughly the population of Lesotho or Slovenia) were not allowed to utilise or exchange their country's currency. These 2.3 million, are individuals incarcerated in prisons across the United States and by federal laws are unable to hold and exchange cash⁴. This, in addition to the limitations of and restrictions of the These have ultimately resorted to the establishment of a system of exchange, based around Ramen Noodles soups packs.

This thesis will investigate the extent to which the exchange of Ramen Noodles in United States prisons can be classified as a new 21st century frontier of commodity money. I will try to achieve this by demonstrating how the exchange of Ramen can be labelled as a system of commodity money and analysing how Ramen Noodles token caters to the economic needs of prisoners, by fulfilling all the traditional functions of money. Lastly, I will demonstrate the extent to which Ramen behaves as money, by identifying a Ramen money supply and demonstrating how variations in the supply produce an outcome similar to that theorised by the Quantity Theory of Money.

This topic aroused my interest immediately following Money and Banking courses on commodity money. I had learned of cigarettes being traded as money in prison from TV Shows and Movies, and I immediately made the connection to the teachings in lecture. Through superficial research my conviction was challenged, as I had found evidence that cigarette trade may have only been confined to barter and videos suggested that Ramen Noodles “ramen noodles replaced cigarettes as prison currency”. I knew this topic would be challenging given the

² Mankiw, 620.

³ Sawyer, Wagner

⁴ Gibson-Light, 4

considerably restricted literature on the subject matter, but ultimately this made an investigation more appropriate as well as exciting. In addition to the evidence unveiled, the subject gave me space to apply critical thinking and to adapt university teachings to a unique situation in the real world, one that is not often talked about or at least not inspected with the magnifying lens of an economist.

1.2) Commodity Money

A commodity is any object that has value in and of itself, that is intrinsically useful as an input to production or consumption. The New Palgrave dictionary defines commodity money as a “medium of exchange that may become (or be transformed into) a commodity, useful in production or consumption”⁵. In other words, in addition to being a medium of exchange commodity money guarantees the option of consumption through time at little to no additional cost. This consumption can manifest itself in different ways depending on the commodity utilised as money. The Spanish’s gold could be melted down and utilised for a variety of non monetary uses, while the Aztecs cocoa beans could be converted into ‘cacao’ and consumed in various ways⁶. Commodity money is largely considered a thing of the past, but for most of human civilization commodity money like Gold has defined how human exchange and even how entire civilizations interacted⁷.

All commodities have intrinsic value, but not all have emerged as commodity money through history. Various properties are shared among commodities that have been historically used as money. However, these are not always the same as different societies through time, valuing certain intrinsic benefits over others. The intrinsic characteristics identified can take the

⁵ Franc-ois, Velde, Warren, Weber, 27-28.

⁶ Harari, 194.

⁷ Bernstein, 52-64.

form of nutritional value, versatility of usage and durability⁸; as well as the scarcity and abundance of the good. However, value could also be attributed to subjective characteristics that happened to be perceived by societies, these included the Beauty, Flavour and/or Religious Significance of the goods exchanged.

Countless examples of commodity money can arise when analysing societies through time. Goods that have been exchanged as commodity money in history include: Gold, Silver, Bronze, Salt, Peppercorns, Alcohol, Shells, Tea, Cocoa beans, Fur, Cloth, Grain, Spices and Tobacco⁹. Among these examples the previously mentioned traits can be identified. Grain, Alcohol and Cocoa Beans share a characteristic of caloric value and flavour. On the other hand non-consumables like Fur had usage in the manufacturing of warm clothing, a necessity in geographical areas where humans were exposed to cold temperatures; while Bronze and Silver were scarce malleable metals that could be used to produce weapons, cutlery and decorative items. Tea, Salt, Peppercorns, and other Spices were considered valuable because of their intense flavours. In addition, most of the above goods share a trait of lengthy durability, as even organic goods like tea, cocoa beans, peppercorn and grain could be dried and stored appropriately to be conserved effectively for many months or years.

Thus, commodity money ultimately is an object that is recognized as having intrinsic value and that is utilised as a medium of exchange. Although intrinsic characteristics may be various depending on the commodity observed, ultimately the presence of intrinsic value gives users of commodity money an option between monetary use and consumption. This is a crucial aspect of commodity money, as unlike fiat money it allows it to hold a certain level of value even without a central body that recognises it as a legal tender¹⁰. Through history this has facilitated

⁸ Bernstein, 4-5.

⁹ Franc-ois, Velde, Warren, Weber, 27.

¹⁰ Bernstein, 17.

even ‘decentralised’ societies or groups of individuals to come together and agree to utilise as money commodities with a shared recognised intrinsic value, knowing that through time the commodity would still hold value even if no longer recognised as medium of exchange or currency.

1.3) Instant Ramen Noodles

Ramen Noodles are a traditional Chinese dish that through time has been adopted in Japanese cuisine. Instant ramen noodles are a type of pre-packaged and quick-cooking version of the ramen noodles. They are dried or precooked noodles that come in a variety of flavours and are packaged with a flavour packet. They are designed to be easy to prepare, with a preparation time of usually two to three minutes and typically only require the addition of boiling hot water¹¹.

Instant ramen noodles were first invented in Japan in the 1950s as a way to make ramen more convenient and accessible¹². The Nissin company developed a method of flash-frying the noodles, which removed the moisture and allowed them to be stored at room temperature for long periods of time.

Instant ramen noodles are a popular and convenient food, particularly among students and people with busy lifestyles. They are relatively inexpensive, easy to prepare, and can be ready to eat in just a few minutes¹³. They are also available in many different flavours, including chicken, beef, shrimp, and vegetable. Their, relatively simplistic nature leads many to customising instant ramen with their own ingredients and flavours, to make the meal more complete and satisfying.

¹¹ Sanchez. <https://thedieline.com/blog/2020/8/18/the-history-of-instant-ramen?>

¹² Sanchez

¹³ Carindale, Vuelta.

2) Ramen Noodles as Commodity Money In US states prison

2.1) The context of US prison

At its peak in 2008 the American criminal justice system held more than 2.3 million people in 1,719 state prisons, 109 federal prisons, 1,772 juvenile correctional facilities, and 3,163 local jails¹⁴. At the time this figure represented 0.755% of the total United States population¹⁵. Since then this figure has been slowly declining¹⁶, however to this day the prisoner population of the US still averages around 2 Million inmates¹⁷. This figure implies that the United States still holds one fifth of the world's prisoners, even though it only accounts for four percent of the world's total population¹⁸.

Despite the decline of total inmates held, US prisons have seen great overpopulation, which have ultimately led to rising costs. This in addition to the fact that approximately 8%¹⁹ incarceration facilities are privately owned, which has resulted in stringent cost cutting policy by prison wardens. The majority of the burden of the cost cutting policy is endured by the inmates, who in the last decade(s) have seen a significant reduction in living standards²⁰.

One area in which budget-conscious legislators have cut budget, is the feeding of the inmates. The Marshall Project reports that on average, a US prison spends about 1.77USD per day to feed inmates, in some prisons this figure reduces as far as 57¢ USD²¹. In order to cut costs. Prisons nationwide purchase second-hand provisions from the military or rely on damaged stock from wholesalers²², slim calorie counts and serving sizes, or decrease the total number of

¹⁴ Sawyer, Wagner.

¹⁵ World Prison Brief.

¹⁶ World Prison Brief.

¹⁷ Sawyer, Wagner

¹⁸ Lee.

¹⁹ Buday, Nellis.

²⁰ Carindale, Vuelta.

²¹ Santo, Iaboni.

²² Lynch, 233. Sunbelt Justice: Arizona and the Transformation of American Punishment

meals²³. Additionally, in order to reduce cost burdens, prisons increasingly externalise prison meals to private contractors. These food service companies that provide prisons with inmate meals have been reported to serve tainted food and smaller or fewer meals. Many inmates have protested the cost saving policies which have led to the reduction of portions. A study of a prison in the state of Montana reported that on some days of the week the menu provided to inmates could account for a maximum of circa 1782 calories in a day, which would be insufficient even for children aged 9 to 12²⁴.

