The Perfectly Competitive Market

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A Pinnacle in the Development of the Laws of Classical Economics

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It deserves to be remarked, perhaps, that it is in the progressive state, while the society is advancing to the further acquisition, rather than when it has acquired its full complement of riches, that the condition of the labouring poor, of the great body of the people, seems to be the happiest and the most comfortable. It is hard in the stationary, and miserable in the declining state. The progressive state is, in reality, the cheerful and the hearty state to all the different orders of the society; the stationary is dull; the declining melancholy.
−Adam Smith[1]

[1] Adam Smith. *An Inquiry into the Nature and Causes of the Wealth of Nation*. Book I. Chapter VIII.

INTRODUCTION

The year 2007 marked the beginning of a world economic crisis that we are still be recovering from. The financial system of modern capitalism not only failed to prevent this crisis but also caused it to explode dramatically.

The goal of this work is to design a new financial system that is fundamentally different from the existing one. It is a financial system of a new formation that we call a Perfectly Competitive Market, or PCM. I would like to note that from a theoretical viewpoint this design is *the only possible option*, despite the abundance of theoretical and practical approaches to economics.

One fundamentally, though not the only, important feature of the new system is a separation of the legacy combined credit and payment system into two parts: provision of credit and processing of payments. In this book, we introduce our new financial system in the following order: Chapter 1 focuses on the national payment system and issuance of money, Chapter 2 describes changes in the credit system, Chapter 3 shows how national monetary systems can be linked and Chapter 4 contains some additional considerations for PCM.

Our proposed transition from the traditional three-level, heterogeneous credit and payment system (central bank ↔ other banks ↔ market participants) to our new, robust two-level system (central bank ↔ all market participants) can be difficult to understand. This is not because our new system is complex, but rather because of the convoluted nature of the existing system where many details appear to be totally different from how they really are. These details may look different depending on your chosen viewpoint, bringing to life certain all-encompassing categories, like "money stock", that contain some very diverse components.

Most people don't understand even some of the basic elements of the existing financial system. To appreciate the simplicity of our new proposed system, and to show that no critical functions are being sacrificed in the transition to it, we will have to take an exploratory walk up and down the legacy financial system.

Among byzantine labyrinths and curved mirrors of the legacy financial system, some people are making serious money. Given my own entrepreneurial past, making money doesn't concern me anymore. However, the money made by exploiting certain features of the legacy financial system adds the burden of extra costs to the "real" (non-financial) sector[2] of entire national economies, which is a serious issue. Furthermore, the legacy system contributes to moral decay in society by questioning things like elementary frugality on our planet with its limited natural resources, efficiency of private property institutions and even the creative nature of our civilisation.

In the course of our exploratory walk, our fundamental concepts about the existing financial system, and the economy in general, may not completely agree with the reader's view (possibly due to my atypical background for a theoretical economics author). Having spent my economic "childhood" studying at Moscow State University, I jumped into my economic "youth" by becoming one of modern Russia's first entrepreneurs back in 1989. Given that in the subsequent 14 years I "grew up" to manage a few firms that were quite noticeable in their respective sectors, the nuances of marketing, procurement, finance and other kinds of hands-on economic activity have indeed become part of my identity.

[2] Firms engaged in producing goods and services are hereafter referred to as "firms". We may also call them *microeconomy* with a degree of rigor being lost, as the "firms" definition is wider than "microeconomy" – see *Glossary*. We won't need either *microeconomy* or *macroeconomy* to define any scientific disciplines, as we only use the term "theoretical economics". In the existing model of the economy, the "real" sector does not include firms operating in the financial sector, taking into account that the latter has expanded out of all proportion. Financial firms will still exist under our PCM model, but the scope of their operations will be much more limited. We can say that financial firms will just be a thin layer between commercial banks and the "real" sector of the economy. Currently, the best way to present them is by pooling them along with commercial banks into the broad financial sector, as they are actively working with credit instruments and securities. Here, it is useful to draw a parallel with state-owned firms. When we discuss firms' activities in a market economy, by default we are making generalised theoretical statements assuming these firms compete under natural selection principles. But we know that right between the state and the "real" sector, there exist state-owned firms where the rules may differ. If state-owned firms are disproportionately dominating under socialism and financial firms are a juggernaut of capitalism, both become mere thin layers between private firms in the "real" sector, and state and commercial banks, respectively.

In lieu of using the frequently abused term “experience”, I will try to illustrate what I am saying using a certain “database” (in this context meaning all the data and knowledge of an individual person rather than a reference to rows of data stored in a computer). A popular saying attributed to Archimedes is: “Give me a place to stand on and I will move the Earth.” I would argue that science could use a more fitting maxim: “Give me a database and I will explain everything.” However, the means for obtaining this “database” fundamentally differs between natural and social sciences. In the former, the database is often assembled in a laboratory setting by using instruments to measure and collect primary experimental data, both inside the laboratory and outside in the world. The better the laboratory is equipped, the more comprehensive and precise is the database, and potentially the more qualified are the research scientists. Conversely, if your laboratory and university run on a shoestring budget, you are unlikely to make progress or produce talented scientists. Let us also point out that the data used in natural sciences can be easily structured and formalised. This in turn opens up two fundamental options. First, one can gather, store and transmit data. Second, one can use formal mathematical methods to analyse the data – it would be impossible to imagine modern theoretical physics without the extensive use of advanced mathematics.

