

THE EUROPEAN JOURNAL OF THE History of Economic Thought





### The European Journal of the History of Economic Thought

VOLUME 27 NUMBER 6 DECEMBER 2020 Special Issue: ESHET Conference Life Guest Editory: André Lapidus, Jéan-Sebasi Routledge

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rejh20

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Sofia Valeonti

To cite this article: Sofia Valeonti (2020) Simon Newcomb's monetary theory: a reappraisal, The European Journal of the History of Economic Thought, 27:6, 837-852, DOI: 10.1080/09672567.2020.1790623

To link to this article: https://doi.org/10.1080/09672567.2020.1790623



Published online: 15 Jul 2020.



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### Simon Newcomb's monetary theory: a reappraisal

#### Sofia Valeonti

PHARE, University Paris 1 Panthéon-Sorbonne, Paris, France

#### ABSTRACT

Whereas Simon Newcomb formulated the equation of exchange, he rejected the causality and the proportionality postulates of the quantity theory in some cases. To solve this puzzle, this paper relies on the distinction between the classical theory of money and the quantity theory of money and shows that, according to Newcomb, the quantity theory applied only for inconvertible paper money, while metallic money and convertible bank issues were regulated by different mechanisms. Understanding Newcomb's distinction between the different types of issues also sheds light on his stance in the monetary debate of the U.S. Reconstruction period.

#### **KEYWORDS**

Simon Newcomb; quantity theory of money; greenback debate

**JEL CLASSIFICATION** B12; B31; E41; E42

#### 1. Introduction

Simon Newcomb (1835–1909) was an astronomer and mathematician known to economists thanks to Irving Fisher. In 1886, Newcomb wrote his equation of societary circulation, which is known today as the equation of exchange.<sup>1</sup> After Newcomb's death, Irving Fisher (1909, 642) published an obituary note expressing his admiration for Newcomb's economic thought and his equation of societary circulation, while highlighting that "this equation, with due amplifications, represents the so-called 'quantity theory of money' in its highest form." Some years later, Fisher (with Brown 1911) dedicated *The Purchasing Power of Money* to Newcomb praising him again for his equation of exchange.<sup>2</sup> Historical studies of Newcomb's monetary thought have focussed similarly on his equation of societary circulation (Burns 1929, 574; Marget 1938–42; Hutchison 1953, 270–271; Spiegel [1971] 1983, 616–617; Humphrey 1984, 18–19). Accordingly, some of those studies have treated him as a proponent of the quantity theory of money (Dorfman 1949, 86–87; Barber 1987, 179). Yet, in some cases

CONTACT Sofia Valeonti 😡 sofia.valeonti@univ-paris1.fr 🗈 PHARE, University Paris 1 Panthéon-Sorbonne, 106-112 Boulevard de l'Hôpital, Paris 75013, France.

<sup>&</sup>lt;sup>1</sup> Newcomb's equation was not the first algebraic quantity equation (Humphrey 1984). It was neither the last one, as Fisher extended Newcomb's equation (Dimand 2019, 57).

<sup>&</sup>lt;sup>2</sup> Fisher dedicated a second book to Newcomb. In the dedication of his 1920 book entitled *Stabilizing the Dollar* Fisher writes, "to John Rooke, Simon Newcomb, Alfred Russel Wallace and all others who have anticipated me in proposing plans for stabilizing the monetary units." Fisher war referring to Newcomb's (1879) article in *The North American Review*, in which Newcomb (1879, 235) proposed a tabular standard of value. I wish to thank the anonymous referee who brought Fisher's dedication to my attention.

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Newcomb rejected this theory's causality and proportionality postulates. How is it possible for Newcomb to have been a proponent of the quantity theory of money and a dissenter to its key postulates?

The distinction between Newcomb's adherence to the quantity theory and his equation of exchange has already been suggested by Hegeland (1951) and Dunphy (1956). For Hegeland (1951, 87), "Newcomb did not employ the equation for the illustration of the quantity theory....Newcomb, in fact, never mentioned the quantity theory; only the law of value applied to money." Similarly, Dunphy (1956, 202–203) wrote that "Newcomb does not apply the equation of the societary circulation (VR=KP) to the quantity theory of money; he uses the equation in attempting to explain general value theory." Unfortunately, both Dunphy and Hegeland did not develop this argument any further.

The key to understanding Newcomb's monetary theory lies in the fact that he distinguished a different mechanism of adjustment for each type of money. Newcomb applied the quantity theory of money only in the case of inconvertible paper money. Metallic currency was regulated by its cost of production. Convertible bank issues were regulated by adjustment mechanisms based on demand for them. Inconvertible paper money, however, had negligible production costs and no automatic mechanism of adjustment could apply to it. Thus, only for inconvertible paper did Newcomb believe that quantity theory mattered.

