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Gresham's Law

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Introduction

The article examines the historical origins of **Gresham's Law**, *Bad Money Drives out Good Money,* the way it has evolved on one hand, and its monetary significance on the other. In fact, different phrasings of the Law have different meanings. According to the author, the problem is not what makes bad money to good one, but rather the influence of the devaluation of the legal tender on the monetary aggregates.

Sir Thomas Gresham (1519-1579), a 16th century banker who worked in the Netherlands as a royal agent for Queen Elizabeth, is considered to be the first one to formulate the law named after him "*Bad Money Drives out Good Money*".

This law indicates the following phenomenon according to Jevons who was the first one to formulate it saying that "*bad money drives out good money, but good money cannot drive out bad money*". Nowadays, Jevons' version is the famous one since it expresses the insight of the law the best [Jevons, p. 81].

This phenomenon was common at all times and places, just like apples fell before and after Newton; that is as long as the coins' fixed value or quantitative ratio (compared to their metal weight) changes, or as long as the quantitative ratio between two common payment methods has changed for the best for one, and for the worst for the

other. The change may be the result of a political manipulation, the discovery of mines, or new monetary technologies.

The origin of the Law

Macleod was the one to claim the term "Gresham's Law", based on Sir Thomas Gresham's letter to his queen, Elizabeth the first. In his letter, Gresham is trying to explain to the queen the importance of coin preservation (which her father, Henry the 8th, has depreciated constantly) in order to prevent the escape of gold from the kingdom, and so he writes:

> *Ytt may pleasse your majesty to understande, thatt the firste occasion off the fall of the ex- chainge did growe by the Kinges majesty,your latte ffather, in abasinge his quoyne fffrome vi ounces fine too iii ounces fine. Wheruppon the exchainge fell fffrome xxvis. viiid. to xiiis. ivd. which was the occasion thatt all your ffine goold was convayd ought of this your realme.*
>
> http://scans.library.utoronto.ca/pdf/3/1/guntonsmagazine07guntuoft/guntonsmagazine07guntuoft_bw.pdf p. 19

Gresham's phrasing (in this letter) is far from being the phrasing of a law, and is the phrasing of a phenomenon at the most.

The reason Macleod has decided to see the definition of this phenomenon as a law, lies in the **similarity** he found between the monetary phenomenon to the gravity phenomenon which Newton phrased as a law in physics [Roover, p.91 n. 185].

The classic Economics literature shows countless references to this phenomenon. As Schumpeter notes: "*The so-called 'law' can be*

found in many earlier writing, considering its trivial nature, the question of priority is, however, without interest." [Schumpeter, pp. 342-3, n. 4]. However, one can understand the way in which those before us have perceived the monetary side of it and its importance by tracing the origin of the law especially after it was rephrased.

There are different versions of the law. Tracking the way the law was phrased reveals the differences. The difference between the inflation's influences (which caused by the increase of the local currency) on the local currency/foreign-currency ratio on one hand, and on the ratio between two different local currencies on the other. In a paperless monetary world the two influences necessarily merge. In a paper money world there is a difference. Supervision of Foreign Exchange in many countries shows the attempt to control the two influences differently as well as separately.

Nowadays, we distinguish between the influences of inflation (existing in the country's legal tender) on the use of monetary aggregates inside the country (according to profit, risk and liquidity), and the influences of inflation on imports and exports, according to the foreign exchange ratio. However, in the past, one could not distinguish between the two phenomena, among other things because *all* money was metal made (gold, silver, copper and iron). In our world there is no effective physical restriction on money printing (if any it would be insignificant), and every country has the right to print out money in the quantity, quality, shape and color it sees fit, as part of its sovereignty.

Jevons was the first one to notice the connection between Gresham's Law and the monetary functioning. That is, when the coins ratio changes, their functioning changes as well and splits [Jevons, pp. 16-18]. While Orseme Nicole (1325-1382) and Gresham have focused on the export of the good coinage out of the country while the bad

coinage stayed, Copernicus Nicole (1473-1543) focused mostly on the internal national influence.