In social sciences, or at least in important fields such as political science and economics, we have a different situation. Here, primary experimental data is represented by people’s actions and their consequences, while academic institutions often find themselves isolated from the data. This data can only be collected in person and “in the field”, and it may be subsequently transformed inside an observer’s brain into a complex array of conditioned reflexes (later we’ll show that the said database-building transformation is not guaranteed by fulfilment of these two conditions). The simplest practical corollary of this feature characteristic of social science institutions is that an advanced education in political science or economics may not be required to achieve the highest degree of qualification. That is, to become a professional politician or entrepreneur, it is not necessary to have a synonymous education. On the other hand, no matter how much you invest in social science laboratories, the chances of producing a future Vladimir Putin or Bill Gates will not materially increase.

A person’s actions and an observer’s (or rather, a participant’s, as distinct from natural sciences) conditioned reflexes cannot be formalised, making the collection of primary data (or actions) and transmission of a participant’s

conditioned reflexes resulting from these actions nearly impossible. Advanced mathematical methods, with a few rare exceptions, are also not applicable to the field of theoretical economics. Later in this book we will show how these methods can be selectively applied to a socialist economy.

Let's revisit our earlier postulate of "Give me a database …" which is nothing but a buzz phrase; nobody can know everything and even a researcher armed with this "database" is not guaranteed to draw correct conclusions from the data. First, our researcher should use his built-in biological "computer" to run clustering and regression algorithms in order to sift through massive amounts of primary experimental data, identifying key factors influencing the process, and then establishing a cause-and-effect relationship between certain data elements. In reality, researchers do not have a complete database of this sort (while you are reading this sentence, there are millions of economic events happening in the world). They are forced to use data with varying levels of quality and confidence. In this case, the researcher's qualification becomes very important.

People start leaning towards certain professions while still in primary school. Given the rigorous requirements for future scientists, they must continuously meet ever-increasing specific qualifications. To be able to work with the primary economic database, economy practitioners also need to have certain qualifications. However, their analytical brain activity is often accompanied by processing hard-to-formalise data obtained using their five senses, which is something computers still cannot do.

You might have asked yourself at least once why, in some firms, the people who appear to be intellectually gifted are working for nondescript owners. A younger employee might argue that "Everything has been divided, so I put up with this." I would say that this situation is realistic, but the answer is stereotypical. In the 1990s, we observed the division of labour happening quite naturally in nascent Russian businesses. Leadership roles were assumed by people meeting the "entrepreneurial" qualifications, i.e. capable of processing primary economic data to make correct decisions. This selection of entrepreneurs has not disappeared, but now it happens much more slowly and is hindered by the dominance of large firms in the current economic formation (we are going to address this extensively further below).

We are not talking about some "all-seeing eye" of fairness, which would reward every new entrepreneur according to their talents, but rather we observe that, as a rule, successful entrepreneurs do meet the above

"entrepreneurial" qualifications. People sometimes exaggerate the importance of exclusive information used by top managers to make business decisions. In reality, there are individuals around the boss who have complete or nearly complete information, or else the firm would be grossly mismanaged. However, it should also not be taken for granted that these informed professionals will make timely and correct business decisions, given the variety of input factors and the potentially high cost of mistakes. We should note that stereotypes often accompany bad decisions, including "do nothing" scenarios, as comparable business situations are generalised and nuances are ignored. Having incomplete information often precedes this pattern.

In a practical economy, numerical information (including prices) is not only mandatory but also the most important component of the seemingly verbal process of formulating and sharing business information. Managers' qualifications are tested by their accurate "digitising" and evaluation of input information to make correct decisions. In a nutshell, a managing owner's database is formed in the following order: processing of primary (not obvious) data about people and their actions → forming a more precise database (all learned reflexes) → price management → refining the database which consists of learned reflexes. If prices are managed with a positive bottom line, our market participant is confirmed to have a certain understanding of the structural links between the primary database components in a chosen economic activity sector. Profit (or loss) is the ultimate litmus test to distinguish "I understand this" from "I am watching this."

Now, we may draw a simple but initially not so obvious logical conclusion: our "database" will display the best precision when it is formed in the heads of entrepreneurs. Any learned reflexes formed in the economy, while being directly connected to the gains and losses of market participants, are necessarily based on the outcomes of numerous events and *decisions* made primarily by the active owners. It works in the following order: events and decisions → business gains and losses = entrepreneur's income → learned reflexes are formed without any distortions.

Coffee break: you might have heard funny stories about how "New Russians" loved to buy the most expensive things available. There is a psychological underpinning for this behaviour. There is not only a desire to stand out ("conspicuous consumption" a.k.a. the Veblen effect), but also a learned reflex of price management. Entrepreneurs working with

consumer goods know well enough that setting prices incorrectly is akin to throwing money away. Yes, some people may be willing to pay higher initial prices, but if buyers learn that quality does not correspond to a high price, they will develop an adverse reaction, so that even a subsequent price lowering might be interpreted as a sign of weakness. In the end, simple arithmetic calculations show that it would be more profitable to set lower prices from day one. Thus, faced with new and unfamiliar goods, entrepreneurs (especially new rich ones) may believe that sellers who set the prices think the same way. Indeed, prices for mass consumer goods follow this logic, whereas peddlers of luxury goods are very happy to attract such consumers. The sellers guess this psychological twist, perhaps intuitively. Although the Veblen effect is stronger, these nuances exist as well. We may add that when dealing with goods that they know inside and out, these same heroes of funny stories would often demonstrate their nearly flawless understanding of how things work.