This paper's interpretation of Newcomb's monetary theory relies on the recently introduced distinction between the classical monetary theory and the quantity theory of money. This distinction has been developed by Niehans (1978, 1987, 1990), Glasner (1985, 1989, 2000), Skaggs (1991, 1994, 1995) and Le Maux (2014). This literature studies the monetary theory of classical political economists and holds that two approaches to monetary theory could be found in the classical school of political economy: (a) one that applied the quantity theory of money irrespectively of the kind of issue, and (b) one that distinguished an adjustment mechanism for each kind of issue. The latter is referred to as the classical-monetary-theory approach, without it signifying that the quantity theorists distinguished one adjustment mechanism for each kind of issue: (a) Specie money is regulated by its cost of production; (b) convertible bank notes are regulated by quantity theory mechanisms.<sup>3</sup>

Reading Newcomb from a classical-monetary-theory perspective allows us to place him within the broader 19<sup>th</sup> century intellectual context. The classical-monetary-theory

<sup>&</sup>lt;sup>3</sup> The literature on classical monetary theory as different from the quantity theory approach has been criticized by Blaug (1995) and O'Brien (1995). While Blaug (1995, 32) adheres to Niehans' (1987) idea that classical economists rejected the short-run non-neutrality of money, he believed that Glasner (1985) took the argument "one step further" in order to defend a free-banking theory. The difference between the two authors lies in their definition of classical monetary theory. Glasner used the term classical monetary theory to refer to the classical political economists who rejected the exogeneity of money supply, while Blaug (1995, 32–33) uses a much larger definition that includes all classical political economists. This paper's aim is not to settle this debate, it rather relies on the distinction between classical monetary theory and quantity monetary theory in order to understand Newcomb's monetary theory.

approach includes economists such as Richard Cantillon, Adam Smith, Henry Thornton, John Stuart Mill and the Banking School. This tradition differed from David Hume's thought or the Currency School that applied the quantity theory of money irrespective of the monetary regime.<sup>4</sup>

Understanding Newcomb's distinction between the different types of issues also allows us to clarify his policy propositions in the monetary and banking debate of the U.S. Civil War and Reconstruction period. It was that debate that motivated Newcomb to begin examining economics in addition to astronomy and mathematics. In 1865, he wrote his first book on economic issues in order to contribute to the monetary and banking debates (Newcomb 1903, 402). This book made such an impression upon Friedman and Schwartz (1963, 18n3) that they considered it "the most sophisticated, original, and profound analysis of the theoretical issues involved in Civil War finance that we have encountered, regardless of date of publication."

The issues involved in the Civil War finance fuelled a monetary debate on the choice of the monetary standard during the Reconstruction period. The Union had financed the Civil War largely by issuing inconvertible paper money—the so-called greenbacks. After the war the question arose as to whether to allow them to be redeemed in specie. The question necessarily involved the banking system implemented during the war—the National Banking System—which obliged nationally-chartered private banks to make their circulating notes (national notes) redeemable in greenbacks but not specie.<sup>5</sup> Greenbacks and the national notes were both inconvertible to gold until 1879.<sup>6</sup>

Throughout the Reconstruction period, Newcomb published articles taking part in the monetary debate. He opposed the maintenance of greenbacks and the issuance of national notes in certain cases, and endorsed them under a different scenario. Newcomb considered that greenbacks were beneficial as long as the quantity in circulation corresponded to the quantity of paper money that would be in circulation under a specie monetary standard. Inasmuch as the government had not respected this condition, Newcomb endorsed the resumption of specie payments. Convertibility is also the key to understanding Newcomb's stance on the National Banking System. He endorsed the system only insofar as the banks could provide for the convertibility of their notes in gold. The conditional endorsement followed logically from the principles of his monetary thought.

The argument will be developed in two steps. Section 2 distinguishes between the three types of money in Newcomb's monetary theory. Section 3 uses the theory to understand Newcomb's stance in the postbellum monetary debates.

<sup>&</sup>lt;sup>4</sup> Other studies have placed Newcomb in the broader 19th century intellectual context insisting on different aspects of his economic theory and methodology, see Schumpeter (1955, 866), Dunphy (1956), Moyer (1992), Friedman (2008), and Wible and Hoover (2015).

<sup>&</sup>lt;sup>5</sup> For a more detailed analysis of the greenback debate: (a) From a historical perspective see Mitchell (1903, 1908), Sharkey (1959), Unger (1964), Timberlake (1964), Nugent (1967), Hammond (1970), Bensel (1990) and Barreyre (2014, 2015). (b) From an analytical perspective see Kindahl (1961), Friedman and Schwartz (1963), Calomiris (1988, 1992) and Le Maux (2017). On the National Banking System see Bolles (1886, ch. XI), James (1976), Calomiris and Mason (2008), Le Maux (2013), and Jaremski (2004).