In addition to food served to inmates, they may acquire additional fresh food and snacks from prison commissaries. A prison commissary, also known as an inmate store, is a store within a prison where inmates can order and purchase items such as clothing, personal hygiene products, and fresh food items as well as snacks²⁵. These items are not provided by the prison and must be purchased by the inmates themselves. A PPI study of commissary sales in the states of Illinois, Massachusetts and Washington, found that Food and Beverages on average represented 75%²⁶ of the total dollars spent in prison commissaries. The findings of the study are shown in Table 1 below. The items sold are typically priced higher than they would be in a regular store²⁷. Inmates must utilise their own money to make purchases.

²³ Smoyer, Lopes, 239-245.

²⁴ Santo, Iaboni.

²⁵ Gibson-Light, 2.

²⁶ Raheer.

²⁷ Carindale, Vuelta.

Table 1: A Breakdown of Commissary Store Sales in the states of Illinois, Massachusetts and Washington²⁸

Product Category in Prison Commissary	Illinois		Massachusetts		Washington		Average spending as % of total spending
	Spending per category In thousands	Spending as % of total spending	Spending per category In thousands	Spending as % of total spending	Spending per category In thousands	Spending as % of total spending	
Beverages	\$ 4,282.00	8.84%	\$ 1,600.00	13.66%	\$ 1,492.00	17.13%	13.21%
Condiments	\$ 1,449.00	2.99%	\$ 533.00	4.55%	\$ 338.00	3.88%	3.81%
Ingredients	\$ 4,174.00	8.62%	\$ 897.00	7.66%	\$ 1,273.00	14.61%	10.30%
Ready Food	\$ 15,429.00	31.87%	\$ 3,402.00	29.05%	\$ 2,120.00	24.34%	28.42%
Snack Food	\$ 8,968.00	18.52%	\$ 2,688.00	22.96%	\$ 1,466.00	16.83%	19.44%
Subtotal Food and Beverage	\$ 34,302.00	70.85%	\$ 9,120.00	77.89%	\$ 6,689.00	76.79%	75.18%
Clothing	\$ 3,266.00	6.75%	\$ 269.00	2.30%	\$ 20.00	0.23%	3.09%
Electronics	\$ 3,068.00	6.34%	\$ 343.00	2.93%	\$ 15.00	0.17%	3.15%
Household & Supplies	\$ 1,957.00	4.04%	\$ 269.00	2.30%	\$ 95.00	1.09%	2.48%
Hygiene & Health	\$ 3,446.00	7.12%	\$ 929.00	7.93%	\$ 1,547.00	17.76%	10.94%
Mail/Stationary	\$ 1,196.00	2.47%	\$ 468.00	4.00%	\$ 345.00	3.96%	3.48%
Other	\$ 1,177.00	2.43%	\$ 311.00	2.66%	\$ -	0.00%	1.70%
Total	\$ 48,412.00	100.00%	\$ 11,709.00	100.00%	\$ 8,711.00	100.00%	100.00%

Commissaries are considered a privilege and not a right, because of this access to the purchase of goods in prison commissaries is often strictly limited to weekly and in some cases even monthly purchases²⁹. Access may also be restricted to them as a form of punishment for misbehaviour. Because inmates are prohibited to hold cash within the prison, inmates hold money in what is typically referred to as a "prison account" or "inmate account"³⁰. The money in this account is typically used for the purchase of items from the prison commissary, such as

²⁸ Raher.

²⁹ Lopes, 32.

³⁰ Raher

personal hygiene items, snacks, and clothing. The account can also be used to pay for phone calls, email or video communication service, and other services provided by the prison.

The money in the account can be credited by various sources such as family, friends or earnings from prison jobs. The account balance is usually managed by the prison or a private contractor and it also may be restricted or frozen as a disciplinary measure.

With prison wages averaging around 0.52 USD/hour³¹, and the generally lacking availability of jobs within prisons, prisoners often are unable to work and even so to save money³². Many inmates come from low-income backgrounds and many do not have sufficient sums of money coming in from outside sources. It's also important to note that some of the money in the account can be used for restitution, fines, and child support, and thus is not fully available to inmates in such cases³³.

Item #	Description	Quantity Limit	Price
Category: SOUPS			
00003	RAMEN NOODLES CHICKEN FLVR 3OZ	None	0.38
00004	RAMEN NOODLES CHILI FLVR 3OZ	None	0.38
00006	RAMEN NOODLES TEXAS BEEF FLVR 3OZ	None	0.38
00007	RAMEN NOODLES HOT/SPICY VEG FLVR 3OZ	None	0.38
00008	RAMEN NOODLES LO-SODIUM BEEF FLVR 3OZ	None	0.38
00009	RAMEN NOODLES LO-SODIUM HOT/SPY VEG 3OZ	None	0.38
Category: BEVERAGES			
00818	HWN PNCH SF LEMON LIME 8PK ****H/A	None	1.06*
00822	ORANGE BREAKFAST DRINK 12OZ ****K,H	None	1.92*
02600	HOT COCOA 10OZ ****K,H	None	1.50
02614	100% COLUMBIAN COFFEE 5OZ ****K,H	None	4.92
02616	DECAF FREEZE DRIED COFFEE 3OZ ****K	None	3.19
02671	TEA BAGS 100CT ****K	1	2.66
04000	GRANULATED PURE SUGAR 12OZ ****K,H	1	1.12
Category: BREAKFAST FOODS			
04201	STRAWBERRY CEREAL BAR 1.3OZ ****K,H/A	None	0.44
04260	ENERGY BAR,FDGE BRWNE 2.64OZ****GF	None	1.41
04276	BLUEBERRY POP-TARTS 8PK	None	2.13

Figure 1: An example of a Prison Commissary for prisons operating under the Pennsylvania Correctional Industries (PCI) in the state of Pennsylvania³⁴.

³¹ Schwartzapfel.

³² Schwartzapfel.

³³ Rahe.

³⁴ Pennsylvania Department of Corrections.

2.2) The informal prison economy

The formal prison economy provides, at best, the essentials, while at worst, even less. It is true that the prisoner's "basic material needs are met -in the sense that he does not go cold, wet and doesn't starve"³⁵. However, "prisoners need not only necessities, but also amenities such as different goods and services, the number of which is very limited or inaccessible/unaffordable"³⁶. Finally, the formal system provides very little opportunity to earn income, and if it does there is no fairness in the distribution of income³⁷. This reality ultimately gives birth to an informal economy, in which inmates freely exchange among themselves the goods or 'services' that they most require, that they are either unable to purchase or legally obtain in a prison commissary.

The commissary is a business entity that has a monopolised market power and is able to determine and regulate the price. This represents the formal economy of a prison. Within a prison, one can define an informal economic system³⁸ that is composed of both, licit and illicit exchanges of goods and services³⁹. That is an open market economy ruled by capitalism. Here, the means of production are privately owned by prisoners. The latter produce, distribute, or resell goods and services for profit. The equilibrium of demand and supply occurs under the condition of competition, and preferences in addition to consumption norms determine the prices of goods and services⁴⁰.

As famously represented by popular culture, the informal economy is populated by inmates seeking to buy and sell illicit goods and services⁴¹. Here prisoners with ties inside and

³⁵ Skyes, 65.

³⁶ Karpova, 26-28.

³⁷ Schwartzapfel

³⁸ Lakenau, 143.

³⁹ Karpova, 26-28.

⁴⁰ Radford, 2.

⁴¹ Karpova 28.

⁴² Alvarez, 5.