Summarising the above, we can say that observation, participation and price management represent different levels of primary database qualification, because they assume different skill levels required to understand the data hierarchy and cause-and-effect relationships. This generalisation is by no means complete as “databases” can be vastly different. For example, a database formed while managing a restaurant will differ from a database formed while managing a conglomerate. A database formed while managing a commercial bank may help develop analytical rather than theoretical skills.

Having no access to a primary “database”, theoretical economists usually work with existing theories, statistical data and observations. It is a certain “view from above”, while this book is largely a “view from below” driven by primary and fundamental data. Thus, do not be surprised if some of the material contradicts your familiar narratives. This may be due to either error on my part or your false stereotypes. One way or another, in this book I promise to tell you something new (including comments on some well-known economic theories). Regardless of your own views, it will just be a different perspective.

Along our little journey you may encounter certain inconveniencies. It is impossible to cover every level of both the old and new systems at once, and likewise it is impossible to stay on one side and completely ignore the other. Even for the simplest element of a financial system, explaining the finest theoretical points will demand tracking of interactions arising in several diverse aspects. In any economic system that we set out to either

describe or mention, there is a myriad of dependencies that is difficult to describe, just as with an analogy of light bulbs being turned on sequentially. A set of theoretical generalisations does not easily match an actual flow structure, even if the latter is simplified to a rough draft. Therefore, to preserve consistency in our narrative while keeping it true to the actual economy, we will use footnotes extensively (and the text in footnotes is often no less important than the main contents).

This abundance of footnotes is a known drawback. However, if I (and not some other author who might be more skilled in structuring the information) were to give up on footnotes, the text of this essay would be harder to understand. This book also offers a collection of applied essays (Chapter 4), Conclusion and a glossary of terms. A lot of seemingly odd and insignificant content will be better understood once you've read the whole book. These reservations are even more appropriate given that we not only construct separate national financial systems, but also link them together in the framework of a global financial system in Chapter 3. However, that is not all. We will see that changing the current system to a new one is consistent with the development of economic laws of our civilisation. The new system we'll design in its basic features will not be capitalism in its (yet another) modification,[3] nor will it be a socialist or a communist formation, but a more perfect, market-based formation.

Therefore, different from most other market economy studies, explicitly or implicitly aiming to modernise capitalism, our intentions towards capitalism are purely diagnostic ones. We focus on discovering fundamental costs of modern capitalism while presenting a new formation that by design would be free from these costs. This study will require using a somewhat unusual methodology. To a large extent it involves not the categories themselves, but firstly, interpretations of these categories, and secondly, a hierarchy of these categories. To put it simply, we place different accents on a generally traditional system of categories. Even simpler, we use common bricks to build a seemingly unusual home that would be much more durable and cheaper to operate compared to our current one. Our key secret to achieve this goal is not to rearrange the bricks but – continuing

[3] This statement, as I saw from early reader feedback, will leave little impression on some people with leftist beliefs as their principal ideas are wrapped around the form of ownership, whether private or social. Correspondingly, they will simply perceive our new proposed formation as yet another modification of capitalism. From a motivational point of view, I don't care what it will be called, though it is important to move to a more modern design of the economy. Strictly speaking, this will be a new formation indeed, as I will try to show in this book.

the construction analogy – to make good use of scientific and technical progress.

The term "formation" was introduced to theoretical economics by Karl Marx. Besides this fact and besides using some formation names originating from Marx's socio-economic theories, this book has no meaningful intersections with Marxism. However, it is worth mentioning materialism as a methodology that I support, not in the philosophical sense of the word but literally. From my point of view, Marx's materialism was a temporary stage in the materialistic perfecting of theoretical economics and philosophy. In the 18th and 19th centuries, the scientists' fight with the religious interpretation of the structure of the world led them to radical demonstrations of a person's independence from the church. As often happens with radical changes, economic theories took a turn in the other direction. In lieu of God, man was endowed with mystical powers to create some speculative "value", allegedly hidden in the product itself and thus distinct from the product's price, which is also routinely called "value", with the key difference that price is visually represented by a certain monetary equivalent. Belief in the existence of some "flowing clots" or "abstract human labour" seems to be essentially close to religion. No wonder that in all 14 years of my entrepreneurial "lab research" I have not seen anything like this. This study is based on the realities of the world around us, on materialist categories.

As it can offend the ear to juxtapose "matter", objectively existing and "categories" (see *Glossary*), subjectively represented by man, I will explain the materialism of the category I understand as the *veracity of human perception* (either sensual or numeric). To paraphrase, you and I can have different opinions about a chair I am pointing at – Is it good or bad? Do we need it or not? – but we still agree that it is a chair. This definition is insufficient to explain "everything" in the universe. However, it should be enough to deal with economic realities linked to decisions being made by one exact biological species, *Homo sapiens sapiens* (hereafter referred to as *Homo sapiens*), on planet Earth. At least from the dawn of human civilisation to our present day, materialism in this narrow sense is a prerequisite to enter the real economic world.