<sup>&</sup>lt;sup>6</sup> This means that neither national banks nor the Treasury were obliged to convert their issue into gold.

#### 2. Newcomb's distinction between a metallic currency, convertible bankissue and inconvertible paper money

In this section I show that Newcomb, in line with classical monetary theory, distinguished different regulation mechanisms for each kind of money: metallic money, convertible bank issue and inconvertible paper money. The importance of this distinction for Newcomb is evident in the following quotation:

For instance, if a banker had always done business in a community which would allow nothing but coin to circulate as money, he would not thereby be better qualified to judge of the finances of a people whose circulating medium was irredeemable paper. Nay, he would be rather worse qualified, because he would be likely to adopt conclusions founded on his former experience, without duly considering the change of circumstances; *he might consider money as being simply money, whatever its material, and totally forget that paper and metallic money are governed by entirely different laws.* ([Newcomb] 1866, 18, my italics)

The term "paper money" could be misleading here, it may be interpreted to mean convertible or inconvertible paper money. Yet Newcomb (1865, 41–42, 126; [1886] 1966, 187–189) was especially careful to distinguish between convertible bank notes and inconvertible paper money. Convertible bank notes were convertible at face value and partially backed by specie or deposits. As for inconvertible paper money, Newcomb ([1886] 1966, 149) regarded it as a promise to pay money "and not the money itself" as long as it was not convertible into gold. Thus, the distinction that Newcomb introduces in the previous quotation is a distinction between two monetary regimes, one of convertibility and one of inconvertibility.

This distinction was a necessary one for Newcomb. Under convertibility, this is, under a metallic standard or one with convertible bank issue, the quantity of money could not influence, at least proportionally, the level of prices. This was not the case with inconvertible paper money, which could influence the price level proportionally. Those theoretical differences signified that the process of price determination, as well as the adjustment process of international exchanges, differed for each kind of monetary regime.

#### 2.1. Metallic currency

One of Newcomb's main focuses was understanding if the variations in price levels could be due to variations in the value of the standard of value. The best standard by which to measure value for Newcomb (1865, 21) was labour: "the real value of an art-icle, money included, is measured by the least amount of labor necessary to its possession." Thus, the "relative value of articles" was then determined by their cost of production in labour (Newcomb 1865, 13; 1866, 116) and the best standard of value was "the result of an average day's work of the entire community" ([Newcomb] 1866, 107). But this was not easily calculated, and he perceived gold monometallism as "the best attainable standard" because its value was relatively stable (107).<sup>7</sup> Under gold

<sup>&</sup>lt;sup>7</sup> While Newcomb (1877, 69; 1879, 228) continued to think of the gold standard as the best standard that had ever been implemented, after 1879 he expressed worries concerning the possibility of significant variations in the price of gold. This led him to endorse a tabular standard of value, under which the government would "issue paper currency which shall be redeemable, not in gold dollars of fixed weight, but in such quantities of gold and silver bullion as shall suffice to make the required purchases" (Newcomb 1879, 235). Newcomb continued to defend his tabular standard for years to follow, see Newcomb (1893).

monometallism, gold constituted the measure of value of an article. In Newcomb's own words: "the *price* of an article is its value, measured by the accepted standard [a designated weight of one of the precious metals]" (Newcomb 1865, 22). As both the price of gold and the general level of prices could fluctuate, Newcomb investigated the determination of the first and the link of causality between the two.

Gold's price in the long run was determined by its costs of production. By adhering to the cost-of-production approach, Newcomb considered that the quantity of gold was endogenous. For Newcomb there were multiple endogenous channels, such as extraction of gold from mines (1865, 24; 1879, 228), or real causes such as war (1866, 108). Endogeneity also suggests that the metallic money entered in circulation with a value, the value of the metal which it contained (Newcomb 1877, 42, 65), in that metallic money had an "absolute value independent of the needs of the money market" ([Newcomb] 1873, 215). Gold was also endogenous in the sense that its supply tended "to diffuse itself over the world in proportion to the needs of different countries" (287).

The supply of gold was important in the long run; the variations in supply were less important in the short run as the quantity produced would be marginal relative to the international stock of gold (Newcomb 1865, 28; 1866, 108). Thus, in the short term the quantity of new gold would be easily absorbed because it would be insignificant relative to the stock of gold. In Newcomb's own words:

The supply of gold dollars does not consist of those which have just been coined from the mint and are waiting to be paid out, nor of those coined within a year, but of the entire mass of gold dollars in the country and in the world.... Thus the actual supply of the precious metals is vastly greater than the amounts annually produced. Hence it is that their value is less dependent upon current production than in the case of any other commodity. (Newcomb [1886] 1966, 499)

As a result, short-run changes in the value of gold should be due to changes in demand, not in the supply of the metal.