⁴³ Lakenau, 13.

outside the prison can procure or produce contraband to sell to prisoners desiring it. Contraband takes many forms, for example: alcohol, drugs, drug paraphernalia, communications devices, weapons, tattoo equipment or even just fresh fruit⁴⁴. In addition to goods, illicit services can be sold ranging from sexual favours to the protection or the attack of other inmates⁴⁵. Illicit goods and services cannot be obtained through a formal prison institution like the commissary, and thus transaction is entirely confined to the informal market. This gives birth to the fallacy of associating the illicit exchange of goods and services with the informal economy in its entirety.

Instead, everyday goods and services represent a significant portion of items sold and obtained on the informal market⁴⁶. Many prisoners can simply not afford to obtain the prison-essentials through a commissary, and they instead purchase on the informal market. They can earn money on the informal market by selling goods and services, and then use their income to purchase their needed and desired goods from prisoners who can provide them. Prisoners can receive an informal income by for example doing other prisoners' laundry, cutting hair, shining shoes, making greeting cards, fixing broken radios, writing letters as well as providing fellow inmates with legal help or advice⁴⁷. With the then obtained income they can acquire the goods or services they would like to purchase by buying them from inmates who have an excess stock, and may themselves seek to make an income on the market. In fact, prisoners with more income at their disposal seek to accumulate a stock of commissary items and sell them on the market, ultimately using the proceeds to acquire goods and services (whether licit or illicit) that the market may offer to them⁴⁸.

⁴⁴ Pennsylvania Department of Corrections

⁴⁵ Alvarez, 17.

⁴⁶ Gibson-Light, 12.

⁴⁷ Prison Fellowship

⁴⁸ Karpova, 31.

However, because US currency is considered to be contraband inside prison facilities and is therefore prohibited⁴⁹, price does not take the form of financial commodities. In large prisons where many different inmates have different goods or services to offer, direct bartering may be too complicated. Therefore, in almost all US prisons mutually accepted commodity tokens have come to rule the informal markets within them⁵⁰.

2.3) Tobacco Prison Money

Before the 2006 federal ban of tobacco by the Federal Bureau of Prison⁵¹, cigarettes were seen as the standard currency for prison informal economy⁵². Accounts of tobacco as a medium of exchange in a penitentiary context date as far back as World War II in Prisoner of War camps⁵³. At the time smokers represented almost half of the American population and tobacco was a way to escape the perils of warfare. The strict detention and prison economy shortages caused tobacco to be a rare commodity that was greatly desired by many prisoners. Exchange in prison was necessary, as the strain of war heavily impacted rations sizes and deliveries. Prisoners with excess portions were willing to exchange with others utilising the largely desired tobacco as payment and medium of exchange⁵⁴.

Much like it had in POW camps in World War II, for most of the 20th and early 21st century “king tobacco”⁵⁵ continued to govern the prison economy. In the post-war years tobacco was still a widely available and used commodity, even within prison facilities. Exchange of tobacco largely continued unchallenged until increasing restrictions began being imposed in

⁴⁹ Pennsylvania Department of Corrections

⁵⁰ Sykes, 82.

⁵¹ Santo, Iaboni.

⁵² Lakenau, 143.

⁵³ Radford 2-10.

⁵⁴ Radford, 2-10.

⁵⁵ Gibson-Light, 4.

the 1980s⁵⁶. Prison wardens had identified black markets characterised by exchanges of illicit goods and services, ultimately causing regulators to destroy these black markets by reducing the availability of and accessibility of tobacco by imposing tougher regulations⁵⁷. In 2006, tobacco was banned from all federal prisons where it became labelled as contraband. At the state level tobacco is still available in some state prisons depending on regulation specific to the state.

Tobacco products partly thrived because of their desirability and value (at least to smokers). Tobacco products have also historically thrived as prison Tokens because they are durable, easily portable and naturally divisible into units (12-Pack Cartons, Packets, and single cigarettes)⁵⁸. In addition, they were aided by their relatively higher costs (when compared to other products) and because they are “easily concealed in prisons where they are labelled contraband”⁵⁹⁶⁰.

The durability of cigarettes, as well as their divisibility made them a lasting good that could be exchanged or last until a prisoner would decide to smoke them. Additionally, the addiction to nicotine that affects a large section of the prison population, allowed for a steady demand for cigarettes, making them ideal for exchange within the facilities⁶¹. However, because of the ban, in the majority of US prisons cigarettes remain a mere item of contraband purchasable on the informal economy, while their central role as the commodity accepted for exchange has been conquered by Instant Ramen Noodles.

⁵⁶ Lakenau, 142.

⁵⁷ Santo, Iaboni.

⁵⁸ Kauffman, 12.

⁵⁹ Gibson-Light, 5.

⁶⁰ Lakenau, 150.

⁶¹ Lakenau, 143-147.

2.4) Characteristics of instant ramen noodles that make it an optimal commodity money token

Instant Ramen Noodles have a variety of characteristics that facilitate their role as the ruling commodity money of the informal economy of prisons. In fact, many of the characteristics shared by commodity money utilised through history may be identified in similar fashion in Ramen Noodles.

Firstly, Ramen is highly demanded in the prison context, Ramen Noodles can provide great nutritional value for inmates. In the context of cost-cutting prisons and insufficient meal provision, the integration of ramen noodles in inmates' diets is almost essential⁶². This high need for ramen, makes it consistently the most sold item in prison commissaries⁶³. In fact, despite the wider variety of packaged foods available, Ramen outsells the next most sold item at prison commissaries (Coffee) by a factor of 5⁶⁴. The range of flavours available which include Chicken, Beef, Pork, Veg and Spicy, allows Ramen to be desirable even to inmates with dietary restrictions (both religious and non)⁶⁵. In this context, ramen represents the most efficient, accessible and desirable source of nutrition beyond the scarce food served at the canteen. Therefore the intrinsic value of Ramen gives the token the option to be consumed as food, something that is essential to prisoners in the modern prison context. This highly valuable intrinsic feature ultimately ensures its demand and its stability as a medium of exchange and (as I will demonstrate) money.

Secondly, Ramen is very cheap and accessible. Despite the low disposable income, Ramen represents the best “bang for the buck” for inmates. In fact, in terms of calories to dollar (kcal/USD) IRN are the most efficient ready food items available at prison commissaries⁶⁶. This

⁶² Alvarez, 14.

⁶³ Carindale, Vuelta.

⁶⁴ Carindale, Vuelta.

⁶⁵ Pennsylvania Department of Corrections

⁶⁶ Carindale, Vuelta.

low cost of Ramen signifies access to cheap nutrition and also a cheap access to the informal market economy. Allowing anyone to buy and sell goods, despite how high or low their prison account may be.

Thirdly, Ramen is durable. When stored at room temperature the average pack of Ramen can last about 2 years without any real effects on the food and its flavour. This fares well considering that the average and median incarceration period for inmates in state prisons last 2.6 years and 1.3 years each⁶⁷. This allows inmates to be able to hold and save Ramen packages to use for expenses later on as in general the ramen packages will outlast their sentence.

In addition to this, Ramen is generally portable, divisible and standardised. Despite being more voluminous than more traditional commodity money, a pack of ramen can fit in prisoners pockets, is easily stackable and numerous packs can be easily stored and hidden within prison cells⁶⁸. Even though it is not as naturally divisible as a pack of cigarettes could be, the separation between 12-pack boxes, single packages and even just the spice bags is not uncommon. Lastly, Ramen packages are standardised or at least are seen as such. In fact, despite the variety of flavours available, any pack of ramen in prison is exchangeable for another. An equal value is attributed to all flavours of ramen noodles as nutritional values and portion sizes do not vary with flavour varieties⁶⁹.

Therefore, instant ramen noodles have most if not all of the characteristics that one could identify in a commodity that enables it to be an almost natural currency to be utilised within prisons. Whether these characteristics arise within the context of prison (desirability and standardisation) or they are intrinsic to the ramen itself (durability, portability and divisibility) they ultimately allow the good to be desired and accepted for transaction. This in the end

⁶⁷ Kaeble, 2.

