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J.S. MILL, W. ROSCHER AND  
D.H. ROBERTSON: THE EARLY  
HISTORY OF THE MONETARY  
MISPERCEPTIONS HYPOTHESIS

MAURO BOIANOVSKY

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CENTER FOR THE  
HISTORY OF POLITICAL ECONOMY  
AT DUKE UNIVERSITY

# ***J.S. Mill, W. Roscher and D.H. Robertson: the early history of the monetary misperceptions hypothesis***

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**Abstract.** Around 50 years ago, Edmund Phelps and Robert Lucas proposed an answer to the question why changes in aggregate nominal spending bring about output and employment effects, instead of purely proportional variations in prices. The Phelps-Lucas *monetary misperception* hypothesis asserted that imperfect information about the state of the economy may cause sluggish price or wage adjustment to emerge as reactions to monetary shocks in an otherwise perfectly flexible prices economy. The present paper documents how J.S. Mill, W. Roscher and D.H. Robertson addressed that issue in their respective notions of “general delusion”, “generally prevailing error” and “monetary misapprehension”, formulated between mid 19<sup>th</sup> and early 20<sup>th</sup> centuries. It also discusses how their contributions were not generally acknowledged until after Phelps and Lucas.

**Key words.** Monetary misperceptions, Mill, Roscher, Robertson, misinformation

**JEL classification codes.** B3, E3

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## 1. Introduction

Around 50 years ago, Edmund Phelps (1969, 1970) and Robert Lucas ([1972a] 1981a, [1973] 1981a) famously proposed an answer to the question why changes in aggregate nominal spending bring about output and employment effects, instead of purely proportional variations in prices. The Phelps-Lucas *monetary misperceptions*<sup>1</sup> hypothesis, as it became known since the mid 1980s, asserted that imperfect information about the state of the economy may cause sluggish price or wage adjustment to emerge as reactions to monetary shocks in an otherwise perfectly flexible prices economy. It takes the producers some time to sort out nominal (caused by a change in the state of aggregate demand) from real (caused by a change in the product relative demand) variations. Prices therefore do not respond immediately to unexpected (or unobserved) shocks to nominal expenditure, with ensuing output effects in the meantime.

The key idea was proposed by Phelps (1969, 1970), who imagined the parable of an economy in which producers are scattered over an archipelago of islands with full information about their own island only, due to the costs of information flows between islands. Lucas ([1972a] 1981a) analytically implemented the parable in an entirely new rational expectation set up distinct from Phelps' original formulation. Prices of each good are affected by both aggregate demand shocks and local supply or preference shocks. When shocks to aggregate demand are observed, they affect only the average price level and have no real effects. When they are not observed, each producer responds by changing output in the same direction but by less than if the individual had full knowledge that the source was a shift in relative demand. This became known as Lucas' "signal extraction" problem.

Imperfect information about the state of the economy implied a short-run Phillips curve. In the long run, as economic agents got information which enabled them to sort out aggregate spending from local relative shocks, output decisions were not responsive to price level variations. The *Lucas supply curve* (Lucas [1973] 1981a) stated that deviations of output from its normal equilibrium level were a positive function of the surprise in the price level, which accorded with the expectations-

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<sup>1</sup> According to JStor data basis, Barro (1981: 1095) was the first to use the term, followed by McCallum (1986: 397), who has used it often since. See McCallum (1989: 185-88) for a textbook treatment of the monetary misperceptions hypothesis.

augmented Phillips curve put forward by Phelps (1968) and Milton Friedman (1968) as they advanced the natural rate hypothesis. However, unlike the implications of Friedman-Phelps adaptive (or error-correcting) expectation model, Lucas ([1972b] 1981a: 94) showed that, assuming rational expectations – so that unanticipated inflation was related to a rational expectation forecast error that would fade away rapidly as information came in about the underlying shocks – persistent inflation could only yield transient, not permanent output effects.

As it is often the case in the history of economics, important aspects of the monetary misperceptions (sometimes called “monetary-confusion”) hypothesis, with its concept of relative-price confusion, may be found in economic passages written a long time ago but fully acknowledged and appreciated by historians of economics only *after* Phelps and Lucas put it forward as a central (if controversial) concept of monetary macroeconomics.

As documented in some detail below, the leading classical economist John Stuart Mill (1806-1873; see [1833] 1967, [1844b] 1992; [1848] 1909), the founder of the Older German Historical School of economics Wilhelm Roscher (1817-1894; see 1849, [1854] 1878, 1861) and the prominent Cambridge economist Dennis H. Robertson (1890-1963; see [1915] 1948, [1922] 1948, [1926] 1949, 1929) all expressed, in distinct contexts, the view that, as producers misperceive changes in the price level as variations in relative prices, output and employment will temporarily depart from their equilibrium levels, until information becomes available and the confusion is dispelled. They used terms such as “general delusion” (Stuart Mill), “allgemein herrschenden Irrthums” (“generally prevailing error”) (Roscher) or “monetary misapprehension” (Robertson) to convey that notion.

Of course, Stuart Mill, Roscher and Robertson deployed the verbal analytical style of their times (except for Robertson, who made use of diagrams as well) in their presentations of the idea, but that should not prevent modern readers from pursuing the intriguing parallels between their insights and the Phelps-Lucas misperception hypothesis. After all, as put by Samuelson (1949: 173) in an oft-cited remark, the “sophisticated-anthropomorphic sin of not recognizing the equivalent content in older writers because they do not use the terminology and symbols of the present” is often worse than the other “anthropomorphic sin” of reading modern economic analysis into old works.

With the partial exception of Phelps' (1969: 157, n. 31; 1970: 20, n. 19) reference to a passage from Robertson's ([1922] 1948: 139) well-known *Money* handbook quoted in section 4 below – about a less than proportional rise of prices by firms in the face of an unexpected increase of aggregate demand – such preliminary discussions of monetary misperceptions had no impact on the formulation of that hypothesis in the late 1960s and early 1970s. It is one of the goals of the present paper to examine why was that so. Phelps did not refer to the much broader treatment in Robertson's 1915 *Study of Industrial Fluctuation*, which provided not just an explanation of upward and downward price stickiness due to misinformation, but also of the equilibrating mechanism as producers eventually realize that prices in general are changing.

As for Lucas, it was only after the publication of his path-breaking 1972a misperception model of economic fluctuations that he engaged into a search for informal anticipations of his analytical framework. Lucas' motivation in that regard was to find vindication for his new business cycle model in the history of economics – particularly in its pre-Keynesian period – given his previous “unhappy experience that the substantively original ideas in my own economic thought invariably had proved to be wrong” (Lucas 1981b: 9). Instead of looking for inspiration in economic texts of the past while elaborating his own models, Lucas claimed that such models enabled modern macroeconomists to read Wesley C. Mitchell (1913) and other classics with a “new understanding.” The working out of those “highly abstract but explicit models is the *source* of ideas for ... reading the classics from a fresh viewpoint” (ibid; italics in the original).