Newcomb went a step further by suggesting that even if an exogenous supply of gold coins could exist, it would not have a proportional effect on the price of gold. He imagined the case of an exogenous increase of gold coins above the "total value of money actually required to transact the business of the United States," which he fixed at \$250,000,000, then "the excess would necessarily cease to circulate; it would either be hoarded for use at some future time, exported, or melted up into articles of jewellery. The fact that it may be put to other uses than that of money, thus prevents its value from depreciating" (Newcomb 1865, 122–123). Newcomb adheres here to the idea that as long as there exists a non-monetary demand for gold, a change in the gold coins available in a country would not necessarily affect their price. Newcomb ([1886] 1966, 500) used the same reasoning for the supply of the gold metal.

In the same vein, Newcomb imagined the possible effect of an exogenous variation in gold supply on the level of prices. As in the previous example, he rejects any link between the supply of gold and the level of prices. In modern terms, the absence of a proportional link between an exogenous change in the supply of gold and the level of prices was the result of Newcomb's belief in the law of one price and the possibility of an arbitrage of all tradable commodities, not only gold. Newcomb's adherence to the law of one price is made clear in his statement that "no general inequality between the scale of prices in different countries has ever had a chance to exist" ([1886] 1966, 279). International uniformity of prices was then ensured by an international arbitrage. Newcomb illustrated his theory when he argued that speculation in the price of gold could not persist. In order to explain the equilibrating mechanism that prevents continued speculation on the price of gold, Newcomb made the hypothesis that speculators could raise the price of gold by getting "possession of all the gold in the market" (1865, 29). In that case, a former importer would now export goods, as it would be more profitable for him to sell his gold to the gold market at an appreciated price and buy exportable goods with the paper money he receives. As long as exportation of goods is profitable it will provide him with more gold which he will use to repeat the same operation. The export of tradable commodities will result in "a steady stream of that metal [gold] ... from the vaults of Europe and the mines of California" (Newcomb 1865, 29). As a result of the latter effect, the quantity of gold in the country would rise and the speculators would no longer be in possession of all the gold in the country, then "the *cause* of the great rise having ceased, gold and every thing would go down to its old price, and the speculators would be ruined" (29, italics in the original). Thus, in case of a domestic gold disequilibrium, a scarce supply would be remediated through the balance of payments and the flow of gold without any necessary rise in prices. The law of one price is respected. Newcomb's reasoning was possible because the market for gold was international, as he specified in the following quotation: "Like all other commodities, it [gold] is subject to slight fluctuations from month to month, but these are rendered very minute by the international supply and demand" (1866, 108).

To sum up this section, in Newcomb's understanding, exogenous variations of the quantity of gold in circulation under a metallic standard, if they were possible, would affect neither the price of the metal nor the general level of prices.

#### 2.2. Convertible bank issue

Having already discussed the case of a metallic currency in Newcomb's monetary theory, I will now focus on Newcomb's understanding of the monetary role of convertible bank issue. Before specifying the monetary role of convertible bank issue, I will present Newcomb's view of the role of banks in money creation.

For Newcomb, a bank emerges from the necessity of the citizens to keep their money safe. The role of the bank is to operate "all payments ... by transferring the ownership of the money" (Newcomb [1886] 1966, 159). The bank should form a specie reserve in order to be able to redeem the deposits of its customers (161–162).<sup>8</sup> Once this specie reserve is formed, the managers of the bank could let it sit idle or loan it. If specie in reserve is used as a resource in order to provide loans, then the bank will provide to its customers a promise to pay them in gold upon demand—that is a convert-ible bank issue. In that way, banks would create money given that "the object of the bank is to put into a different form that portion of the wealth of a community which is in the form of money" (Newcomb 1865, 199).

<sup>&</sup>lt;sup>8</sup> The capital of the banks was constituted by the savings of capitalists, savings that were the result of an abstention from consumption (Newcomb 1865, 39).

By issuing convertible bank notes the banking system saved a certain amount of interest. The interest saved was the interest rate that would be paid for bank reserves if they were idle, that is, if reserves were not used for discounts. More precisely, Newcomb used the term of "circulating capital" to characterise what in modern terms is called idle capital, that is the reserves of the bank that were hoarded without being loaned. For Newcomb, the "circulating capital" was "unproductive" and as such it lost interest (1865, 48, 201). If then the banks discounted their circulating capital, the amount of its interest would be saved (50). The banks would now receive interest for lending this capital in the form of an interest rate on discounts, different from their interest rate on deposits (201).