This definition of categories' materialism makes the use of reflections and representations as basic categories impossible. Ideas do matter, and humans not only can but must think in order to increase their share of material wealth. Thoughts themselves originate from very material brain activities. However, before they manifest themselves in a material form

adequately perceived by other people, thoughts can only be a bridge to the economy. For example, while intellectual property is not yet embodied in a patent registration, book publication or in another materialistic event obvious to a bystander, the fruits of thought will not become part of the economy or part of actual events.

Not everyone is likely to completely share my view on the "materialistic" criteria with this very succinct description, so let me point out that I am simply describing the boundaries within which our study will unfold. All *basic* categories in it are materialistic exactly in this mundane sense. They represent material objects and numbers, whose objectivity should not be doubted, even if the reader does not agree with our reasoning about the cause-and-effect relationships among these categories. Below, we will lay out some basic categories of our study, with very minimal explanation at this stage. In this introduction, we are going to elaborate on only one category, namely "property". When saying "property" without any explicit decoding, we assume one of the following two fundamental meanings of it.

First *fundamental postulate: property is something that belongs to people* (in the form of private or collective property). To set the proper tone, let us reiterate it as follows: property is something that belongs to *Homo sapiens*, a biological species dominating planet Earth. Everything that is used in our economy belongs to the human population. This biological emphasis is strong. If we apply the "right of ownership" concept with a legal tone, it may feel like there is a certain higher authority that confirms the rights of *Home sapiens* for planet Earth or at least for its biosphere. In fact, humans have received this property due to natural selection and if we try to find any "right" here, it would be the "right of might", which thus deviates from the legal sense. We can add that the stated tie to biology is not in the way of our study as it does not impose obligations on it, unlike mathematics or jurisprudence. We use biological references mainly to point at an "umbilical cord", so later we'll talk in detail about biology as a fundamental science for theoretical economics in such a fundamental thesis as "*Psychology and rationality in theoretical economics …*".

Now that we have introduced the "property" category with a biological emphasis, it is fitting to introduce "the right of ownership" with a clear legal emphasis: inside the population of winners, relations between the owners need to be regulated. However, there are some nuances here. There are relations between nations and within the nations. In politics, especially in international relations, the right of might often dominates the rights of

owners and the winners write their own laws. As human civilisation develops, this situation evolves, but violence still takes place when certain people do not recognise the rights of ownership of others. Two main manifestations of such violence are warfare and criminal offences. Let's leave these to political and legal scholars and return to our description of ownership as it applies to the economy, given that the above paragraph has simplified our task of formulating the next important statement.

Second *fundamental postulate: in the economy, owners recognise the rights of other owners*. The author is not to be considered naïve – respect for rights to property in the economy can depend on the level of civilisation development. However, this respect for owner rights in the economy at practically any given moment has been much higher compared to the respect for these rights in politics, to say nothing about criminal offences. There is a simple but very important biological explanation for this phenomenon. Species other than humans might also have "economies" as they produce (mainly harvest but sometimes also process) certain products, at times even using a simple means of production. However, humans became smart enough at a particular stage of development to not just steal or confiscate another family's property but, recognising the rights to property of others, to exchange it for something they already have.

A macroeconomy, being a set of exchanges or deals, is a "temple" of theoretical economics in our framework that we'll explain shortly after decoding the four basic types of property. We put "temple" in quotes simply because we won't need to use any mysterious substances to explain "value" creation in a microeconomy. Instead, we use good old price, which is easy to understand and calculate.

Let's list the primary, fundamental categories of our study (here, "primary" does not have any special methodological meaning; we are just saying that some of these categories break down into other fundamental categories): **property, exchange (deal), property increment, property alienation, price, managing owner, physical turnover in monetary terms, credit turnover, costs, cost regulators**[4] **of managing owner** and **profit**.

[4] The existing model of the world economy is tied to *bureaucratic* regulators (both national and supranational). The latter (especially the central banks) play a key role in managing the modern financial system. In our new formation, *market* regulators

"Property" contains four basic elements: **goods, people, land** and **money**. "Goods" are commonly referred to as **commodities** in deals. For ease of understanding of the text by English-speaking readers, I use the term "goods" routinely, unless minor loss of rigor is crucial here.[5] "Money", in turn, breaks down into **money as credit** and **money as payment**.

We consider **bilateral (purchase and sale)** and **unilateral (lease)** basic exchanges (deals). We'll use symbols "↔" for bilateral and "←" for unilateral property alienation. The arrow shows the direction of property alienation between managing owners. When crossed with basic ownership types (C for commodities, P for people, L for land, M_C for money as credit, M for money as a means of payment), we get the following four basic deals:

Purchase and sale[6]: C ↔ M

Lease: P ← M, L ← M, M_C ← M

In all three basic lease deals, only M (money as a means of payment[7]) is being alienated. M serves as the price of leasing people, land and "money

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will play this key role. You will see that we use this "influential" term without any exaggeration.

[5] The term "commodity" in English has been traditionally associated with raw materials and exchange trading. This is different, for instance, from Russian, where it applies to all kinds of goods.