However, Lucas's quest for early formulations of monetary misinformation and misperceptions was hardly successful. In particular, his view – that economists since Mitchell (1913) had interpreted business cycles as the result of recurrences of mistakes made by “signal processors” economic agents in their intelligent responses to imperfect nominal signs within a speculative environment (Lucas 1981b: 9; [1980] 1981a: 286) – was not supported by specific textual evidence. Indeed, as documented in this paper, only a few economists before Phelps and Lucas came any close to a clear understanding of relative-price confusion and its implications for aggregate economic fluctuations. Lucas' wide (if imprecise) historical claim has misled some historians of economics into placing Lucas as part of a long tradition based on the role of shifting expectations in generating cycles, from John Mills in the 1860s through

W.S. Jevons, A.C. Pigou and modern sunspot theories of aggregate fluctuations, among others (see e.g. Peart 1997: 665).<sup>2</sup>

After initial theoretical and empirical success in the 1970s, Lucas' version of the monetary misperception hypothesis was subject to extensive criticism on the grounds that price level or money supply data are made regularly available and become public knowledge within brief periods of time. That led to the business cycle persistence issue, that is, the fact that the incomplete adjustment of prices depends almost totally on the assumed degree of informational incompleteness. Contract and imperfect competition models of price rigidity under rational expectations became increasingly appealing – including to Lucas (see Boianovsky 2021) – as explanations of the short-run non-neutrality of money. However, misinformation monetary theories of economic fluctuations have made a comeback since the early 21<sup>st</sup> century – especially after the Phelps Festschrift (Aghion et al 2003) – partly based on models of information-processing constraints (see surveys by Hellwig 2008, and Mankiw and Reis 2010).

An examination of the long pedigree of the notion of monetary misperceptions – and its origins at a time when monetary information was scanty (cf. McCallum 1989: 188) and prices were generally flexible – should shed some light on the similarities and differences between the approaches of the three economists (Stuart Mill, Roscher and Robertson) who advanced that concept, as well as on how and why it was ignored for a long time until its rediscovery by Phelps and Lucas in a distinct intellectual and political context altogether.

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<sup>2</sup> Likewise, Lucas' ([1977] 1981a: 215) identification of new classical equilibrium macroeconomics as close to the Austrian (particularly Hayek's) approach to business cycles was criticized by Hoover (1988, chapter 10) for misrepresenting the Austrian subjective notion of equilibrium; Lucas later abandoned that claim. Hoover (1988: 236) quoted a couple of passages from Austrian economists (Mises and Lachmann) about the difficulty to distinguish between absolute and relative prices in inflationary economies, which are only indirectly related to the monetary misperception hypothesis. Lucas ([1977] 1981a: 237, n. 15) acknowledged that the spurious price signal in Hayek's business cycle theory is the departure of the rate of interest from its equilibrium level, rather than relative-product-prices confusion.

## 2. Stuart Mill's "general delusion"

The main primary source for the study of Stuart Mill's original discussion of monetary misperceptions is his well-known essay "Of the influence of consumption on production", published in 1844 as the second of his *Essays*, but written between 1829 and 1830 (Mill [1844a] 1992: v). It should be complemented by passages from Mill's ([1833] 1967) article "Currency Juggle", written as a criticism of Thomas Attwood's (1832) evidence before the Commons Committee on the Bank Charter, in which the Birmingham banker reaffirmed his argument for a managed inconvertible paper-money regime aimed at full employment through rising demand and prices.<sup>3</sup> Mill would deploy again his notion of temporary monetary misperceptions against Attwood in section 4 of chapter XIII of book III of his *Principles*, titled "Examination of the doctrine that an increase of the currency promotes industry."

The first discussion of Mill's misperception concept in the secondary literature came out in the late 1950s in Robert Link's (1959: 150-51, 169-70, 178) thorough study of English trade cycle theories of the first half of the 19<sup>th</sup> century, a revised version of his 1953 Columbia University PhD thesis. Link was apparently the only historian of economics who dealt with the notion of relative-price confusion before its full theoretical development by Phelps and Lucas. Accordingly, he neither related it to the 1950s macroeconomics of his time (which did not know or had any use for the concept) nor called attention to the analytical novelty of Mill's concept.

Link (1959) was the starting-point of accounts of Mill's monetary misperception mechanism after the early 1970s – by Humphrey (1977:19; 1991: 11-13), Hollander (1985: 502; 509-11; 515-16; 552), Negishi (1989: 156; 173-76), and Cesarano (1996: 462-69; 1998: 444-45; 447) – sometimes including comparisons drawn to Lucas or New Classical economics (Negishi 1989: 156 and 176, with references to Thomas Sargent; Humphrey 1991: 13; Cesarano 1996: 466, 1998: 447).<sup>4</sup> Apart from that, the key passage from p. 67 of Mill's 1844b essay – where he refers to "general delusion" (see below) – has been on occasion reproduced since the 1950s but

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<sup>3</sup> On Attwood's and the Birmingham School ideas on managed money and economic fluctuations, developed between the 1810s and 1830s, see Link 1959: 6-35; Fetter 1965, chapters 2 and 5; Humphrey 1977; O'Brien 2004: 197-98).

<sup>4</sup> Hollander (1985: 552, n. 97) pointed to similarities between Mill's criticism of Attwood and Friedman's (1968) notion of the real effects of unanticipated inflation.



with no discussion of its significance for his approach to fluctuations, as illustrated by prominent economist and historian of economics Lionel Robbins (1952: 30; 1967: 62).

Stuart Mill's ([1844b] 1992: 50) essay set out to examine critically the widespread view (put forward by Malthus, Sismondi, T. Attwood and others) that a "great demand", a "brisk circulation" or a "rapid consumption" – instead of the supply of productive factors (particularly capital accumulation) as maintained by James Mill, J.B. Say and David Ricardo, among other classical economists – decided the pace of "national prosperity". The heterodox stand was partly based on the "evidence" provided by the occurrence of crises and periods of depression (ibid). However, such "well-known facts", claimed Mill ([1844b] 1992: 74), should be accounted by a theory of recurrent *temporary* excess or deficiency of aggregate production throughout the trade cycle, not by *permanent* general over-production as held by Sismondi and others (see also Mill [1848] 1909: 560-62).<sup>5</sup> The foremost fact to be explained, from Mill's perspective, were the economic fluctuations surrounding the 1825 crisis, often regarded as the first deep economic crisis in the history of British capitalism (see e.g. Gayer, Rostow and Schwartz 1953).

The demand for labour and the output level, from Mill's classical standpoint, are determined by the availability of capital: "demand for commodities is not demand for labour", as famously stated in the title of section 9 of chapter V of Book I of the *Principles*. Demand for commodities determines only the direction or allocation of labour, not the total amount of labour employed. But it may affect as well the proportion of productive capital available for conversion into wages and instruments of production. A "brisk demand" means that goods are sold as soon as produced, whereas "slackness" implies that produced goods remain unsold for long periods of time.