⁶⁸ Carindale, Vuelta

⁶⁹ Carindale, Vuelta

facilitates exchange and reduces transaction costs, creating an informal economy which does not rely on barter but standardised exchange of commodity money.

2.5) Commodity money: Ramen vs. Tobacco

It would be inaccurate to attribute Ramen's dethroning of Tobacco as the commodity money of choice for US prisoners *solely* on the increasing enforcement of tobacco bans and regulation at the federal and state level. While it is completely banned at the federal level, federal prisons represent only half of the prison population, the other half resides mostly in state prisons where law on tobacco changes from state to state⁷⁰. Forty-Nine states have restrictions on tobacco in prisons, but only twenty one of these have completely banned tobacco from their prisons⁷¹. In the remaining states tobacco is still purchasable from commissaries and restrictions pertain only to where inmates are allowed to smoke it. However, even in these state prisons a similar trend of transition from tobacco to Ramen Noodles has been observed, even with tobacco being available⁷², excluding the bans as the sole cause of tobacco's decrease in popularity in favour of Ramen.

Tobacco can be said to be more practical, as it is more intuitively divisible and durable. Cigarette packs do not truly have an expiration date but rather go stale with time, this affects flavour but not substance. In addition to this packs can be divided into single cigarettes and they can be divided once again into loose tobacco⁷³. Ramen pales in comparison being bulkier, more hardly divisible and having an expiry date. However, despite being initially unintuitive, the

⁷⁰ Sawyer, Wagner

⁷¹ Zhang, 1-3

⁷² Gibson-Light, 5.

⁷³ Lakenau, 149.

change from tobacco to ramen as a commodity of choice can be rather explained by the changing needs of modern inmates.

The change to Ramen Noodles as a medium of exchange is reflective of the context of the modern prison. Cigarettes offer an occasion of daily escape from the boredom and solitude of confinement⁷⁴, and give an opportunity to interact and connect with other inmates (or “social smoking”)⁷⁵. But with the recent decay of the penitentiary system, the modern prisoner’s priorities have shifted from a means of escape to a means of survival⁷⁶. While cigarettes thrived in a period where the basic necessities of inmates were met, modern inmates no longer even have a guarantee of a sustained diet. This, in addition to the reduction of the general smoking population have caused tobacco to lose its aspect of desirability which it had held since the 1930s. Ramen on the other hand represents the most effective way to survive in modern prison, this has naturally allowed it to become the commodity that inmates can agree to utilise as money and medium of exchange⁷⁷. In addition to this, in terms of practicality Ramen remains a good alternative possessing rather admirable qualities of durability, divisibility and transportability. The adapting needs of inmates and excellent practical qualities have ultimately allowed Ramen to replace tobacco from its longly held role of commodity money for the prison informal economy.

⁷⁴ Gibson-Light, 2.

⁷⁵ Alberta Alcohol and Drug Abuse Commission, 1-3.

⁷⁶ Karpova, 30.

⁷⁷ Gibson-Light, 2.

3) Ramen and the Functions of Money

Through history, money has presented itself in many different forms ranging from fiat, managed and of course commodity. However, all types of money can be identified to have three main functions as a unit of account, a store of value and a medium of exchange⁷⁸. In this section, I will identify the functions of money and highlight the ways in which Ramen satisfies them, ultimately providing evidence from United States prisons and real inmates' accounts of their experience during their sentences.

3.1) Ramen as a Unit of Account

A unit of account is a standard numerical unit of measurement of the market value of goods, services, and other transactions. Money serves as a unit of account in an economy because it provides a common denominator for pricing goods and services. This allows for easy comparison of the value of different goods and services, and facilitates trade by allowing buyers and sellers to agree on a price. When money serves as a unit of account, prices are usually quoted in terms of money. This allows people to easily compare the cost of different goods and services, which makes it easier to make purchasing decisions and to keep books⁷⁹.

In prison, Ramen functions as a unit of account. Inmates selling goods or services, denominate the price which they would like to obtain in terms of ramen noodles. This allows buying inmates to not only quantify the cost, but to compare prices to those offered by other inmates. The 2018 study performed by Micheal Gibson-Light⁸⁰ on an anonymous medium security state prison in the Sun Belt region of the US, reveals the extent to which Ramen serves a

⁷⁸ Sardoni, 2.

⁷⁹ Mankiw, 82.

⁸⁰ Gibson-Light is an Assistant Professor of Sociology & Criminology at the University of Denver specialising in the study of punishment, work, and inequality.

unit of account in prison. In this ethnographic study, Light interviewed 69 prisoners and 13 members of staff at the prison, which was anonymously referred to with the alias Sunbelt State Penitentiary (SSP). His interviews offer insight on the extent to which inmates utilise Ramen as a unit of account. A Ramen price list for some common items sold on the informal market can be found in Table 2 below.

Goods to be Traded	Prison Commissary Store Cost (\$)	Informal Market Cost (packs of ramen)	Black Market Cost in Dollars (packs * \$0.59)
Ramen instant noodle pack	0.59	1	0.59
Fresh fruit or vegetable	Unavailable in prison commissary	1 or 2	0.59 - 1.18
Envelope	0.02	1	0.59
Sweatshirt	10.81	2	1.18
Thermals (top and bottom)	11.30	6	3.54
Pouch of Coffee	5.47	4	2.36
Denture Adhesive	2.57	1	0.59
Loose tobacco	3.13 or 4.29	6	3.54
Five "tailor-made" cigarettes	2.00 (approx.)	1	0.59

In 2018, at SSP a pack of ramen could be bought from the commissary for 0.59 cents, this is in line with the average commissary cost for ramen. The various goods listed above were either accessible when resold from commissary stock or even smuggled within the prison. An envelope or denture adhesive could be bought for one pack of Ramen each, 4 packs could afford

⁸¹ Gibson-Light, 24.

a pouch of coffee or a sweatshirt, and 6 packs could get either loose tobacco or thermal tops and bottoms. In this particular state prison tobacco is legally sold at the prison commissary, and 5 loose pre-rolled (“tailor-made”) cigarettes could be bought for approximately 2.00\$ (8.00\$ a pack). On the market these resell at only a pack of Ramen; a further testimony to the fall-out of tobacco in the prison context.

This is not the only example of significant price mismatches between commissary and informal markets. When considering the price of an envelope, we see that on the informal market one retails at almost 30 times the dollar price of the same item bought at the commissary. Similar increases can be identified for items like loose tobacco and fresh fruits, while sweatshirts, denture adhesive and pouches of coffee tend to “lose” value in this mismatch between commissary and market price. A sweatshirt for example is sold at almost 10% of its commissary value when the dollar cost of Ramen is accounted for.

Therefore, Ramen does not only act as a proxy or an extension of the dollar, this is because “consumer prices do not mirror commissary prices”⁸². This is not shocking when considering that while the commissary fixes prices for goods, informal economy prices are negotiated over long periods of time. Goods and services are thus determined by an equilibrium of supply and demand. The price hike that Envelopes experience once traded on the informal market is motivated by the high demand for the product as envelopes are essential to keep in contact with loved ones. On the other hand T-shirts are generally initially provided by prisons, and an extra one would be a luxury rather than necessity. This explains such a lower relative price in the informal economy.

As we can see in US prisons, ramen performs the function of unit of account, being used to denominate the prices of goods, essentially providing a unit of measurement of the value of a

⁸² Gibson-Light, 25.

good. Evidence demonstrates that ramen does not only complete this function as a proxy or a clone of the dollar which is simply not available in prison. Instead, it allows prisoners to easily assign and measure prices reflecting the (informal) market value of goods, that is itself detached from the dollar value of the outside world but determined by the needs, preferences and consumption norms of prisoners negotiating over time.