[6] Including purchase and sale of services (lease of goods). See also "*FAQ: Services ...*" in Chapter 4. Absent any special disclaimers, whenever we discuss turnover under the term "commodities", we mean "commodities and services" (similarly, under the term "goods", we mean "goods and services").

[7] Here, we have to at least mention some important links that would require more detailed discussion in a theoretical textbook. Without losing sight of the goals of our study, here is my digest. The "goods" category is fundamentally characterised by the presence of usage wear. Goods are made for purposeful destruction (wear), which is consumption – be it personal or production. Thus, property alienation, one form of which is wear, is baked into the natural essence of goods from the outset. For the owner of goods, this alienation happens regardless of whether goods are consumed for personal or production use, and regardless of how and whether the owner accounts for wear (for example, by calculating depreciation). This alienation, a natural essential characteristic of goods, is organically shown in price categories. For example, we can preserve the goods to make physical deterioration negligible, but we'll inevitably incur extra preservation and storage costs. Generally speaking, all four basic types of property are susceptible to diminished functionality after being employed by the managers: goods and money (paper currency in this case) wear out, while people and land simply get tired. However,

as credit" in these deals, also known as wages, rent and interest, respectively. These are **basic cost types** for a managing owner and can be treated almost as **basic cost regulators**, but in a strict sense, these are the *rates* of wages, rent and interest. This difference is most conspicuous in credit deals[8] whereas in the two other lease deals it is less visible. Thus, examples of basic cost regulators proper are **the price of hiring a worker for a unit of time** (further referred to as **"wages"**[9]), **the price to lease a**

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three out of four – people, land and money (in our study we call these *resources*, separating this term from the well-known expression "natural resources" that I find difficult to explain, even if by default it is most often used in the same sense as "goods") – are able to restore their functionality without direct involvement of firms and their associated costs (firms are not indispensable to sustain life on planet Earth). In this exact context – from the manager's viewpoint – we are talking about resources not susceptible to wear in a *microeconomy*, and so we carry this thread over to a *macroeconomy*. This macroeconomic sustainability of resources is organically reflected in lease deals with unilateral property alienation (where only money as a means of payment is being alienated), which are basic deals in resource turnover. As for wear and tear of goods, including fixed assets, it is non-discretionary, and no manager would avoid incurring maintenance and replacement costs. That's why purchase and sale deals, characterised by their two-way property alienation, are more suitable for goods circulation, including the lease of goods described as services. ***We'll wrap up this purely theoretical footnote with a general methodological observation***. Notice the logic that we first used when talking about firms: all reasoning was from a managing owner's ("the person who pays for everything") viewpoint. This logic forms the backbone theory of our "view from below" approach that we mentioned earlier as one of the characteristics of our study. Among other things, it will allow us to recognise certain false stereotypes (usually related to bringing the reasoning over to a macroeconomy) and avoid a good deal of pointless narrative.

[8] When one pays $100 a year to obtain a loan of $1,000, this 10 per cent is called "interest" in everyday jargon. Strictly speaking, interest is actually $100, while 10 per cent is the credit price of the currency unit (in this deal) or an interest rate. Let's rejoice that the last and most important term is equally understood in theory and practice (we will not focus on the tricks of bankers who tend to interpret freely the accrual and payment of interest at what seems to be clearly marked as an *annual rate*).

[9] Unless noted otherwise, all variations of prices in this text are so-called "nominal", i.e. usual everyday market prices that we'll refer to as "final" prices as opposed to "real" ones. As far as I see it, the prices that are typically called "nominal" are in fact real ones; as real as the amount of property used by managers in an actual deal. On the other hand, so-called "real" prices may be best described as derived ones. So, in order not to confuse the reader, I will not use this terminology at all, but in some complex cases I will say, for example, "the price of [something] expressed in [something else] (goods, money, foreign currency)".

unit of land for a unit of time (further referred to as **"rent"**[10]) and **the price of borrowing a currency unit for a unit of time** (further referred to as **"interest rate"**). The fourth basic regulator is a kind of "money as a means of payment" in the one and only deal where money in a sense can be the price of itself, namely **the price of a national currency unit expressed in a foreign currency** (further referred to as **"cross-price"**). If you have paid attention, the last basic regulator is not related to lease deals but is a specific case of the purchase and sale deal (international currency exchange), where foreign currency plays the role of specific commodities. This should not offend the ear if we assume that within a national economy there cannot exist money and some "other money". Only one thing can be designated as money. This theoretical postulate would need to be stretched to apply to capitalism, but in our new formation it gains visual rigor.

Negative profit (or loss) is yet another basic category that is a variation of profit and serves as the **final cost regulator of a managing owner**. Negative profit can complicate, and in extreme cases (one time or cumulatively) stop altogether, the managing owner's activities at the helm

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Sometimes, this price is a form of derived price: for example, a payment was processed using the national currency but recalculated into a foreign currency for comparison. These are rare and exceptional cases, and it will be clear from the context whenever we are using a derived price. In general, I make infrequent use of derived prices, typically called "real" prices, and I am not going to argue that their use can be fully justified, especially for analytics.