By discounting upon their reserves, banks would also enable the economy "to enjoy, to an additional extent, the fruits of its labor" (Newcomb 1865, 50). Newcomb thought that the discount of the banks' idle capital would fund investment projects (52, 59). An increase of the rate of investment in the economy could have real effects. In the following quotation Newcomb considers the effects of the discounting process: it "would thus benefit ... the community, by placing \$100 more capital at the disposal of the customers of the bank. The latter would be enabled to make more shares, bake more bread, and import more cloths" (129–130).

Thus, bank issue would save interest to the economy and operate as an intermediary in financing the economy. In addition, variations in the volume of bank issue could not significantly affect the level of prices. For Newcomb, convertible bank issue could not affect the level of prices proportionally. An economic mechanism would balance the quantity of issue notes in circulation—even if the banks wanted to overissue bank notes and by that induce an inflationary movement this would not be possible (Newcomb 1865, 41–42).

More precisely, Newcomb ([1886] 1966, 170) explains that there are three mechanisms that operate as "a safety-valve to stop an undue expansion of bank credit." First, overissued bank notes could return to the bank to be redeemed for international transactions (Newcomb 1865, 160-161). Thus, the reflux of bank notes could set a "limit to the volume of the credit currency which the banks may have in circulation through the cash in its vaults" (Newcomb [1886] 1966, 165). Newcomb's adherence to the law of reflux hints at his conception of bank issue as endogenous to the economy. Under convertibility the quantity of bank issue in circulation adapted to the needs of trade (164–165, 417). The second mechanism relied on the competition among banks: banks could profit by issuing more and more loans, but their discount would be limited by the costs related to their bank issue. More precisely, for a bank to make any profit from money creation, it "must always have upon its books credits payable in demand (that is, deposits and circulating notes) to an amount greater than it has the cash on hand to pay with" (168). To put it differently, banks would issue credit in greater quantity than their gold reserves in order to profit from the money issuance. Other banks could accumulate the demand debts of an individual bank and demand their payment, in that case the bank would need to repay a considerable amount of its discounts at a precise moment. The impossibility of doing so would lead this bank to a failure and a suspension of its specie payments. Thus, Newcomb concludes that "banks themselves keep each other in check by requiring the prompt payment of all cheques which they hold against each other" (170). The third mechanism is related to the bank's portfolio management. Newcomb (163) considers that the banks would be able to maintain the convertibility of their issue notes "as long as the loans were well secured."

Newcomb's analysis of those three mechanisms indicates that the cost linked to the convertibility of the bank issue would prevent the banks from overissuing. The convertibility of the bank issue upon demand was a necessary condition for the effectiveness of those mechanisms (Newcomb 1865, 172). Hence it seems that Newcomb's analysis is in accordance with Glasner's stance that in classical monetary theory the "quantity of (bank created) money is somehow determined by an interaction between the public's demand to hold bank-created money and the costs that banks incur in creating such money" (2000, 45).

#### 2.3. Inconvertible paper money

After showing that in Newcomb's monetary theory convertible bank issue would not affect prices proportionally, I will now focus on the determination of the value of an inconvertible paper money. In the latter case, Newcomb espoused the quantity theory of money.

The quantity theory of money holds that the issue of paper money would lead to a proportional rise in domestic prices. The causal link runs from the quantity of paper money to the level of prices. Newcomb endorsed the quantity theory mechanism in the case of inconvertible paper money: the issue of inconvertible paper money would cause a proportional rise in prices (1865, 41–42, 107–108, 122–124). For Newcomb ([1886] 1966, 226; italics in the original), "*if the volume of currency be increased, all other things being equal, money will be cheaper relatively to goods, and thus the scale of prices will be increased in the same proportion.*"

Newcomb identified a limit below which the causal relation between the variations of volume of the currency and prices does not hold. If the quantity of inconvertible paper money issued is equal to the quantity of money necessary for economic transactions, then even the issuance of irredeemable paper money would neither depreciate nor have any effect on the level of prices. In the two following quotations Newcomb specifies that case.

The total value of the money actually required to transact the business of the United States is, on an average, about \$250,000,000 in gold....A paper issue, though irredeemable, will *not* depreciate materially so long as its amount is kept within the required limit; but, exceed this limit, and depreciation is inevitable. If the amount is double what is necessary, it will depreciate to one half; if treble, to one third, and so on. (Newcomb 1865, 122–123, my italics)

So long as the total volume of irredeemable currencies of all kinds does not exceed that necessary to transact the business of the country on a coin scale of prices, so long the currencies will *not* depreciate. (Newcomb [1886] 1966, 509–510, my italics)

The difference between an inconvertible and a convertible paper money issuance was that in the case of convertibility there existed a mechanism that adapted the quantity of money in circulation to the needs of trade. This mechanism relied on the possibility to hoard, melt or export gold (Newcomb 1865, 123), as explained in the previous section. That mechanism was not operative in the case of inconvertible paper money. The value of the latter was not pegged to the value of the metal; its value was fixed by the quantity of paper money in circulation. This explains the cautiousness with which Newcomb distinguished between the effects of an inconvertible and a convertible paper money. In the following quotations Newcomb highlights the difference between a convertible paper money and an inconvertible paper money issuance:

If the paper money is redeemable in coin on demand, the rise will not be so rapid as if it is not so redeemable. In the latter case, it will speedily lose all purchasing power, no matter how secure may be its ultimate redemption. (Newcomb 1865, 42)

If the paper is redeemable in silver or gold, then, when its volume exceeds nine hundred millions, people will take it to the banks or Treasury for redemption. Thus it will be impossible to get more than the nine hundred millions in circulation [the volume of currency absolutely necessary to carry on the trade of the country on a certain scale of prices]. If, however, it cannot be redeemed ... then prices will rise, so that not only will more than nine hundred millions of money be in circulation, but more will be necessary to the business operations of the country. (Newcomb [1886] 1966, 417)

The mechanism that adapted the quantity of convertible paper money supplied to the quantity of money demanded were not operative in the case of inconvertible paper money. As a result, the issuance of inconvertible paper money in a quantity greater than the quantity needed to transact the business of the country resulted in a proportional rise in prices.

It follows that price inflation would only concern domestic prices, international adjustments being absorbed by a fluctuating exchange rate. In the case of an overissue of inconvertible paper money, the price of gold will rise along with other prices (1865, 107–108). The price of gold was an important factor of the international monetary adjustment mechanism given that in the mid-nineteenth-century the ultimate form of international payments was gold. Hence, the price of gold determined the exchange rate. Variations in the exchange rate would ensure purchasing-power parity; in that, Newcomb's analysis of international adjustments was in accordance with the analysis of the quantity theory of money.

# **3.** Newcomb's stance in the debate on the greenback monetary standard and the National Banking System

It is now possible to understand Newcomb's stance in the monetary debate of the U.S. Reconstruction period. In this debate, Newcomb conditionally accepted the maintenance of a greenback monetary standard, that is, an inconvertible monetary standard, and championed the resumption of specie payments when the conditions for the proper function of the inconvertible standard were not respected. At the same time, he conditionally endorsed the National Banking System which allowed governmentchartered banks to issue their own paper money (national notes).<sup>9</sup> In both cases,

<sup>&</sup>lt;sup>9</sup> The main aspects of the National Banking System were described in the National Bank Act of 1863 and were the following: "five or more persons could form a banking association, and on deposing \$50,000, or a larger amount, of any kind of government interest-bearing bonds with the United-States treasurer, could receive circulating notes to the amount of ninety per cent of the current and par value of the bonds deposited. These notes were to be receivable for all government dues except duties on imports, and payable on government debts except for interest on its bonds. In lieu of all taxes on circulation or bonds, the banks had to pay semiannual, one-half of one per cent on their circulation, and they were to conform to the laws of the States in

Newcomb's condition depended on the relation that those issues bore to convertibility. The object of this section is to show that Newcomb's stance in the postbellum debates follows logically from his distinction between convertible and inconvertible monetary regimes.

#### 3.1. Greenbacks: advantages and disadvantages

Newcomb was not fiercely opposed to the greenback issuance during the war. He recognised that they could be beneficial to the U.S. economy. Newcomb (1865, 137) admitted that the issuance of inconvertible paper money during the war had "promoted commercial prosperity and the general enjoyment of wealth by the community." In addition, greenback issuance had been a way for the government to borrow without interest (160–161).

But Newcomb also thought that greenbacks were detrimental to the U.S. economy in that they impaired government credit. Every issuance of greenbacks above and beyond the needs of trade would depreciate the value of government bonds. Bond depreciation resulted from three processes that diminished demand for them. First, an additional issuance of greenbacks, operating as irredeemable paper money, provoked a proportional rise in prices. The rise in prices diminished the market value of bonds (Newcomb 1865, 190). In 1865, it was not clear if the government would reimburse the principal of government bonds in gold or in greenbacks; if it were in greenbacks, the reimbursement of the creditor was potentially diminished proportionally to depreciation.<sup>10</sup> Second, demand for government bonds diminished as every additional issuance of paper money induced speculation; individuals having capital to lend preferred to invest their capital in the speculative sector where the profit rates were higher (168). It follows that the capital invested in government bonds would be diminished proportionally. Third, government bonds would be less in demand as an overissue of greenbacks heightened the uncertainty around the future value of the bonds (121). Creditors didn't know to what extent the government would issue additional paper money, so they couldn't correctly anticipate the future value of greenbacks, treasury bonds and their investment in real terms (133). The uncertainty of the future value of greenbacks diminished creditors' demand for government bonds. As a result, the Union's debt had been higher under the greenback standard than it would have been if specie payments had been maintained (175).