3.2) Store of Value

In the *The General Theory of Employment, Interest and Money*, Keynes attributes money to the role of a store of value⁸³. Through time money is able to store within itself the value and utility of all the goods that it can buy, essentially allowing savers to protect the fruits of their work for later consumption. Money kept hoarded, for precautionary or speculative motives is used as “a defence against uncertainty”⁸⁴, as the value of money will be guaranteed through time by a ‘constant’ demand. Although the demand for different commodities may fluctuate with time, when a commodity becomes accepted and exchanged as currency the value of the commodity is no longer solely attached to its intrinsic utility. In fact, when a commodity is utilised as money its properties begin to take that of money, and therefore its value will also be determined by the utility of the amounts of goods it can buy. As long as there is agreement for the commodity to be recognized as currency, individuals can conserve their wealth by owning the commodity knowing that at a later date it could be used to transact goods and services that could provide them with utility.

In jail ramen is valuable because of its high nutrition and strong flavour, especially in a context where the two are lacking. However, we can see that a pack of ramen can also serve to be

⁸³ Keynes, *The General Theory of Employment, Interest and Money*, 84.

⁸⁴ Sardoni, 3.

an envelope, a fresh onion, denture adhesive, 5-pre rolled cigarettes and all other commodities that any inmate would accept to sell for it. The utility of ramen is not strictly limited to its nature as a commodity. When exchanged as a token, ramen noodles store value and serve as a representation of frozen desires of prisoners and anything that they would like to consume in the future.

Different prison behaviours demonstrate this particular function of money and how it is exploited by the inmates. The most important of these behaviours is that of hoarding⁸⁵, which in the context of money would normally be referred to as saving. It can be seen that on commissary day (the day on which it is possible to purchase commissary goods) inmates tend to buy large quantities of ramen. The prison account stores value in a satisfactory manner, as prisoners are able to hold the money reaped from their prison jobs or contributed by family in dollars. Although a fiat currency like the dollar is the most common store of value, in the systemic structure of prison the dollar is not as effective. Although the utility obtainable with money in the account stays constant (unless commissaries raise prices), the utility can only be obtained and value can only be exercised on commissary dates⁸⁶. Therefore, the prison account does not help store value through time but rather stores value at selected time periods. This restraint causes stored value in prison accounts to not be readily available at all times. It is because of this that inmates hoard large quantities of ramen noodles on commissary days⁸⁷⁸⁸. By transferring their wealth from fiat money in the account to token money, they are able to spend their wealth in intra-commissary days or store under the form of hoarded ramen packs in the case they would rather save it. In a similar fashion, individuals with informal prison jobs earn a “salary” or a

⁸⁵ Karpova, 35.

⁸⁶ Carindale, Vuelta.

⁸⁷ Karpova, 35.

⁸⁸ Gibson-Light, 25.

profit denominated in ramen noodles⁸⁹, which they can either spend, consume or save. In this manner, prisoners have a choice between reaping the rewards of their ‘hard work’ immediately, by immediately buying goods on the informal economy or eating the noodles; otherwise saving their noodle endowment for consumption or exchange at a later date.

In conclusion, money’s function as a store of value, enables inmates to save the utility they can purchase with their endowment until they have necessity or desire for it. The hoarding of ramen noodle packs in US prisons, is a testament of this function of money, and how even a commodity can fulfil the functions of money once it is accepted as such.

3.4) Medium of Exchange

Lastly, the most straightforward function of money is that of a medium of exchange. Ramen Noodles like other commodity money throughout history fulfil this function within US prisons. Although it is not uncommon to see barter occur within prison walls, the usage of commodity money such as Ramen Noodles (or previously cigarettes) facilitates exchange among prisoners in an organised market like matter.

To this day, in some areas of the world exchange still occurs through barter⁹⁰. Barter systems are limited by their innate nature and incompatibility with human behaviour and desires. In barter in fact, there is a lack of a common measure of value - every item is denominated in terms of the item that another party is willing to exchange for it - therefore there is an inability for parties to evaluate prices. Similarly, through barter the storage of value is unstable and unreliable as goods will have a value only when someone is willing to exchange it for something

⁸⁹ Prison Fellowship

⁹⁰ Mankiw, 127.

else. As demonstrated before, Ramen Noodles solve these two issues that may otherwise be incurred in a barter system by fulfilling the functions of unit of account and store of value.

It must be said that while bartering may be hindered in the outside world by the need for relative proximity between exchanging parties, in prison this should not pose a problem as a large group of inmates are tightly packed in large federal and state prisons. However, a characteristic of barter systems remains a problem is that of the coincidence of double wants⁹¹. In order for a barter exchange to come to fruition, a party must exchange a good or service they possess or can provide for a good or service they desire. This applies to a second party who must agree to an exchange with the first. This requires both parties to simultaneously desire each other's possession and even more to be willing to trade their own possession for the other's. This is called the coincidence of double wants, which as the name implies tends to be coincidental and unstable in nature, and renders the barter system highly inefficient.

Through the use of a token commodity, the coincidence of double wants is eliminated, as exchanging parties are no longer trading a good or a service for another. In fact, exchange is not dependent on the individual desire that two parties have for each other's goods but rather how much token commodity each party would be willing to spend (receive) for the good or service they seek to buy (sell). Exchange now becomes the much more simple act of sale and purchase dependent on individual willingness to supply or demand a product for a given price denominated in money. Although this may not seem intuitive in the case of Ramen Noodles as it too is a good, its acceptance as money provides it with the function of medium of exchange.

Former inmate Gustavo "Goose" Alvarez, author of the book "Prison Ramen: Recipes and Stories from Behind Bars" explains the extent of Ramen's exchange in US jail, from his personal 13 years experience in and out of jail. Alvarez describes that Ramen in jail can buy

⁹¹ Mankiw, 619.

“Anything that’s got any value. From clothes, drugs, a favour...”⁹². While most inmates value Ramen as money *as well* as food, some inmates avoid eating them but rather relying on them purely for exchange⁹³. Much like in the previous cigarette economy, failure to consume the good does not halt inmates from purchasing Ramen from the commissary, hoarding ‘reserves’ and participating in the informal market⁹⁴. Prisoners do need to desire Ramen as food for them to buy it, to use it and even to accept it for exchange. Some may even dislike its flavour, but still buy it on commissary day⁹⁵.

Ultimately, within the US prison Ramen Noodles have the function of facilitating exchange. Establishing a commodity token like that of Ramen is crucial for avoiding the problems that could otherwise arise in barter systems such as the coincidence of double wants. From accounts and empirical evidence from real US prisons, it is possible to see that Ramen is the building block of the informal economy and the key facilitator to all exchange within this system.

⁹² Alvarez, 5.

⁹³ Gibson-Light, 6.

⁹⁴ Radford, 8.

⁹⁵ Gibson-Light, 6.

4) A study of supply of money and the Quantity Theory of Money applied to Ramen Noodles

4.1) Scarcity

In his 1930 book *A Treatise on Money*, Lord John Maynard Keynes defines that the supply of a commodity money is necessarily "governed—like that of any other commodity—by scarcity and cost of production"⁹⁶. Historically this is evident by the nature of the commodity which was utilised as money. Gold is a relatively scarce metal with significant mining and extracting costs. Salt has been utilised as a form of currency in various historical occasions, including in ancient Rome, where it gave birth to the word salary from the Latin word '*salarium*'⁹⁷. Salt is also not naturally abundant and anciently production required costly mining or inefficient and lengthy evaporation of seawater.

Unlike Gold or Salt, Ramen Noodles can be considered a very abundant good nowadays. Ramen is produced with very common ingredients and cheaply available in almost every corner store in more than 100 countries across the world. Affordability and availability make it the meal of choice of people with limited budgets and/or busy lifestyles.