[10] In our text, the term "rent" is used in its simplest meaning, as the rent paid for land use. To my mind, both differential rent I and II seem to be speculative categories, brought to life by attempts to construct the tower of economic laws around "value", "utility" and the like. From my point of view, these categories are speculative since they do not manifest themselves naturally in practical economic life. One way or another, we won't need to use these categories in our study, as we'll rely on the naturally precise categories. It must be clear to all that the price of a land parcel with an oil deposit underneath will be higher than the price of the same parcel with a gravel deposit, and that the price of a gold jar will exceed the price of a bread loaf. And if in some exceptional cases the reverse is true, we'll accept this as a reality which is indeed a deal; an actual exchange that takes place as a result of mutual consent between owners. We will be building our study based on facts, primarily reflected in final prices. In this case, the price of land is reflected in rent as the price of leasing the land. Also, rent is not always charged as an easy-to-understand time rate. As in the case of mining, it can be calculated depending on the amount of goods extracted from the land (alternatively upon the sale of them in the form of commodities). This feature is not unique to rent alone, as wages can also be hourly or piecework.

of the firm, as these are not effective from a market viewpoint. This final cost regulator is the "fifth element" having a direct impact, a net sum of all other basic cost regulators. If other cost regulators are formed in particular deals (for instance, the interest rate in money loans and wages in a labour hiring), the negative profit is formed as the bottom line of all preceding deals. As a rule, revenue (and thus forming the final profit) takes place in purchase and sale deals for non-banking firms and in credit deals for commercial banks. However, costs are directly impacted by many other diverse deals.

You might have paid attention to one common feature that unites all our cost regulators: they are all expressed in terms of money and on all occasions, money is used as a means of payment. Therefore, all of them are either market-driven prices as basic cost regulators, or an aggregated total sum as a final cost regulator obtained by using simple arithmetic operations. This observation will help us further refine the scope of this study, e.g. to exclude barter deals where no money is used at all. These deals certainly make their own economic sense as all the people, including entrepreneurs, do exchange mutual services. Our main reason to narrow the scope this way does not stem from neglecting barter but rather from the inability to apply scientific methods to it. Without money involved, we don't have a common measure to evaluate the barter.

You won't find any sophisticated mathematics in this book. Apart from simple arithmetic operations used by market participants to account for their business processes, and a technological "black box" of production where mathematics is used by engineers, more complex mathematical models are always fraught with varying degrees of conditionality and assumptions that formulas or graphs represent actual, real life processes. Not everyone will agree with this emphasised disinterest in mathematics, especially given its universal use in theoretical studies of recent decades. One way or another, we will only be using precise equations, specific economic equivalencies produced in the millions by everyday economic activities. These are understood as deals in which managing owners[11] evaluate different kinds of property and equate them by agreement. In my mind, there are no other theoretically important precise equations in

[11] If the term "managing owner" triggers questions, please look it up in the *Glossary*. And if upon taking a glance at the longest and most boring definition in the history of theoretical economics you conclude that it is not that critically important, this will also be a good choice. In short: as a rule, we assume "entrepreneur" whenever we use the term "managing owner" in this text, but generally speaking, it is every one of us.

economics that would compare different kinds of property, or functions describing precise proportions between them. Engineering, logistics and accounting calculations have important practical (applied) meanings, but not theoretical ones. With that said, for our precise reasoning, we'll use ***a set of deals where prices expressed in money are forming***.

As previously mentioned, we will call this set of deals a ***macroeconomy***. We will use this term only to describe a significant sector of a national economy. This definition is narrower compared to the commonly accepted understanding: "an object being researched by macroeconomics" (in both plain and scientific lingo, it is often also called "macroeconomics"). Meanwhile, the traditional term "macroeconomics" in its alternative meaning of "an object to study" looks more like what we call in this text a "national economy". As the latter is naturally the main subject of our theoretical study and given that the essence of theoretical postulates is formed in a macroeconomy (let me remind you that in our study this is defined as a set of exchanges), the difference between the traditional definition of this term and ours is not crucial. But it does exist, of course.

Besides macroeconomy, a national economy contains some other fundamentally important sectors, including the following "reproductive" blocks. There is a microeconomy proper (goods and services), households (people) and a government in a broad sense, including the central bank (money). The fourth basic type of property – land – unfortunately does not reproduce. Unlike relatively static reproductive blocks, a macroeconomy appears to be a set of operations (processes) which maintain economic connections between blocks as well as within them.

To get a better visual understanding of a macroeconomy, let's portray a deal as the movement of money accompanied by (a) the movement of property that is changing hands in exchange for this money and (b) the mutual exchange of relevant information. Movement of non-cash money here is facilitated by commercial banks.[12] As for the movement of property

[12] Here, we are talking about the existing formation, but in the first paragraph of Chapter 1 we are going to find out how it will be set up in the next formation. All the while, commercial banks will remain macroeconomic enterprises. We may also note here that since non-cash deals and the next formation are often mentioned in the same context, the evolution of money under the PCM will sooner or later cause cash to disappear. This will not make it easier to collect taxes – in this book you will not encounter this reasoning. In fact, a higher tax collection rate may actually put the shackles on national economic development. This is not good or evil per se and nobody questions the need to collect taxes; this is just the way it works in a

and information, these are largely performed by third parties specialising in transportation, logistics and communications.[13] Note that money transfer can take place entirely within a firm. Likewise, transportation, storage and communications may sometimes be classified as internal firm operations. No deals take place in this case and all these events fall within the scope of a microeconomy.