In addition, greenbacks were detrimental to the economy in that they established a depreciated monetary standard. Newcomb (1866, 106) thought that the government could be tempted to issue more inconvertible paper money than what was necessary to transact the business of the country; this is what the government had done during the

fixing their rates of interest. They were to keep on hand, in lawful money, at least twenty-five per cent of their notes and deposits, and were to redeem their circulation at the place of issue. The amount to be issued was fixed at \$300,000,000, one-half of which was to be issued to banks in States and territories, determined by their population, the other half was to be distributed to with regard to the existing banking capital, business, and resources of each State" (Bolles 1886, 219–220).

<sup>&</sup>lt;sup>10</sup> Deriving from the fact that greenbacks were depreciated, Newcomb considered that a greenback issuance superior to \$250,000,000 transferred the profit of the creditor to the debtor if the debt was to be reimbursed in greenbacks (Newcomb 1865, 131–132; 1866, 110).

war.11 The result was the establishment of a depreciating standard, which for Newcomb (1877, 68) was "the greatest source of injury to the business of a nation." A depreciating standard could affect the economy through four different channels. First, it increased uncertainty as the future level of prices could not be anticipated correctly (68-70). Second, a depreciating fiat standard benefitted manufacturers at the expense of the workers. The manufacturer could pay the same nominal wages, while the price of the products he sold increased. At the same time, the nominal wage of the worker remained the same, but real wages declined due to inflation. Thus, Newcomb (70-71) concluded that a depreciated standard "necessarily enriches speculators at the expense of the rest of the community." Third, a depreciated standard fostered "extravagance," that would necessarily be followed by an economic crisis (71-72). The source of extravagance was to be found in the fact that people, being unable to distinguish between real and nominal income, felt richer. Fourth, a depreciated standard produced a scarcity of the means of payment while "making the rate of interest high" (72). The inflation that was synonymous to a depreciated standard signified that "more money is required to transact the business of the country just in proportion as more is issued" (72-73). In addition, as prices increased they stimulated "borrowing for the purpose of speculation," which in turn raised the interest rate (73). Scarcity of the means of payments and a high interest rate would result in an economic crisis.

So, for Newcomb, greenbacks could be both beneficial, but also potentially detrimental to the U.S. economy. The two possible effects of greenback issuance depended on the quantity of greenbacks issued. Newcomb precisely defined that quantity: it was the quantity of money that was needed to transact the business of the country under a metallic standard. To put it differently, greenbacks were beneficial to economic activity and to the government up to the point where the quantity was equal to the quantity of money needed (Newcomb 1865, 122-123). In that case, greenbacks operated as if they were a redeemable paper money. Once that limit is reached, i.e. the quantity of greenbacks issued is greater than the quantity of money needed to transact the business of the country, then greenbacks no longer operated as if they were a convertible issue. If the quantity of money needed to transact the business of the country is fixed at \$250,000,000, it follows that "a loan of say \$250,000,000, during the pleasure of the Government, without interest, is the sole advantage to be derived from the issue of notes. After this loan is contracted, we are in the same position with respect to future loans as if no notes at all had been issued" (160-161, italics in the original).<sup>12</sup>

Newcomb's belief that the government had issued more greenbacks than were needed under a specie standard led him to endorse the resumption of specie payments. Rendering the greenbacks convertible to gold at face value was the only "safe way-... [for greenbacks to] be kept from the depreciation and continual fluctuations in value, ... redeeming the paper is the only practical mode of fixing its value" (Newcomb

<sup>&</sup>lt;sup>11</sup> Therefore, Newcomb (1865, 138–139; 1866, 134) thought the government should have maintained the gold standard during the war and funded the war through a viable system of taxation. According to Mitchell (1903, chap. 1), maintaining the specie payments was not possible during the war.

<sup>&</sup>lt;sup>12</sup> Although in 1866 Newcomb (111-112) fixes this limit at 600 million dollars, his argument is essentially the same: the level of prices will rise proportionally with every paper money issuance greater than the quantity of money necessary for the transaction of the business of the country.

1865, 172–173). As explained previously, Newcomb thought that the value of convertible paper money was stable as it was regulated by automatic mechanisms. This was not the case for inconvertible paper money. Hence, Newcomb's (1866, 111) proposition that "the experience of generations has shown that the only certain mode of regulating paper currency is to make it convertible into coin or bullion at the pleasure of the holder."<sup>13</sup>