Under normal conditions, a fraction of capital remains idle in the form of inventories of goods reflecting limited knowledge about demand and supply in each market. When the demand for goods is high, capital is disengaged as soon as production is finished, and can be "immediately employed in further production." If,

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<sup>5</sup> Cf. Lucas' ([1980] 1981a: 275-76) contrast between his perspective of the economic time series as formed by recurrent "typical" business cycles (which he shared with Mitchell 1913 and pre-Keynesian economics in general) and the view he ascribed to J.M. Keynes of trying to account for output and employment levels at a point in time as a reflection of the Great Depression.

on the contrary, aggregate demand is low, a large fraction of capital remains unproductive in “temporary inactivity” (Mill [1844b] 1992: 67). The question posed by Mill was why a general “brisk demand” should bring about full employment of capital and “great production”, above their average levels in quiet times. Because of “imperfect calculations” of producers and traders, there are normally some commodities in excess and others in deficiency. Hence, if “the whole truth were known”, there would be always some producers contracting and others extending their operations.

If *all* are endeavouring to extend them, it is a certain proof that some general delusion is afloat. The commonest cause of such delusion is a general, or very extensive, rise of prices (whether caused by speculation or by the currency) which persuades all dealers that they are growing rich. And hence, an increase of production really takes place during the progress of depreciation, as long as the existence of depreciation is not suspected, and it is this which gives the fallacies of the currency school, principally represented by Mr Attwood, all the little plausibility they possess. (Mill [1844b] 1992: 67-68; italics in the original)

Producers’ misperception (“general delusion”) of a higher price level as an increase of relative prices explained why a brisk aggregate demand brings about not just nominal but also real output effects. Mill ([1833] 1967) discussed the relative-price confusion mechanism in his “Currency Juggle” article even more clearly, with explicit critical reference to Attwood’s interpretation of the boom period immediately preceding the 1825 crisis.

[I]n 1825, it was imagined that *all* articles compared with the demand for them, were in a state of deficiency. An unusual extension of the spirit of speculation, accompanied rather than caused by a great increase of paper credit, had produced a rise of prices, which *not* being supposed to be connected with a depreciation of the currency, each merchant or manufacturer considered to arise from an increase of the effectual demand for his particular article, and fancied there was ready and permanent market for almost any quantity of that article which he could produce. (Mill [1833] 1967: 191; italics in the original)

According to Mill (ibid), Attwood had wrongly supposed that inflation “*really*” increases the demand for all goods, and so their production, without realizing that under circumstances of “delusion” it may create a “*false opinion*” of higher demand, followed by a temporary increase of production and by a return to the previous, normal level of activity when the misperception ends. The whole process involves a transitory increase of effort supply by manufacturers and workers alike, as Mill explained in the *Principles*, while criticizing Attwood’s claim that higher aggregate demand and inflation would bring about full employment of capital and labour.<sup>6</sup>

[T]he inducement which, according to Mr Attwood, excited this unusual ardour in all persons engaged in production, must have been the expectation of getting more commodities generally, more real wealth, in exchange for the produce of their labour, and not merely more pieces of paper ... Those who agree with Mr Attwood could only succeed in winning people on to these unwonted exertions by a prolongation of what would be in fact a delusion ... [Attwood’s plan] calculates on finding the whole world persisting for ever in the belief that more pieces of paper are more riches, and never discovering that ... they cannot buy more of anything than they could before. (Mill [1848] 1909: 550)

Monetary misperceptions disappear when producers and traders become aware of higher price level that their real purchasing power has not gone up. This is accompanied by a reduction of output and employment back to their equilibrium levels, as producers adjust their effort supply accordingly. Moreover, profit expectations raised by misperceptions may induce investment in fixed capital during

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<sup>6</sup> Mill ([1848] 1909: 550-51) put Attwood in the company of David Hume’s famous 1752 *Essay on money* as proposers of the “fallacy” that “currency quickens industry.” Unlike Attwood, Hume had assumed that all commodities would not rise in price simultaneously, that is, that there was price inertia. Mill rejected Hume’s argument, on the grounds that, if the seller “knows what is going on” he will raise his price immediately and the buyer will not obtain the gain “which is supposed to stimulate industry.” Even if misinformation prevails in Hume’s scenario, Mill claimed, what a producer gains by rising prices another loses. Mill ([1848] 1909: 491-92) acknowledged elsewhere the Hume-Cantillon effect caused by the impact of money injection on the price structure when it is not uniformly distributed among different recipients. Mill’s ([1844c] 1992: 118) discussion of “forced accumulation” of capital, caused by bank credit, is an instance of that.

the upswing, which is eventually disappointed when the money illusion ends (cf. Lucas [1975] 1981a).

[W]hen the delusion vanishes and the truth is disclosed, those whose commodities are relatively in excess must diminish their production or be ruined; and if during the high prices they have built mills and erected machinery, they will likely to repent at leisure. (Mill [1844b] 1992: 68)

Mill only suggested – with no elaboration – that the “general delusion” is also a feature of the depression, when prices are falling and output is reduced below equilibrium (see also Link 1959: 151). The assumption of symmetrical mechanisms in the upswing and downswing phases is implicit in his assertion that, since the “remote causes of fluctuations in prices [are] very little understood”, unreasonable “hopes and unreasonable fears” alternately rule over the minds of producers and traders. The result is that “general eagerness to buy and general reluctance to buy succeed one another ... at brief intervals” (Mill [1844b] 1992: 68). Except for short transitional periods, there is always “great briskness of business” – when demand exceeds productive capacity – or “great stagnation” featuring excess capacity and unsold goods (ibid; see section 3 below for other aspects of Mill’s approach to economic fluctuations, in comparison with Roscher’s).

Economic stagnation – described as a temporary general “overabundance”, “overproduction” or “oversupply” of commodities – was only conceivable in a monetary as opposed to a barter economy. In the former, an excess supply of goods is matched and caused by an excess demand for money, which is held as an asset as the demand for liquidity increases during and immediately after crises, until “commercial confidence” returns. Those passages from Mill ([1844b] 1992: 69-74) – together with Mill ([1848] 1909: 560-61 on the “under-supply of money” – have been often quoted since Becker and Baumol (1952) called attention to their relevance for Mill’s path-breaking discussion of the meaning of Say’s Law in a monetary economy.

Moreover, such general oversupply of goods could only take place if prices were not perfectly flexible downwards so as to clear the goods market immediately (see Niehans 1990: 114; Laidler 1996, section 2). Some degree of price stickiness is implicit in Mill’s ([1844b] 1992: 70) statement that a general “anxiety to sell” means that goods remain for “a long time unsold”, and those which find an immediate market “do so at a very low price.”

Nevertheless, Mill did not produce an explanation of downward price stickiness – and of the ensuing output effects of the reduction in aggregate demand – in terms of his “general delusion” hypothesis, in contrast with his treatment of rising prices. Roscher would perform that task, as discussed in the next section. Indeed, Alfred and Mary Paley Marshall ([1879] 1994: 155), after describing the depression with reference to Mill’s discussion of excess demand for money and falling prices in the *Principles*, stated that “the connection between a fall of prices and a suspension of industry requires to be further worked out.”