That is, the indication that – from an in-kind point of view – reproductive blocks can be thought of as static property sets and a macroeconomy can be represented as a set of operations needs to be accompanied (as often happens in economics, especially when using in-kind categories) with a "generally" disclaimer. There are commercial banks, with all the property they own, that do not fit our definition of a macroeconomy but in fact they are clearly macroeconomic enterprises (one might be tempted to place commercial banks into some reproductive block labelled "money" but later we'll explain our reasons for not doing this). There are also certain operations that look macroeconomic but cannot be properly classified as such. That's why the best possible definition of a macroeconomy is as follows: a set of deals where prices in monetary terms are formed.

The most diligent study of a macroeconomy in a sole historical epoch will not lead to the discovery of a system of fundamental economic laws. It takes less effort and ensures more precision to compare the present day macroeconomy to one of the past. The kinds of deals and prices, as well as basic property types, have been changing (functionally or materially) significantly as human civilisation developed, driven by scientific and technological progress. By the way, modern economists enjoy an undoubted advantage over the great theoreticians of the past. None of those at the peak of their intellectual maturity had comparable opportunities to obtain and analyse current economic data, nor did they know what real economic life would look like at the turn of the millennium, nor imagine what technological achievements directly impacting economic development would be available.

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market economy and the way it will work under the PCM, hence it cannot be a theoretical argument. Leaving details aside for now, we can say that the PCM payment system will work like a Swiss clock when no cash is used but incur additional costs whenever cash is in play.

[13] We can add that in our study, "infrastructure" is understood by default as specific technical assets, including buildings and means of communication designed to carry out the three said functions, without any connection to specific deals and sectors of the national economy. This is just a term we define and there is no special place for infrastructure in this study.

Studying how basic categories and links between them evolved over time allows us not only to refine the principles of changes of an economic epoch (formation) but also to make an educated guess about the look and feel of the next formation. Here, I will get to the point and set out the general scheme of historical-economic logic that, in my opinion, forms the cornerstone of the dialectical unity of our civilisation's economic development.

In the most stringent way, economic formations are defined using the concept of freeing cost regulators, which are superimposed on the evolution of the physical form of money. This classification is easier to understand once we pre-examine the historical metamorphosis of the basic types of property. Basic resources – people (P), land (L) and money as credit (M_C) – are gradually used less and less by managing owners in the outright private property mode.[14] Until they are barred (i.e. until certain resources are classified as non-reproducible within a microeconomy by law), corresponding economic formations are called slave-owning (P), landowning (L) and capitalist (M_C), respectively. Conversely, commodities

[14] The discussions we have later in the main text fit well for people and money as credit. Land, however, may pose additional questions and hence the first phrase in this paragraph. Nevertheless, our reasoning is rigorous enough to cite that (and this is a subtle moment) the usefulness of the right to private property is most precisely manifested in the reproducibility of this type of property inside a microeconomy, i.e. by managing owners. For example, the children of slaves belonged to slave owners, while goods producers could extend credit under capitalism. *However, land is not reproducible in principle, so the rule of reproducibility (or non-reproducibility) inside a microeconomy shows precisely, and without any ambiguity* (so this is not a stretch and to agree with it someone would not need to show compassion to the author)*, why our reasoning does not quite fit in the case of land.* Before we continue on to basic cost regulators, the principle of usefulness of the right to private land will have to be only generally understood. But the non-reproducibility of land is such a powerful input factor that we won't be able to avoid reservations while talking about basic cost regulators. In this book, you will encounter a few subtle moments requiring more attention, but the non-reproducibility of land is not simply a subtle moment in the relationship between the author and the reader – it is built into the foundation of our economy. There is always "something wrong" with land; for instance, agriculture may not quite fit into the principles of economic management or into theoretical generalisations, requiring a special approach in terms of laws and categories. One can abstract from this inconvenience and many do just that (with the understanding that in theoretical economics it is easier to do than in practical management), and this study is hardly an exception. However, we made a point to indicate the root cause of problems: ***the non-reproducibility of land***.

(C) are used (as they can be reproduced in a microeconomy) by managing owners in the outright private property mode. When this practice was questioned and barred, socialism was born. The essence of basic resources' metamorphosis is even easier to understand if we note that resources are gradually (step by step) shedding their commodity component. During the last few thousand years, when it made sense to talk about the economy, people always remained people in their physical form but, for economic purposes, slaves were essentially a commodity and human surrogates. Thus, a purchase and sale deal P↔M was often used in lieu of a basic lease deal P←M (despite the fact that C↔M is a basic purchase and sale deal). As for the M_C part, under capitalism the use of commodity and money surrogates (in general, securities; in this case, securities with a credit component, as we are talking about money as credit) has gradually grown to a disproportionate size, even for capitalism adherents.

This simplified understanding, described in the previous paragraph, does not include socialism, indirectly suggesting its optional nature for Mediterranean civilisation, whose development (at least from a mere economics viewpoint) eventually came to determine the course of global economic development. For now, staying within the scope of this simplified understanding in order to more easily classify formations, let's write down in one column our four basic economic deals:

C ↔ M,
P ← M,
L ← M,
M_C ← M.