However in this context scarcity is no longer dictated by the natural abundance of the good, but wholly on the 'production costs' of Ramen. Much like Gold is in nature, Ramen packs are scarce within prison walls- they do not naturally grow within the prison and of course, they cannot be mined. The only method of obtaining Ramen is through the controlling source: the prison commissary. Even if one considers the commissary stock of ramen to be infinite, Ramen supply would still be limited to the quantity that inmates can purchase using their prison accounts. In fact, when one considers the prison informal economy as an entity separate from the

⁹⁶ Keynes, *A treatise on money*, 7.

⁹⁷ Bloch

outside world one can consider the production costs of ramen as the cost of purchasing ramen from the prison commissary. Despite being sold at only 59¢⁹⁸ on average; with the average yearly disposable income of inmates at 947 USD⁹⁹ Ramen represents a much more severe cost for inmates than free US citizens. In addition, many commissaries allow for only weekly or even monthly orders, as well the possibility to only spend a maximum quota, or to purchase only a restricted quantity of items of specific goods.

4.2) Supply of Ramen Money

The money supply refers to the total amount of money in circulation in an economy¹⁰⁰, and it affects the level of economic activity, inflation, and interest rates. In the prison economy inmates consider Ramen to be money, the money supply can therefore be interpreted as the amount of Ramen that circulates in it. In this section, I attempt to model the supply of money and its relationship to the average price levels within the prison economy. The following assumptions must be made:

1) The only way for ramen to enter the prison is through the commissary.

The reason for this assumption is because contraband of Ramen noodle products is relatively negligible compared to quantities introduced legally through the commissary.

2) On commissary day, prisoners will consume all their disposable income on the purchase of ramen noodles from the prison commissary.

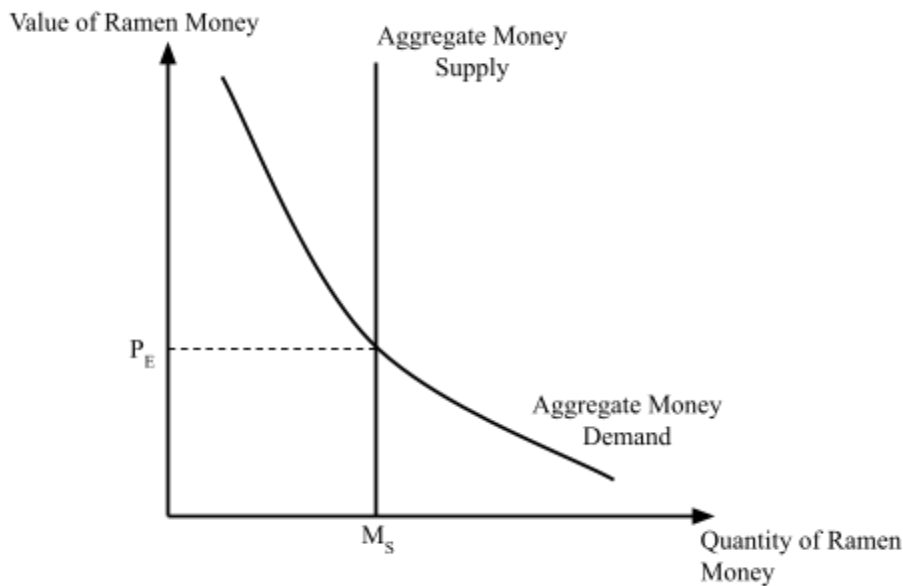
This assumption serves both to simplify the model and more importantly serves to acknowledge that spending on non-ramen products is either fixed or negligible.

⁹⁸ Pennsylvania Department of Corrections.

⁹⁹ Sawyer.

¹⁰⁰ Mankiw, 623.

By assumption number two we can then assume that the money supply will be perfectly inelastic. Furthermore, by these two assumptions we can conclude that money supply will be determined by an arbitrary figure that will be dependent on the dollar wealth of inmates. In this way we are able to define a fixed money supply that will intersect with the aggregate money demand of prisoners. This will result in an equilibrium quantity of Ramen money (which is equal to the fixed ramen money supply) and an equilibrium the value of (Ramen) money. The value of money represents the cost (denominated in ramen) of buying a hypothetical basket of goods available in prison.



Graph 1: Equilibrium of Ramen Money Supply and Demand, and Average Price Level Denominated in Ramen

In Graph 1, I propose a simplistic model, graphing the monetary demand for Ramen at an intersection with the Money supply of Ramen. On the x axis is the quantity of ramen noodle packs, and on the y-axis is the value of ramen money. M_s represents the quantity of ramen money in circulation, and P_E represents the value of ramen money at equilibrium. From the

chart, it is possible to see that varying shifts in the money supply of ramen will affect prices of the prison economy. In the next section, I will identify how by the following model, changes in the Ramen money supply will affect the money value of ramen.

4.3) Shifting Ramen Money Supply on Average Price Levels

In a fiat monetary system, money supply can only be affected by changes in monetary policy. Central Banks control monetary policy through open market operations, reserve requirements and interest rates¹⁰¹. Through these means central banks can shift the money supply in response to macroeconomic changes that the country they operate in may experience. Differently from fiat money supply, the Ramen noodle money supply will shift as Ramen noodles are consumed and as they are newly introduced within the prison on commissary days.

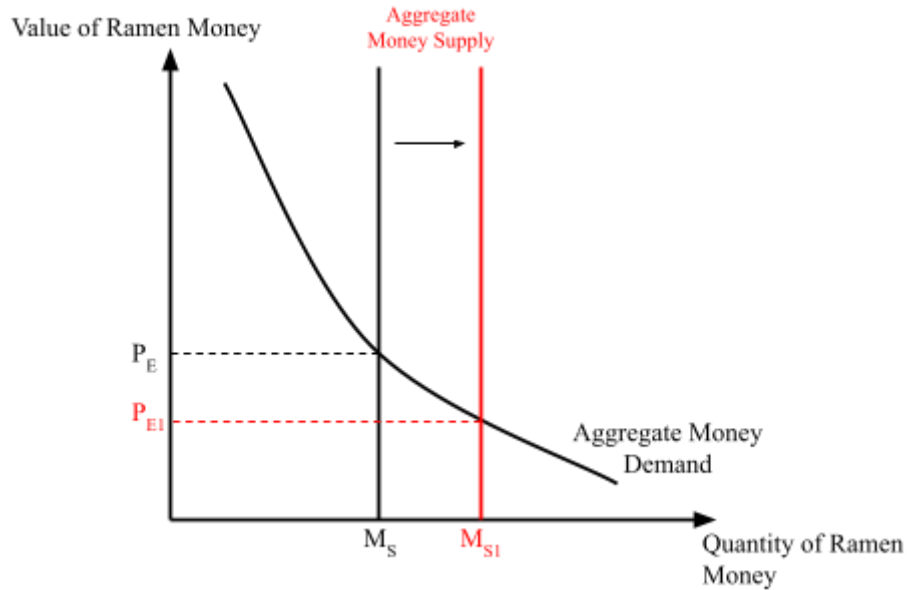
Due to the reliance of outside contributions and lacking prison jobs Prisoner's prison accounts will fluctuate month to month or even week to week¹⁰². Depending on their fluctuating wealth *more* or *less* Ramen noodles will enter the informal economy from the prison commissary.

On a commissary day, we can establish an initial M_s by dividing inmates' disposable wealth in USD (W) by the commissary price of a pack of ramen noodles in USD (R). This is because for the purpose of this model I enforce the assumption that inmates will spend the entirety of their prison account endowment on ramen noodles. If in a given week prisoners find themselves with higher wealth in their prison accounts ($W_1 > W$), they will be able to purchase more Ramen from the commissary at any given price per pack of ramen. Similarly, if on a given commissary day Ramen noodles prices are lower ($R_1 < R$), again prisoners will be able to

¹⁰¹ Mankiw, 86.

¹⁰² Sawyer, Wagner.