It is implicit that, from Marshall and Marshall’s perspective, Mill had not worked out that connection to their satisfaction. Their answer, based on the postulate of money-wage rigidity, was far removed from Mill’s framework, and would become central to the macroeconomics of unemployment for the next 100 years or so (see also Laidler 1996). Interestingly enough, Marshall and Marshall ([1879] 1994: 155-56) did consider a circumstance resembling Mill’s delusion mechanism under flexible prices and wages, but dismissed it as empirically irrelevant.<sup>7</sup>

### 3. Roscher’s “generally prevailing error”

Roscher’s key passage about monetary misperceptions may be found in his essay on “The production crises with particular consideration of the last decades”, written for a German encyclopaedia (Roscher 1849). That essay was slightly revised and published with a new title (“On the theory of sales crises”) as chapter 6 of his collection *Views of the economy from a historical perspective* (Roscher 1861b). That same passage was reproduced in volume 1 (Roscher 1854) of his 5-volume set *System der Volkswirtschaft* published over the period 1854-1894, as part of a few sections summarizing the theoretical argument of his 1849 essay. The American political scientist John J. Lalor translated Roscher’s *Grundlagen* into English in 1878; the relevant passage containing his notion of “generally prevailing error” appears in Book IV, section 217 (“Commercial crises in general”), essentially unchanged from the 1849 version (Roscher [1854] 1878, vol. II).

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<sup>7</sup> [A producer] “would be a little discouraged if he thought that the price of his goods would fall more than the prices of others; but even then he would not be very likely to stop work” (Marshall and Marshall ([1879] 1994: 155-56).

Streissler (1994: 115) is the single secondary source on Roscher's formulation of the monetary misperception hypothesis, with a reference to Lucas. Surely, Roscher's 1849 essay, one of the pioneer systematic discussions of economic crises and economic fluctuations in any language, has attracted attention from commentators at least since the end of the 19<sup>th</sup> century, when Bergmann (1895) produced the first systematic survey of crises theories (see Bergmann 1895: 267-71). Bergmann was followed by Jones (1900, chapter 2), which ascribed to Roscher the notion of crises as the result of shocks to an intrinsically stable economic system.

Hutchison (1953: 356-57, 364-65) provided the first modern – that is, post World War II – account of Roscher's contributions to macroeconomics, with emphasis on his criticism of the working of Say's Law in a monetary economy and on the role of “errors” in bringing about temporary disequilibrium between production and consumption. Shortly after, Schumpeter (1954: 741-42) critically presented Roscher's 1849 essay as a mix of then current approaches and main representative of the notion that crises will occur “when anything of sufficient importance goes wrong” (741; see Hutchison 1953: 364 for a similar description). More recently, Streissler (1994) has elicited detailed assessments of Roscher's crises theory (Hagemann 1995; Hagemann 2002; Besomi and Hagemann 2019), with no further discussion of Roscher's insight about monetary misperceptions though.<sup>8</sup>

Despite Roscher's credentials as prominent member of the Older German Historical School in economics and critical methodological stance concerning British classical political economy, his economics was significantly close to the latter. The structure of his *Grundlagen* is similar in many ways to Stuart Mill's *Principles*, which is often mentioned by Roscher together with other classics such as Adam Smith, the physiocrats and the mercantilists (Schumpeter 1954: 540; Ikeda 1995). As put by Keith Tribe (2003: 220-21), the main historical component of Roscher's 1854 book was the history of economic thought, not economic history properly, as documented in its many footnotes. Two decades later, Roscher (1874) produced a book about the history of German economic thought that established his reputation as one of the foremost 19<sup>th</sup> century historians of economics. Roscher's (1849; 1861b; [1854] 1978,

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<sup>8</sup> In another, joint paper Streissler and Milford (1993-94: 56-57) pointed out how Roscher's “fascinating” essay on crises anticipated elements of modern analysis such as price-stickiness, informational problems, uncertainty and speculative price behavior – so that modern theoreticians “can only stand aghast.” Streissler and Milford did not, however, refer to monetary misperceptions on that occasion.

sections 215-221) approach to economic fluctuations in general, and his discussion of monetary misperceptions in particular, should be read against the background of Mill's writings on those issues.

Roscher's main argument about the existence of "general" crises – as opposed to "partial" crises in particular sectors or industries featuring excess supply matched by excess demand in other sectors, which were compatible with Say's Law – concerned the use of money as a means of exchange. "The mere introduction of trade by money", he claimed, "destroys as it were the use of the whole abstract theory" (Roscher [1854] 1878, vol. II: 208).<sup>9</sup> Unlike a barter economy, in a monetary economy the seller may postpone the other half of the exchange-transaction. Hence, "it follows that supply does not necessarily produce a corresponding demand in the real market" (Roscher [1854] 1878, vol. II: 209).

All that is quite reminiscent of Mill ([1844b] 1992: 69-70). Roscher did not refer to Mill in that connection, but he did mention Mill's ([1844a] 1992) collection elsewhere in his 1854 book, indicating that he was aware of Mill's essay on the influence of "consumption on production". Moreover, he cited Mill's *Principles* a couple of times in his 1854 sections about crises.

In any event, what came next cannot be found in Mill. "And thus", stated Roscher (ibid), "a general crisis may be produced, especially by a sudden diminution of the medium of circulation." Such decrease was not enough to provoke excess aggregate supply and a "general crises", since downward price flexibility could in principle keep the economy in equilibrium, without output and employment effects. An exogenous fall in money supply (or an increase in money demand, the case Mill examined) would only have real effects if prices did not adjust proportionally, as Roscher pointed out. Roscher ([1854] 1978, vol. II: 209, n. 6; 1849: 726; 1861b: 297-98) imagined that, in a country with a money stock (gold) of \$100,000,000 – and a price level fully adjusted to that money supply – a "sudden exportation" of \$10,000,000 took place, in such circumstances as to delay the quick "filling up of the gap thus created."

In the "long run", \$90,000,000 would be enough to satisfy the country's demand for circulation, if only the velocity of circulation increased or the value of

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<sup>9</sup> The equivalent passage reads slightly different in Roscher (1849: 726; 1861b: 297): "The mere introduction of trade by money is quite sufficient to rule out Say's rigorous theory in the strict sense."

money should rise by 10 per cent. “But neither of these accommodations is possible immediately”, Roscher contended:

In the beginning sellers will refuse to part with their goods 10 per cent cheaper than they have been wont to. But so long as those engaged in commercial transactions have not become completely conscious of the revolution that has taken place in prices<sup>10</sup>, and do not act accordingly, there is evidently a certain ebb in the channels of trade, and simultaneously in all. Demand and supply are kept apart from each other by the intervention of a *generally prevailing error* concerning the real price [value] of the medium of circulation, and, there must be, albeit temporarily, buyers wanted by every seller, except the seller of money ... Say is wrong when he says that a want of instruments of exchange may be always remedied immediately and without difficulty.<sup>11</sup> (Roscher [1854] 1878, vol. II: 209, n. 6; 1849: 726; 1861b: 297-98; italics added)

Excess aggregate supply resulted, according to Roscher, from a “generally prevailing error” concerning the price level, made – just like in Mill’s account of the upswing – by *all* businessmen, due to their lack of information of a “sudden”, unanticipated negative shock to money supply. Producers react by reducing commodity prices in a lesser proportion than the contraction in money supply, which explains the real output and employment effects (cf. Phelps 1970: 20 for a similar argument). Like in Mill, monetary non-neutrality is “temporary”, as individuals eventually get information about changing nominal variables.