On the left side, we have all the resources getting rid of their commodity component over the course of economic evolution as well as the commodities themselves. On the right side, there is only money. In the scope of this study, we will use the definition of money as valuable numbers used as a means of circulation (details are in Chapter 1). Over the course of evolution, money gradually shed its goods form (this form is increasingly less dominant than the numerical essence of money – it is impacting the value of money less and less) in this simplest physical understanding: gold (metal) money → paper money → digital records (non-cash money).

There is one subtle moment that illustrates the difference between commodities and goods: while analysing metamorphoses on the left side

of deals, we noted a "commodity essence", but in the preceding paragraph we spoke about a "goods form" of money. In the first case, the physical form of these property types is not essential. More important is the level of rights on this property bestowed on managing owners by law (full rights or limited rights). In the case of full rights, this property gets its "commodity essence" that under our PCM model, the supreme formation, will be reserved (within a single national economy) exclusively for commodities proper. Conversely, change in the physical form of money is deterministic when we observe its metamorphoses. As the physical form does not depend on the type of deal (remember that a good becomes a commodity only in a deal), it would be more accurate to talk about the "goods form".

The emergence of money as numbers blatantly demonstrates the transition of people from the very first and longest formation (traditionally called primitive) to economic formations proper, and for Mediterranean civilisations this would be the slave-owning formation. It is clear that the latter (slave-owning) formation is called this particular name not because there was no slave ownership in the former (primitive) one. It is less obvious that while using livestock, seashells and other goods as equivalent exchange media was undoubtedly a necessary step towards using money, the very first real money was metal. Even when this money had no minted denominations, comparing the weight of homogeneous coins made economic measuring much easier and facilitated the work of the basic cost regulators.

The evolution of money also played a major role in the emergence of two intermediate formations (the fifth and the sixth): paper capitalism[15] and

[15] Present-day capitalism is based on the centralised credit issuance of money, where the gold standard has been abandoned in favour of reserve currencies domination. This domination led to the emergence of two cardinally different (which is important from a theoretical point of view) groups of countries: "normal", or peripheral, countries and the issuers of global currencies (now mainly US dollars and euros). We will also call these groups "near-classical" and "wonderland" respectively, paying tribute to the classical economy. We will also briefly call the existing formation "paper capitalism", as the alternative label "credit issuance capitalism" sounds awkward: both capitalist formations are founded on the credit issuance of money. In general, as we'll try to show later, the *theoretical essence of capitalism* is the nearly unlimited use of diverse *credit* operations, and commodity and credit surrogates, while the credit issuance of money is only part of the system. The first systematic description of paper capitalism was attempted by Keynes. The classical "gold" capitalism of Adam Smith was transformed into this new formation without any pronounced, sudden jump. To me, these two economists, along with Marx (socialism), have made the

socialism, respectively. While the emergence of socialism is best described by the abandonment of the final cost regulator (negative profit), the evolution of money should be exclusively[16] credited for turning "gold" capitalism into paper capitalism. The latter itself is an intermediate formation, due to the intermediate nature of paper money in the transitional process from gold to non-cash money. The simplest historic timeline shows the transitional nature of paper formations: compared to the length of dominance of the gold (metal) standard and the length of dominance of the future non-cash standard, paper capitalism has a very limited life span.[17] It would seem to be a tiny twist in history, especially

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most significant contributions to theoretical economics. However, Adam Smith was a true pioneer of regarding theoretical economics as a science and it was he who introduced the "invisible hand" metaphor. We keep that in mind while building our logic upon its quite visible parts (namely, basic and final cost regulators). With all that, Adam Smith and, for instance, François Quesnay, who along with other physiocrats called for *laissez-faire* ("leave alone") policies, stressed the need for society to encourage the personal initiative of entrepreneurs. This emphasis was quite necessary in times when administrative pressure on the economy on behalf of the aristocracy was not at all lightweight. Now, when capitalism is so powerful, a focus on basic and final cost regulators would be more precise and more fitting, to bring up not only the society but also entrepreneurs by using stringent discipline. The goal is to create and maintain a highly competitive economic environment, which in turn would bring us closer to achieving the ultimate goal: *having minimal costs* when producing goods destined for consumption by *Homo sapiens*.

[16] If the word "exclusively" leaves the reader with an impression of a stretch (traditionally, any narrative on the history of capitalism points to some impressive technological achievements), let me clarify that we are comparing the influence of the evolution of money to other categories of *theoretical* economics. This is my instant technical disclaimer (I have to make it, though it may not help much). We will go over the details in Chapter 2 ("*Insert: Rough History*") and I hope this will be interesting. However, this will cause an increase in "dimensions" of the views on the economy (it can be viewed from different angles and none of these are false), which appears to be unnecessary in anticipation of Chapter 1, full of theoretical details on the movement of money.

[17] To be more specific, I put the beginning of paper capitalism in 1913, the year the Federal Reserve System was created in the US. It would be impossible to fully justify the use of this or some other date, while there were earlier precedents of centralised paper money issuing (in France or Britain). However, the centralised paper money issuance by one leading national economy in the 20th century triggered this chain of events (the law of 1913 → stock market crash of the 1920s → Great Depression → transformation of the US dollar into a global currency → abandonment of ties between the US dollar and gold) and gradually separated the new emerging formation from gold capitalism, where paper money typically