Seven years after Macleod's book was published [Macleod, 1858]; Wolowski has published his French translation (from Latin) of the essays of Orseme and Copernicus on coinage [Wolowski], and turned Macleod's attention to the source of the claim and its phrasing as a phenomenon. Macleod, in his second book [Macleod, 1896], tries to right the wrong by writing:

> *"But in 1864 my friend, M. Wolowski, published the Treatises of Oresme and Copernicus, by which it appeared that these great men had fully explained the matter 160 and 32 years respectively previous to Gresham, so that this great Law, which is as well and firmly established as the Law of Gravitation, should be called the Law of Oresme, Copernic*s, and Gresham."*
>
> *This Law may be stated in the following terms: "The worst form of currency in circulation* ***regulates*** *the value of the whole currency, and drives all other forms of currency out of circulation." This was the first great fundamental Law established in Economics, and it is now recognized that it governs all discussions on Money and Coinage.* [Macleod, 1896 p. 38, 39] (my bold B.T.)

In this "correcting" paragraph lies a different version of the law. This version already speaks of the worst currency which functions as a **regulator** for the monetary system. It is the same as a production-factor which is in full capacity in the production process, therefore <u>dictating</u> the solution for the production-function.

One should note the fact that the term "circulation" is problematic. This is because mostly, the intention of the use of this term relates to market circulation, however during inflation "*bad money drives out good money - from the markets* ", and '*good money drives out bad money - from the wallets'*, whereas during deflation, the opposite accrues. In my opinion, the credit to the phrasing of this phenomenon and setting it as a law goes to Macleod.

Aggregated-money going through devaluation is very similar to beams of light passing through a prism. The light beams, in their natural appearance look neutral, and one cannot distinguish between the colors combining them. When the beam goes through the prism, it splits into its components according to their color. So does the aggregated-money going through devaluation. The quantitative ratio among the components changes, since the aggregate splits into its components according to their functions.

Ancient sources

Currency devaluation phenomenon was already stated in ancient sources:

The Bible

1. **Machpela Cave transaction**: (Book of Genesis, 23/16)

> "*And Abraham hearkened unto Ephron; and Abraham weighed to Ephron the silver ... four hundred shekels of silver, according to the current commercial standard*".

Aartom interprets at **Cassuto** (as at other interpreters)

> "*Commercial standard - current money transferring from one hand to another between merchants, in other words that is customary among merchants as a method of payment*".

According to Gresham's law, one can understand that Abraham, who promised Ephron full payment, gave him **good** money **-** in market *and* wallet altogether. Not only do I agree to pay the price you have set, I even pay you with good money, for the market and the wallet altogether.

Usually the one paying with good money receives a discount on the price of the transaction. Like the use in ‘greens’ (dollars, were called ‘greens’ due to their green color) as an alternative to the Lira and the Old Shekel during Israel’s great inflation of 1978-1985.

2. **<u>The building of the Temple:</u>** (1 Kings 10/21: Divrei Hayamim II 9/26)

> *And all King Solomon's drinking vessels were of gold…*
> *none were of silver: it was nothing accounted of in the*
> *days of Solomon.*

Since silver metal was used as a method of payment in ancient Israel, one can learn from this verse and from the double meaning of the word *kesef* (in Hebrew money, silver). In the days of Solomon there was high inflation as far as this metal (silver) was concerned. The balance between the metals - silver and gold, which were used among other things as means of payment, was broken so bad against the silver metal until “*It was nothing accounted of*”.

Silver *was nothing accounted of* indicates a situation of hyper-inflation (in terms of silver metal) in the days of King Solomon, and can shed light on the background to the division of the kingdom after him. Since under these conditions, the distribution of the nation’s resources and wealth changes radically, the people become impoverished, and the kingdom crumbles down, just like a disease or a fire which damages are felt only after they have occurred.