Roscher focused on the role of monetary misperceptions when prices are falling, both for the reason that it was relevant for his critical discussion of Say’s Law and because Mill had already dealt with misperceptions in the case of rising prices associated to a positive unanticipated monetary shock. Roscher ([1854] 1878, vol. II: 213) also applied his argument about a deficiency of money and general over-

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<sup>10</sup> This phrase may alternatively and more accurately be translated from the German original as: “This will last as long as those engaged in commercial transactions have not become fully aware of the price swing.”

<sup>11</sup> This phrase is a reference to J.B. Say’s ([1803] 1821, vol. I: 165) assertion that “Sales cannot be said to be dull because money is scarce, but because other products are so ... Should the increase of traffic require more money to facilitate it, the want is easily supplied.”



production to the case of the perverse effects of money hoarding, when saving is “stored up and remains idle” in liquid form instead of invested in fixed capital.

Roscher paid attention to the effects of expectations on economic decisions, while assuming that, in long-run equilibrium, such expectations are borne out by facts, as in his account of temporary monetary errors. While commenting on J.G. Hufeland’s (1807: 250) proposition – that “it is not the real relation of supply and demand that determines price, but the *opinion* that men hold with respect to that relation” – Roscher stated wryly: “A quite correct view, except that one thereby overlooks that in the long run, after all, the opinion of men with respect to reality must itself be determined by just this reality” (Roscher 1874: 659; quoted from Marget’s [1942: 229] translation).

That was behind Roscher’s approach to economic fluctuations as temporary deviations from equilibrium, caused by “sudden”, unexpected changes in conditions affecting production and consumption in different sectors – local supply and demand shocks – or by shifts in aggregate demand provoked by unanticipated shocks to money supply. Economic crises were seen as a “disease” with multiple causes described as “errors”, monetary misperceptions being one of them.

The *causes* of such an economic disease are most numerous. *Every circumstance which suddenly and largely increases production or decreases consumption or which even disturbs the ordinary course of industry* must bring with it a commercial crisis. (Roscher 1861b: 391; italics in the original; quoted from Jones’ [1900: 35, n. 10] translation)

Remarks such as this led Jones (1900: 35) – followed by Mitchell (1927: 9) – to assert that Roscher’s “equilibrium theory” of economic fluctuations provided a “blanket theory” that looked at crises as particular historical events defying a common general explanation. In fact, Jones (*ibid*) set out to search, in the remaining of his book, for an answer to what he perceived as Roscher’s puzzling position. However, Roscher did try to set up a theoretical groundwork for his incipient macroeconomics, not least through his notion of monetary misperceptions (see also Sreissler 1994).

According to Roscher, production will only find a “proper market”, in dynamic equilibrium along the economic growth path, “when it is developed in all directions, where it is progressive and in harmony with the whole national economy.” Investment decisions are influenced by expectations of future demand, which poses

limits to the saving process (Roscher [1854] 1878, vol. II: 215). The “salient angles” of the one-half must correspond to the “re-entrant angles” of the other, or “confusion will reign everywhere” (Roscher [1854] 1878, vol. II: 209-10).

Shocks (*Erschütterungen* in the original) may be of several kinds: “All *disturbances* of this equilibrium [between production and consumption] belong to the most dangerous shocks” (Roscher 1861b: 288-89; quoted from Hagemann’s [1995: 178] translation) causing economic crises.<sup>12</sup> The turning of partial crises into generalized ones was explained by income-effects. A reduction of income of one class of producers, caused by over-production in a particular sector, means that “they cannot purchase as much from others as usual”, spreading its effect through a sort of multiplier mechanism (Roscher [1854] 1878, vol. II: 204; Hutchison 1953: 365). A positive shock to agricultural output has a perverse impact on rural income, due to price-inelastic demand for food, which reacts negatively upon the demand for industrial urban goods and unfolds over-production in other sectors (Roscher [1854] 1878, vol. II: 209, n. 7).

Given Roscher’s discussion of the role of incomplete information in economic fluctuations, it is not surprising that he would stress the social benefit of setting up and making available to the public relevant economic information, at a time when the construction of comprehensive economic statistics (e.g. price index numbers, income and monetary data, etc.) was just starting. Economic crises would all but disappear if information were available.

Had each producer and tradesman an accurate and continuous knowledge both of the extent of demand and of the number and capacity of his competitors, a serious crisis would scarcely be possible. (Roscher 1861b: 366; as translated by Jones 1900: 37, n. 12)

Under Stuart Mill’s influence, Roscher (1861b: 298-300) took into account the effects of credit shortage and an increase in the demand for money at the end of a speculative period prompted by expectations of higher commodity prices. However, there was no clear connection, in both Mill and Roscher, between such price movements and those associated to monetary misperceptions. After some point – determined by traders’ expectations of “normal” prices (Link 1959: 158; Hollander

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<sup>12</sup> Frisch (1939) would eventually suggest a formal conceptual relation between shocks and errors in economic time series.

1985: 515) – expectations of commodity prices shift downward, followed by bankruptcies and credit contraction.

Commodity speculation – provoked by exogenous events such as short crops or opening of new foreign markets – was an important element of Mill's ([1844b] 1992: 70-72; [1848] 1909: 526-29, 560-61, 733-34) pioneer – if unsystematic – account of endogenous cycles featuring periodic crises. The other component was his analysis of the effects of the conversion of circulating capital into fixed capital investment. The tendency of the rate of profit to a minimum in the stationary state was supposed to encourage risky speculative investments, which brought about counteracting forces in the form of crises and ensuing excess capacity and unemployment that warded off the stationary state.<sup>13</sup>

Upon the end of commodity speculation, with the arrival of the crisis, “everybody wants to sell, nobody wants to buy.” “How is this different from a general sales crisis?” asked Roscher (1861b: 299). However, unlike his previous discussion of slow price fall under monetary misperceptions, it was now a matter of rapid falling current prices in relation to higher prices expected in the future – that is, a change in inter-temporal prices. “In this case the price reduction does not occur gradually, but rather suddenly at the highest pace. If it were permanent, it would only damage the over-indebted speculation; its transitory nature makes it particularly harmful”, Roscher (1861b: 300, n. 8) remarked, with reference to Mill's ([1848] 1909: 561) similar passage.