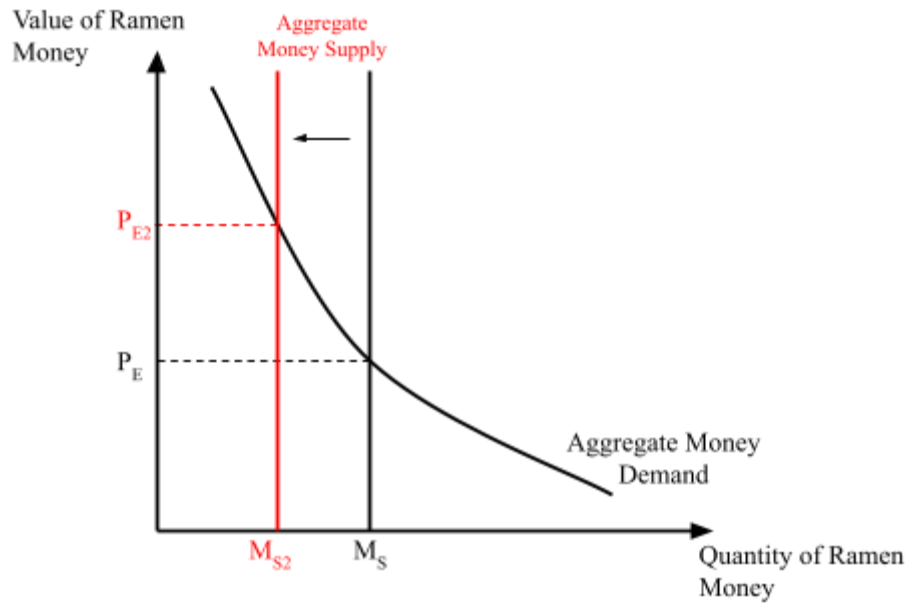
purchase larger quantities of Ramen for a given amount of dollars. If we consider the supply of ramen at any given date to be M_S , either of these two situations cause more Ramen to enter the prison, and will expand the Ramen money supply to M_{S1} .



Graph 2: Lower dollar prices of Ramen Noodles, or higher Prison Account wealth will result in a greater money supply M_{S1} .

By the situation described in Graph 2, the quantity of Ramen Noodles are high at M_{S1} . In this situation inmates generally will have larger stocks of Ramen Noodles, meaning that they have larger available Ramen wealth to spend in the informal economy. In fact, with larger stocks inmates will be sure to cover their calorie deficits with the Ramen hoarded on commissary days, and will have higher propensity to spend the extra stock on goods and services they can purchase in the informal economy. This will lead to higher price competition and will cause prices of baskets of goods to rise, and therefore the value of Ramen money to be low at P_{E1} .

In a similar fashion, an increase of commissary prices ($R_2 > R$), or a decrease in aggregate prison accounts' wealth ($W_2 < W$) would cause a reduction of the money supply curve. The following situation is shown in Graph 3 below.



In Graph 3 a lower Ramen money supply caused by soaring commissary prices or decrease in inmates' prison account wealth causes the quantity of Ramen noodles in circulation to be low at M_{S2} . In this case inmates will be unable to hoard large stocks of Ramen, and as a result informal economy expenses will represent a larger portion of their Ramen wealth. Because of this prices will generally decrease, and the value of Ramen money will increase, as the same basket of goods can be purchased on the informal market for less Ramen packs.

Empirical evidence of this behaviour is provided in the study *The Economic Organisation of a Prisoner of War Camp*¹⁰³ by British-born American economist Robert A. Radford. During his three years in the German POW camp Stalag VII-A, Radford gives accounts of the establishment of a cigarette commodity money system, which closely resembles the Ramen money utilised today in US prisons. The paper became largely influential as a primary example of people interacting economically and remains a staple for introductory economics textbooks. In

¹⁰³ Radford, 1.

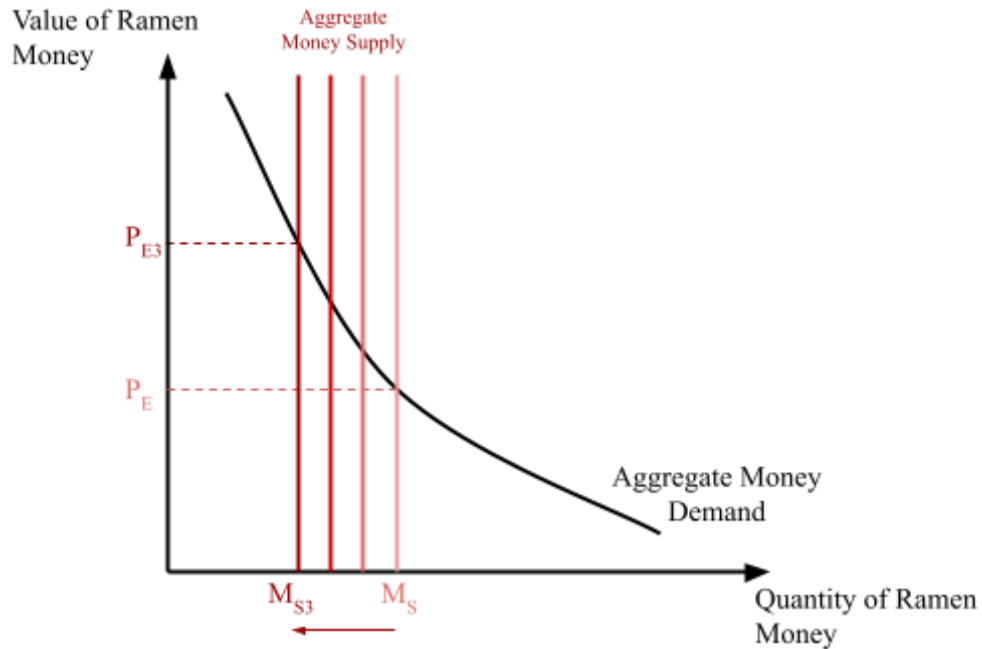
the 1945 study, Radford explains that even the mere rumour of deliveries of cigarette parcels could cause prices to rise. “Within ten minutes I sold a treacle ration, for four cigarettes, and many similar deals went through. By 10 o'clock the rumour was denied, and treacle that day found no more buyers even at two cigarettes”¹⁰⁴. In the camp cigarette parcels were distributed equally among prisoners by the red cross. Prospects of new deliveries (and thus larger cigarette money supply) also signified prospects of greater cigarette stocks, these prospects caused prices for rations sold by other inmates to soar immediately. As radford recalls, the dismissal of the rumour would cause prices denominated in cigarettes to be more than halved. In the POW camp the cigarette money supply was wholly dependent on the unreliable red cross deliveries, which would vary and fluctuate week to week. In the modern US prison the ramen money supply fluctuates because of changes in prison account wealth and price changes, but the rationale behind its effect on the value of commodity money applies nonetheless. From Radfords observation it is possible to predict the behaviour of modern US inmates as rational economic actors in a commodity money system.

The money supply however, will not only shift on commissary days. Although commissary days are dates in which Ramen money enters circulation, the commodity aspect of Ramen will cause the supply to decrease in intra-commissary-day periods. In fact, through the weeks and sometimes months between commissary days, inmates will consume their stock of Ramen Noodles as food¹⁰⁵. The extent to which this occurs varies from prison to prison, depending on for example how much of prisoners' calorie needs will be effectively covered by prisons. The extent of this consumption may also vary on inmates' own needs depending on

¹⁰⁴ Radford, 8.

¹⁰⁵ Gibson-Light, 26.