3. **The destruction of the Temple:** (1 Jeremiah 6/30): [Update 29.7.2021]

> *30 They call them rejected silver. Because the LORD has rejected them.*

This is not only metaphor but the reality in those days (6/28-29)

> *28 All of them are stubbornly rebellious. Going about as a talebearer. They are bronze and iron; They, all of them, are corrupt. 29 The bellows blow fiercely, The lead is consumed by the fire; In vain the refining goes on. But the wicked are not separated.*

One should note that throughout generations and transcripts of the bible, the words "*according to the current commercial standard*" and "*Nothing*" were never dropped, although seemingly, they do not contain any additional information.

4. The **Mishnah and the Talmud**:

> *...bad coins buy the good ones however, good coins do not buy the bad ones*" and "*this is the rule, anything lesser than its friend buys its friends*

I do not believe they have grasped the dynamics behind the phenomenon, but merely stated it.

5. **Aristophanes' play "The Frogs":**

> "*The course our city runs is the same towards men and money. She has true and worthy sons.*

She has fine new gold and ancient silver,
coins untouched with alloys gold or silver,
each well minted, tested each and ringing clear. /
...Yet we never use them!
.../these we spurn for men of brass...."

English translation (Internet Classics Archive)
http://classics.mit.edu/Aristophanes/frogs.html

The way Aristophanes uses this metaphor, indicates that although he detected the phenomenon he did not fully understand it. For the citizens of Athens did not behave this way out of snobbism, but due to a fundamental, financial necessity.

6. The following phrasing from the 12th century was found:

"*Sometimes silver **eats** gold,*
*sometimes gold **eats** silver*" [Monroe, p. 26].

The law

Following are two different version of the law:

Bad money ***drives out*** good money
Bad money ***regulates*** good money

Metaphorically, there is no significant difference between the two versions. However dynamically, these are two different actions. It seems like the problem does not lie in what bad money does to good money alone, but in what devaluation (of the legal tender) does to the aggregated money. It seems as if devaluation *splits* the functioning of different types of aggregated money to various uses, according to the relative advantage each component has separately.

While specializing in relative advantage of labor and capital makes the economy more efficient, the aggregated money subjected to Gresham's process loses efficiency, and seemingly forms a paradox.

However it only appears this way, since during an inflation (resulting from the increase of the legal tender relative to the output) the monetary system loses its efficiency since now it takes several types of money of the monetary aggregate to execute the same work usually done by one type of money - the legal tender. It is done by types of money that were not meant to do this in the first place.

For example: The common use of linked bonds in Israel during the great inflation (1978-1985) as value preservative, and the pricing in dollars (partial dollarization) instead of in old Shekel as a unit of measurement. The Old Shekel remains for transactions only. This is how the Old Shekel devaluation draws "partners" in carrying out its role - the linked bonds and the Dollars, or metaphorically speaking - The donkey to watch and the dog to plow.

Monetary functions

Throughout human history, many items were used as money: from livestock and cattle, beads and oysters, salt and pepper, rice and potatoes and pieces of fabric, to various metals. However, the advantage of gold and silver coins over the others slowly started showing. Gold and Silver are rare, noble and inert metals.

The functions of money are: its use as a unit of measurement, as means for exchange, accumulation and self-use. From the money's point of view, human history seems as a process of search after items that will be used as a monetary unit more efficient than those before them, while the efficiency test lies in their ability to fulfill these four

functions at once. Today the electronic money is considered to be the best.

Along with the gold there were always various items used as money, mainly coins of silver, copper and brass in early times, and paper, plastic and electronic money in modern times. Gold coins were almost always considered to be the "good money" and the "assisting" money would be considered the "bad money", since it was relatively easy to be manipulated quantitatively by the rulers and the governments.

Along with the evolving of the inflationary process (caused by changes of legal tender**,** output or both) the efficiency of the monetary system is being damaged, and so begins the specialization in the monetary functions. The good (and rare) money is being accumulated and is disappearing from the markets, while the bad money (which is to be found in abundance) is being used for transactions only.

The inflation creates a situation, in which *bad money drives out good money* - from the markets, whereas *good money drives out bad money* - from the wallets.

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