According to Mill's description of a commercial crisis, “the fall being solely of money prices, if prices did not rise again no dealer would lose, since the smaller price would be worth as much to him as the larger price was before” (Mill [1848] 1909: 561; see also Mill [1844b] 1992: 70-71). This implicitly assumed away the “general delusion” mechanism, as traders are supposed to be well informed about prices. At some point during the downswing, the state of price expectation is reversed,

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<sup>13</sup> One of the causes of general crises, according to Roscher ([1854] 1878, vol. II: 209), was capital scarcity described as “a too large fixation of capital which stops before its completion”. He referred elsewhere to Mill's *Principles* as a source of that notion, as well as of the view that capital conversion increases the rate of interest in the crisis period (117). Moreover, Roscher (124) maintained that there was a floor to the tendency of the rate of interest to decline, since individuals would rather “consume their capital or invest it in hazardous speculations.” The “speculation-rage” preceding commercial crises was therefore excited “by the lowness of the rate of interest”, which was also compatible with Mill.

so that, instead of an “anxiety to sell” – associated to falling prices and supposedly to lower production due to monetary misperceptions – businessmen delay producing and selling, and diminish their demand for money, in the confident expectation of getting higher prices in the future. This eventually interrupts the price fall and stabilizes the economy (cf. Becker and Baumol 1952: 374, n.4). Unlike Mill and Roscher, such intricacies were not part of Robertson’s broader treatment of monetary misperceptions as part of the business cycle as a whole, as discussed next.

#### 4. Robertson’s “monetary misapprehension”

The main primary source of Robertson’s approach to the monetary misperception hypothesis – called “monetary misapprehension” by him – is his 1915 *Study of Industrial Fluctuation*, his first book, written for a Trinity College Fellowship at the University of Cambridge. Relevant brief passages may be also found in his 1922 Cambridge Economic Handbook *Money*, in his 1926 *Banking Policy and the Price Level* – often regarded as his main contribution to monetary macroeconomics – in his 1929 entry in the *Encyclopaedia Britannica*, and in his 1957-59 Cambridge lectures.

Secondary sources on Robertson’s monetary misperceptions start with Phelps’ (1969: 157, n. 31; 1970: 20, n. 19) interpretation of a paragraph from Robertson’s *Money*, and continue with discussions of chapters 3 and 4 of part II of the *Study* by Boianovsky and Presley (2009: 137-40), Boianovsky and Goodhart (2017: 561) and Boianovsky (2018: 26-28). The present account adds new material and puts Robertson’s contribution into the contexts of previous formulations of monetary misperceptions by Mill and Roscher and of later developments by Phelps and Lucas.

It is unlikely that Robertson ([1915] 1948) was influenced by Mill or Roscher in that regard, not just because he did not mention them. Robertson’s notion of “monetary misapprehension” (Robertson [1915] 1948: 248) grew out of his methodological decision to apply concepts from Marshallian economics – mainly microeconomics, combined with elements of the Cambridge quantity theory of money – to the study of industrial fluctuations. He ascribed the “obscurity” that still surrounded business cycles to the absence of any systematic use of the “weapons supplied by this particular intellectual armoury” (Robertson [1915] 1948: 11).

From Robertson's Marshallian perspective, fluctuations in aggregate output resulted from producers' reactions to relative price variations caused by changes in the average productivity of each unit of effort. Robertson introduced the concept of elasticity of demand for income in terms of effort as part of his argument about how sector specific technological shocks had a positive effect on aggregate effort supply and output level in the economy as a whole (see Presley and Sessions 1997). Apart from that, Robertson's methodological stance in the *Study* displayed a deep concern with the empirics of business cycles, with extensive references to facts and statistics.

Whereas most of the *Study* was about *real* business cycles – which set Robertson apart from the prevailing monetary and psychological approaches then current in British economics, including Marshall (see Goodhart and Presley 1994) – Robertson did apply his new framework to the investigation of producers' reactions to perceived changes in relative prices induced by monetary misperceptions, while tackling the influence of monetary factors in the final chapters of the *Study*. A higher volume of money, due to an increase of bank credit or gold, tended to raise the price level, with real effects due to misinformation.

If all prices (including wages) were equally affected, the result would probably be a general increase of production beyond the point which is in fact most advantageous: for it seems to be a natural tendency of every man to suppose that the product which he sells will be more rapidly and deeply affected by any current price-movements than the products which he buys either for personal consumption or for industrial use. (Robertson [1915] 1948: 212)

Robertson (212, n. 1) used a diagram to illustrate his argument about the effect of monetary misperceptions on effort supply (see figure 1 below, at the end of this paper, after references). “Units of effort” are measured along the abscissa and “units of utility” along the ordinate.  $EE'$  is the “curve of marginal disutility of effort”, while  $AA'$  and  $A_1A'_1$  are the curves of “actual” and “anticipated marginal productivity of effort”, prices having risen in the ratio  $A_1A':AO$ . Due to the effect of a higher the price level on expected marginal productivity, the total volume of effort expended will be  $ON$ , instead of  $OM$ , and total utility enjoyed will be  $AONR$ . The argument assumed that the elasticity of demand for income in terms of effort is positive - that is, that the supply curve of effort is positively sloped.

[Insert figure 1 here]

An unexpected increase in money supply and in the price level “induces each producer to expect a rise in the exchange value of his own product” and adjust his effort supply and production accordingly (Robertson [1915] 1948: 239-40).<sup>14</sup> However, such increase in aggregate supply and employment is not permanent. Robertson ([1915] 1948: 217) argued that, as monetary information spreads, each producer realizes that “the rise in prices is not confined to his own product.” The fact of a general rise in the price level “is sooner or later bound to be discovered”. Anticipated productivity will, therefore, fall “till it corresponds with the real productivity of effort, and the volume of production suffers restriction” during the ensuing crisis, all the way back to its equilibrium level.

Apart from output reduction back to equilibrium, Robertson [1915] 1948: 225) considered as well the real effects of falling prices when the crisis gives way to depression. Lack of confidence and credit shortage bring about deflation, accompanied by symmetrical effects on output. “As the divergence between the real and the anticipated productivity of effort operated during the boom to stimulate production, so now it operates to restrain it.”

Whereas Mill and Roscher had focused on monetary misperceptions caused by rising or falling prices respectively, Robertson (239-41) discussed *both* cases as part of his overall account of the “typical’ industrial cycle”, led by shocks to the physical productive of effort and to the expected productivity of durable capital goods combined with the accelerator mechanism. According to Robertson, monetary misperceptions, caused by monetary shocks, further intensified output fluctuations over the typical cycle. 20<sup>th</sup> century macroeconomists had shifted their attention to the business cycles as a whole, instead of concentrating on economic-financial crises as in the 1800s.

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<sup>14</sup> As Robertson clarified in the first edition of *Money* while discussing the Cambridge quantity theory of money equation, the phrase “quantity of money available” should allow for the influence of “expected changes in the near future in the quantity of money in existence”, just like the prices of commodities were affected by “people’s estimates of the quantity likely to be called into existence” in the future (Robertson 1922: 36-37).