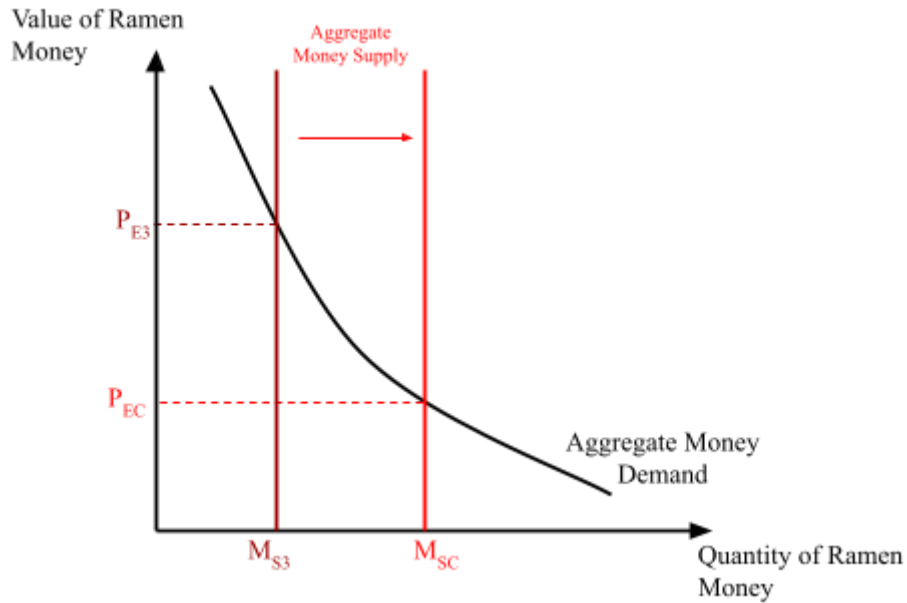
requirements and preferences. Nonetheless it is evident that consumption of ‘Ramen Food’ will decrease the stock of Ramen money as these two obviously overlap. Ultimately, non-monetary consumption will cause the money supply to decrease steadily until commissary day.



Graph 4: As non-monetary consumption of Ramen noodles causes the money supply
To gradually decrease from M_S to M_{S3} .

The above graph (Graph 4) visually demonstrates the slow decrease of money supply which occurs with a steady consumption of ramen. M_S gradually decreases to a minimum at M_{S3} , coincidentally the value of money will gradually increase, as prices denominated in ramen decrease as a result of Ramen shortage. Ramen stocks and ramen supply will reach a minimum level on the day prior to commissary days. On commissary day inmates will newly be able to purchase Ramen and supply will thus increase by the quantity of Ramen that will enter the prison. By the second assumption made in section 4.2, inmates will convert all their prison account dollars into ramen noodles packs. Because of this the money supply will increase by the

aggregate wealth of all prison accounts (W) divided by the dollar cost of ramen noodles at the commissary (R). The following increase is then demonstrated in the following graph (Graph 5).



Graph 5: New Ramen introduced on commissary day, will expand the money supply,
 Causing the value of money to decrease.

M_{SC} represents the new money supply on the following commissary day. The new influx of ramen will cause prices denominated in ramen to rise, causing the value of ramen money to fall once again from P_{E3} to P_{EC} . It is important to note that the increase from the money supply before commissary day M_{S3} to M_{SC} is equal to the amount of ramen noodle packs bought by prisoners which have entered the prison ($\Delta M_S = M_{SC} - M_{S3} = W/R$). The extent to which the money supply will increase on commissary days will be dependent on how much Ramen prisoners can purchase with their prison account wealth (W/R).

It can thus be deduced that ramen money supply and as a result prices in ramen will vary periodically. This coincides with an account given by Radford: “cigarettes and food parcels occurred on a Monday. [...] prices fluctuated weekly, falling towards Sunday night and rising

sharply on Monday morning [...] and then began to fall, slowly at first but with increasing rapidity as stocks ran out”¹⁰⁶.

To conclude, Ramen in circulation will steadily decrease with time as inmates await the next commissary day, and prices will similarly contract. Both money supply and prices will reach a minimum in the days prior to commissary dates, as inmates will have consumed a majority of their held stock. On commissary day money supply will sharply increase again, and prices will quickly follow. Prices will remain high in periods following commissary days, they will then stabilise and later decrease as they approach a new commissary day. Ultimately, cyclical patterns of supply will determine equally cyclical patterns in prices.

This hypothesis, as well as Radford's findings align with the Quantity Theory of Money (QTM). The QTM is an economic theory that posits that there is a direct and proportional relationship between the quantity of money in circulation and the price level in an economy¹⁰⁷. It suggests that an increase in the supply of money will lead to a rise in the overall level of prices, assuming that the output of goods and services and the velocity of money remain constant. The theory emerged in the 16th and 17th century but was largely updated, reinvigorated and re-popularized in the 1960s by economists Anna Schwartz and Milton Friedman¹⁰⁸. The Quantity Theory of Money can be applied to a commodity money system of ramen noodles in US prisons to some extent. In a prison economy where ramen noodles are used as money, an increase in the supply of ramen noodles, all other things being equal, can be assumed to lead to an increase in the prices of goods and services that are priced in ramen noodles. However, the QTM exists in the much more complicated environment of the outside world and takes into consideration

¹⁰⁶ Radford, 8.

¹⁰⁷ Mankiw, 106.

¹⁰⁸ Mankiw, 106.

variables like velocity and the production of goods and services. In a prison environment these variables would be rather different, as patterns of velocity and goods and service would be restricted and warped by the context of prison. Nonetheless, the QTM serves to explore the direct link between changes in money supply and corresponding changes in prices. Even in a primitive monetary system like that of the US prison a money supply can clearly be identified, and patterns of change of prices with respect to the money supply closely take the form of those described by the QTM.

5) Conclusion

In the western world, the penitentiary system is a subject often avoided; in countries like the US it has become a taboo. Although calls for reforms are sometimes made they are usually not answered, leaving millions of prisoners to have to struggle to fend for themselves. In the era of mass incarceration and expanding neoliberal approaches to punishment, prisons have been cutting services and programs, while shifting costs to the imprisoned¹⁰⁹¹¹⁰. Despite their isolation, prisoners' resourcefulness have allowed them to adapt and overcome difficulties brought by lacking prison meals, restrictive and expensive commissary stores and subminimum wages.

In this thesis, I analysed the way in which this context has pushed inmates to the creation of an alternative to the system that has failed them. Ultimately, causing the establishment of an informal prison economy that relies on Instant Ramen Noodles as a form of commodity money. I firstly demonstrated how traits of desirability, accessibility, durability and standardisation -as well as to a lesser extent those of divisibility and portability- allowed Ramen Noodles to emerge as the ruling medium of exchange, even over a more traditional commodity like tobacco. I demonstrated with practical examples Ramen's fulfilment of the three functions of money, as a medium of exchange, unit of account and store of value, providing concrete evidence from real US prisons. In fact, examples of price lists, hoarding peculiarities and propensity to exchange, demonstrate not only how ramen fulfils each function in the prison context but also the great extent to which it does so. To further demonstrate the extent to which the Ramen exchange system can be considered money I hypothesised a money supply function of ramen and the factors that cause it to shift or vary . From this stemmed a proposal of how shifts in this money supply affect prices and value of ramen money in the prison economy, supported by similar

¹⁰⁹ Gibson-Light, 1.

¹¹⁰ Karpova, 27.

observed evidence from POW camps utilising cigarette commodity money. The model demonstrates a positive relationship between money supply and prices, and thus an inverse one with the value of money. These findings ultimately allowed comparisons and contrasts to be made with the Quantity Theory of Money, a theory that proposes a similar relationship in fiat monetary systems.

In conclusion, by peeling the layers of this exchanged commodity within this confined and restricted environment, a much more complicated monetary system is revealed. One that blooms from a reality of inequality and isolation, that demonstrates the prevalence of rational economic behaviour from even dark and sometimes forgotten corners of modern society. Ultimately, Ramen Noodles are a *commodity* that within US prison walls also fulfils the three functions of *money*, and is reflective of modern monetary theories applied to traditional monetary systems.. As a result it can be stated that the exchange of Ramen Noodles in United States' prisons can therefore be classified as a new 21st century frontier of commodity money.

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