In the 1870s, Newcomb thought that all the Treasury had to do was to announce the resumption of specie payments. After resumption was completed, greenbacks would be convertible issues. Inquiring into the feasibility of his plan, Newcomb tried to anticipate the quantity of greenbacks that would return to the Treasury in order to be converted into gold. The answer to that inquiry was in accordance with his monetary theory. If the quantity of greenbacks in circulation was equal to the quantity needed to transact the business of the country under a specie standard, then no change in the quantity of greenbacks in circulation would result. On the contrary, if the quantity of greenbacks in circulation was superior to the quantity that would be needed under a specie standard, then the surplus would reflux to the Treasury to be converted in gold (Newcomb 1877, 101). In 1873, Newcomb estimated that quantity at "fifty and one hundred and twenty millions." Taking into account that in 1873 "the stock of coin on hand and the surplus gold revenue would probably suffice to meet this demand," resumption could have been declared at this moment ([Newcomb] 1873, 213). As a result, Newcomb thought that a policy contracting the quantity of greenbacks in circulation was not a necessary condition of resumption ([Newcomb] 1873, 218-219; 1877, 101). Regardless of Newcomb's endorsement of resumption, greenbacks remained inconvertible to gold from 1862 to 1 January 1879.

#### 3.2. National Banking System: should it be prohibited?

The monetary debate was also linked to the implementation of the National Banking System in which the national-chartered banks were obliged to redeem their issuances in greenbacks. But greenbacks remained inconvertible to gold from 1862 to 1879. Newcomb endorsed the National Banking System, but his endorsement was conditional on the monetary standard. Newcomb (1866, 125–129) endorsed the National Banking System should there be a resumption of specie payments, and opposed it in the case that the greenback monetary standard was maintained.

If the national notes were only redeemable in inconvertible greenbacks, then they would be regulated by the principles of the quantity theory of money, in that any additional issuance of national bank notes over \$250,000,000 would depreciate their value (1865, 209). In Newcomb's words, "a national bank note is practically, though not theoretically, irredeemable so long as specie payments are suspended. Redemption in coin is the safety-valve which insures the escape from circulation of all notes issued in excess" (1866, 129). If the national bank notes were to be convertible in gold, their

<sup>&</sup>lt;sup>13</sup> After resumption was completed, Newcomb (1879) thought that a specie standard was not ultimately enough to guarantee the stability of the monetary standard. He then endorsed a tabular standard of value, as previously explained.

issuances would be regulated by the same principles as convertible bank notes ([Newcomb] 1873, 273–274). This is obvious in the following quotation.

If the bill [national notes] were redeemable in gold, a holder might present a bill for redemption either because he wishes to keep the money and considers the coin more secure than the bill; because he wishes to take or send the gold to some place in which the bill will not pass; because he wishes to make payments to the Government; or because he intends to use the gold in manufactures. None of these reasons can be assigned for preferring a legal tender note to a National Bank bill. (Newcomb 1865, 209)

Hence, the mechanism inherent to the circulation of convertible bank notes would apply to national bank notes if they were convertible to gold upon demand. It follows that a depreciation of their value would be impossible (Newcomb 1865, 218).

In short, while Newcomb avowed the benefits of greenbacks up to a certain limit, he also endorsed resumption of specie payments. Additionally, he opposed the national bank's paper money, but only in case that the greenback standard was maintained. Newcomb's position in the greenback debate is a manifestation of his distinction between convertible and inconvertible money.

#### 4. Conclusion

The aim of this paper has been to spotlight details of Newcomb's monetary theory that past accounts have amalgamated with his equation of exchange. To do so, Newcomb's distinction between a metallic money, bank issue, and inconvertible paper money was taken into account. As for the value of a metallic money, Newcomb posited that a shock in the supply of gold would not affect prices proportionally. Under a convertible monetary standard, bank issues were regulated by mechanisms that prevented any paper money overissues from persisting, thereby bank issues had real effects without causing any inflation. Finally, for inconvertible paper-money issuances, Newcomb endorsed the quantity theory principles of causality and proportionality. This is to say, that every new inconvertible paper money issue caused inflation and depreciation.

Understanding the monetary theory of Newcomb also sheds light on his position in the greenback debate. While Newcomb acknowledged the benefits of an inconvertible paper money issuance, he opposed the greenback monetary standard. At the same time, while Newcomb endorsed the National Banking System with a specie standard, he opposed it under an inconvertible paper money regime. It has been shown that the uniting idea behind Newcomb's different approaches in the monetary debate of the U.S. Reconstruction period is to be found in the importance he grants to convertibility.

#### Acknowledgments

I wish to thank Samuel Demeulemeester, Rebeca Gomez Betancourt, Laurent Le Maux, Stephen Meardon, Nathalie Sigot as well as the participants of the 2019 ESHET Annual Conference, the 21<sup>st</sup> ESHET Summer School and the seminar *Atelier de PHARE* for their comments and suggestions. I also wish to thank the two anonymous referees, this article has largely benefited from

their comments and suggestions. Finally, I thank Jeffrey Althouse for answering my multiple questions relative to the English language. All errors remaining are mine.

#### **Disclosure statement**

No potential conflict of interest was reported by the author(s).

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