Robertson ([1915] 1948: 248) introduced the term “monetary misapprehension”, in the sense of monetary misperception, while discussing the influence of price level changes on inventories accumulation decisions. He attempted to explain the puzzle of variations in individuals’ estimates of the satisfaction afforded by consumption goods over the cycle. How to account for the fact that during business revival several consumption goods previously withheld in store are drawn into circulation? Robertson’s answer crucially involved the monetary misperceptions mechanism.

While a general rise in the exchange values of all consumable goods in terms of each other is clearly impossible, it is perfectly possible that each group of producers or owners should *expect* a rise in the value of its own products, and consequently be willing to withdraw them from store. Moreover, the existence of a monetary economy affords a mechanism by which such an expectation may be raised simultaneously in many trades. (Robertson [1915] 1948: 156; italics in the original)<sup>15</sup>

Robertson would not come back to his detailed 1915 discussion of monetary misperceptions and their role in the “typical” business cycle. He kept mentioning that mechanism partially and briefly over the 1920s, until it practically vanished from sight in the 1930s – the decade when Robertson’s agenda became dominated by his persistent criticism of J.M. Keynes on issues such as the saving-investment process, methods of dynamic analysis and the determination of the rate of interest – to return in a couple of sentences in his 1957-59 lectures.<sup>16</sup>

Phelps spotted the passage about misperceptions from Robertson’s *Money* – probably under the influence of his Yale 1950s professor William Fellner (1952), an admirer of Robertson – while searching for answers in pre-Keynesian economics to the question “why quantity effects should be expected to accompany the price effects of monetary and other macroeconomic disturbances” (Phelps 1970: 20, n. 19). He was

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<sup>15</sup> Cf. Lucas’ remark that “it is exactly” the misinformation illustrated by Phelps’ island economy “that permits all producers simultaneously to believe they have gained relative to others as the consequence of a monetary shock” (Lucas 1981b: 7-8).

<sup>16</sup> In his description of a “typical” industrial fluctuation – reminiscent of his *Study* (239-41) – Robertson ([1957-59] 1963: 409-15) mentioned how the stimulus to expand production in the boom is intensified by “irrational optimism”, as people are “slow to realize that other people’s selling-prices will rise as well as their own”, and vice-versa for “irrational pessimism” in the downswing.

surprised that Robertson had put his finger on the monetary misperceptions explanation of price stickiness, developed in his 1969 paper and 1970 introductory chapter. While discussing “The case for a gently rising price-level” (title of section 2 of chapter 7 of Robertson’s *Money*, already in the first 1922 edition), Robertson wrote the passage quoted approvingly by Phelps:

Of course the stimulus of rising prices is partly founded in illusion ... Even the business leader is the victim of illusion: for he is spurred on ... by imaginary gains at the expense of his fellow businessmen. It is so hard at first to believe that other people will really have the effrontery or the good fortune to raise their charges as much as he has raised his own. (Robertson [1922] 1948: 139)

That is similar to the quotation given above from p. 212 of the *Study*. However, Robertson ([1922] 1948) did not mention producers’ eventual realization – fully acknowledged in the *Study* – of their (temporary) money illusion as information came in. Neither did Phelps (1969, 1970), who was apparently unaware of Robertson’s full treatment of the matter in the *Study*, with its conclusion that no permanent output gains could be obtained from monetary misperceptions alone. Phelps (1972: xii) would list Robertson as holding a “prominent inflationist position”, close to Phelps’ own concept of “optimum *steady* inflation” under adaptive expectations. Robertson did hold such an inflationist position at times, although mainly based on his careful analysis of the permanent impact of the forced saving process – caused by changing prices – on capital accumulation (see Laidler 1999: 94-98), instead of the monetary misperceptions mechanism. In that sense, Robertson would probably side with Mill against Attwood claims.

Output changes induced by “monetary misapprehension” exceeded the “appropriate alterations” caused by real shocks, Robertson ([1926] 1949: 39) pointed out. To the extent that the inducements for a producer to expand or contract output are “partly illusory” they tend to be reversed, “for the rise (or fall) in price turns out not to be confined to the product which he sells, but to affect also ... the products which he buys” (ibid).

By the late 1920s, Robertson (1929) distinguished between three approaches to business cycles: the “psychological approach”, the “monetary approach”, and the approach to instabilities as “inherent in the economic process”. He was critical of the



first one – associated to Pigou – for viewing most production decisions as the result of unexplained errors. The second approach stressed the dependence of the level of activity on the price level, for two distinct reasons: money-wage contractual rigidity and the “habit” of producers “of concentrating their attention on the movement of the price of *their own products*” in a flexible price economy (Robertson 1929: 354; italics in the original).

That distinction between the two channels of real effects of monetary shocks had been already advanced in the *Study*; it was repeated and further clarified in the 1920 entry. The money-wage rigidity assumption would become increasingly dominant in the 1930s and after, while monetary misperceptions gradually left the scene – until Phelps and Lucas brought it to centre stage in the early 1970s. Robertson’s own favourite approach was the third one, with monetary factors (especially “monetary misapprehension”) falling into the background.

## 5. Discussion

According to Lucas and Sargent ([1978] 1997: 280), the “key step” of New Classical macroeconomic models of positive correlation between prices and aggregate output was to “relax the ancillary postulate used in much classical economic analysis that agents have perfect information.” As documented above, that description does not fit a small set of three “classical” economists, who argued that, because of limited information, agents will temporarily mistake a variation in all absolute prices as a change in the relative price of the goods they sell, which affects their production and employment decisions. However, it is the case that – with the partial exception of Phelps’ (1969, 1970) insights, inspired by a passage from Robertson’s *Money*, and of Link’s (1959) discussion of some parts of Mill ([1844b] 1992 – the contributions of that trio to the monetary misperception hypothesis were acknowledged by macroeconomists and historians only after Lucas’ (1972) formal model turned in into a main feature of New Classical economics.

That seems to confirm to some extent Lucas’ (1981b) claim that early contributions by “classical” economists to the signal extraction problem and related

matters could only make sense through the formal lens of his expectations model.<sup>17</sup> However, the economists (W.C. Mitchell and F. Hayek) Lucas picked as close to his framework of misperceptions and best use of limited information did not quite fit the bill.

Indeed, Mitchell's comments on Roscher's approach to economic fluctuations and on Robertson's *Study* totally missed the notion of monetary misperceptions (Mitchell 1927: 9; 1915). Hayek (1935: 33) rejected Robertson's analysis of variations in industrial output caused by "changes in the willingness of individuals to expand effort", as based on the old Marshallian notion of "real cost". Moreover, Hayek (1935: 9-10) claimed that the Cantillon-Hume approach to the real effects of monetary changes "did not seem susceptible of improvement" to the "Classics", indicating his unawareness of Stuart Mill's criticism of Hume, partly based on the latter's notion of "general delusion".

Hayek was not alone, of course. Jacob Viner (1937), despite his detailed account of English monetary controversies from the Bullionist controversies to the debates between the Currency and Banking schools (including a section on "The economic effect of changing price levels" as part of chapter IV), failed to mention Mill's theoretical criticism of T. Attwood. Fetter (1965: 140-41) did mention the Attwood-Mill debate, but omitted reference to Mill's "general delusion". Schumpeter (1954: 715) criticized Mill's rejection of Attwood's plan for "managed money", with no mention of Mill's theoretical reasons behind his refusal to endorse it – Mill's refusal, according to Schumpeter, "impoverished monetary analysis", even if did not entirely justify the widespread impression that "there is a *scientific* gulf between him and us."

Such low opinion about Mill as a monetary economist was in part explained by the fact that his 1844 essay on "Consumption and Production" (see Robbins 1967: 64) did not attract general attention until the 1950s (Becker and Baumol 1952; Hutchison 1953; Link 1959).<sup>18</sup> Around that time, Lucas read Gayer, Rostow and

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<sup>17</sup> Cf. Blaug's (1997: 40) remark – upon discussing Adam Smith's notion of "natural price" by means of Marshallian supply curves – that "the fact that we need Marshall to make sense of Smith affords an excellent illustration of what is meant by analytical progress in economics."

<sup>18</sup> Bonar (1911: 719), for instance, wrote that Mill's second 1844 essay did not retain the "respect of economists." Edgeworth's (1899) entry, based on Mill's essay, was an exception, but he did not mention Mill's "general delusion".

Schwartz (1953) for a Berkeley graduate course in economic history taught by David Landes, when he wrote his first paper in economics (see Lucas 2009). However, Stuart Mill is not cited in that book.<sup>19</sup>

As mentioned above, Bergmann (1895) and Jones (1900) paid close attention to Roscher's essay on crises, but made no references to his notion of "generally prevailing error" in monetary economies. In Gustav von Schmoller's ([1888] 1964: 229) opinion, leader of the Younger German Historical School, Roscher (1854) contained "very little that is new", in contrast with further volumes of Roscher's *System*, which were more historically oriented. Adolf Wagner, another leading German economist of the late 1800s and early 1900s, rejected altogether Roscher's critical discussion of Say's Law in a monetary economy (see Gioia 2002).

Haberler's 1937 *Prosperity and Depression* – the authoritative study of interwar business cycle theories sponsored by the League of Nations, frequently cited by Lucas – mentioned Robertson often in connection with the dynamics of the saving-investment process, with no reference to monetary misperceptions. Neither did it come up in the debates that preceded the publication of Haberler's survey, involving most of the main macroeconomists of the time, including Robertson (see Boianovsky and Trautwein 2006). The invisibility of that concept was confirmed by Patinkin's (1972) historical account, published the same year as Lucas's monetary misperceptions model.

John Hicks, who was close to Robertson and his economics in the 1930s and 1940s, as late as 1980 expressed his perplexity at Robertson's original discussion of economic fluctuations in a Marshallian framework of (nearly) perfect flexibility of prices. "Why was Robertson so concerned about elasticity of supply of labour?" wondered Hicks (1980: 518). That aspect of Robertson's 1915 *Study* still looked "very strange" to Hicks in 1980. The main question was: how could "there be fluctuations in industry in this perfectly flexprice economy?" (ibid). It did not occur to Hicks, even after the inception of Lucas' misperceptions models, to find a possible answer in Robertson's notion of "monetary misapprehension."

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<sup>19</sup> Even so, Lucas' reading of Gayer et al may have influenced his later remark that "the idea that changes in the quantity of money ... are an important causal factor in real economic instability is a very old one. Indeed, many nineteenth century economists defined business cycles to be monetary or financial 'crises'" (Lucas Papers, Duke University, Box 13, undated folder).

Neglect of early formulations of the monetary misperception hypothesis may be interpreted as an aspect of the “multiple discoveries” that, according to sociologist of science Robert Merton, are part of scientific activity. Often, new ideas or findings have been published, only to go unnoticed until they are later “uncovered or independently rediscovered” and only then incorporated into science. That was Merton’s meaning of “rediscovery”: “the signals provided by a discovery are lost in the noisy of the great information system that constitutes science, and so they must be issued anew” (Merton 1963: 380).

Moreover, as Patinkin (1983) pointed out, scientific communities absorb new idea only if author convey them as part of his or her “central message”. Mill’s “general delusion” was not explicitly extended to falling prices, in part because he rejected Attwood’s notion that the 1825 depression was caused by a contraction of money supply (Mill [1833] 1967: 191). Moreover, while discussing the effects of rising prices before the 1825 crisis, Mill ([1848] 1909: 550) was – unlike his previous accounts of that event – ambiguous about the facts of an increase of “prosperity” caused by general delusion. Roscher’s “generally prevailing error”, although articulated with his notion of errors as the result or sudden monetary or real changes alike, was one among many factors determining economic fluctuations.<sup>20</sup>

From the beginning, Robertson discussed “monetary misapprehension” as subordinated to the primacy of real shocks in determining business cycles, even if acknowledging its role in introducing non-optimal economic oscillations – including involuntary unemployment phenomena associated to distinct effort supply elasticities by workers and businessmen. It was only after Lucas ([1972a] 1981a) that the monetary misperceptions hypothesis turned into a causal dominant explanation of business cycles – which led to historians’ identification of similar ideas in Mill, Roscher and Robertson – although it would soon be combined with other factors such as technological shocks and price rigidities associated to contracts and imperfect competition.

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<sup>20</sup> Knut Wicksell, a prominent monetary economist aware of the neutral effects of anticipated monetary changes, familiar with both Mill and Roscher, illustrates the point. His reading of Mill was captured by the latter’s attempt to combine opposite outlooks from the Currency and Banking schools (Wicksell [1906] 1935: 174-75). Wicksell ascribed to Roscher the notion of crises as dominated by credit bubbles and over-speculation (see Boianovsky and Trautwein 2001: 359). Mill’s and Roscher’s notions of monetary misperceptions got lost in the shuffle.

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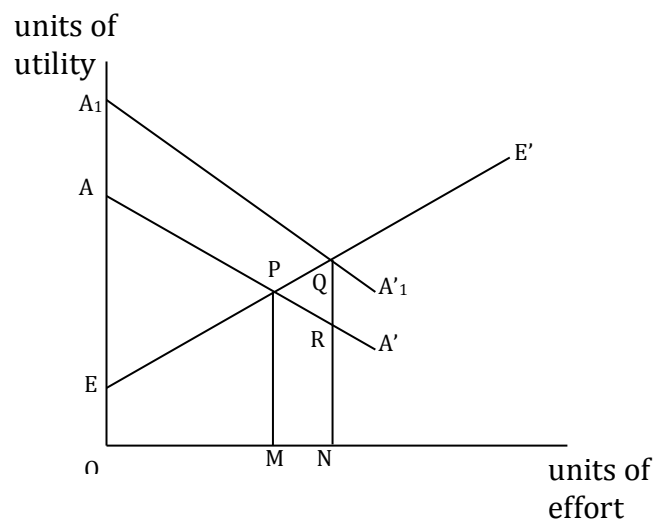
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**Fig. 1.** *Money Illusion in the Boom*

Source: Robertson ([1915] 1948, p. 212)