A Comment on Chicago Rule, Chicago School, and Commercial Bank Seigniorage

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Abstract

Chicago rule is shown to be the unique optimal monetary policy rule from the viewpoint of an intergenerational welfare-maximizing social planner. But, in the absence of commercial banking, it really mandates the elimination of the public sector, because it involves the elimination of central bank seigniorage and hence, of the government spending based on this seigniorage, rendering subsequently tax finance incapable of sustaining alone such spending. In the presence of commercial banking, the government does have the option of benefiting from commercial bank seigniorage by borrowing it countercyclically as implied by Chicago rule, which is found to operate like a full-reserve requirement.

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"Money, it is true, is liable to the same fluctuation of demand as other commodities, for its purchasing power varies at different times; but it tends to be comparatively constant." (Aristotle, Ethics, 1133b, 15)

1. Introduction

In 1969, Milton Friedman put forward the view that: "*Our final rule for the optimum quantity of money is that it will be attained by a rate of price deflation that makes the nominal rate of interest equal to zero*" (p. 34). This proposal has become known as Friedman's or Chicago rule, given that it was being made within the broader context of the Chicago school of thought. In 1948 and within the same precisely context, Friedman had previously endorsed Henry Simons' "Positive Program for Laissez Faire", (Simons 1934, 1936), elaborating *inter alia* upon the following theses for a "Monetary and Fiscal Framework for Economic Stability", as Friedman had entitled his endorsement: "*The adoption of 100 per cent reserves*" (p. 247), and the mandate that the "*Government would not issue interest-bearing securities to the public; the Federal Reserve System would not operate in the open market*" (p. 250). To this, the balanced-budget argument has to be added as part of the Chicago School tradition: "*An appropriate combination of monetary and fiscal policy can and should be used to prevent inflation. Such a combination would consist of a roughly balanced budget and whatever level of monetary ease or tightness is required to prevent civilian expenditures from producing inflation*" (Friedman 1953, pp.272-273).

That is, the Chicago School policy tradition encompasses the Chicago rule, the 100% reserve requirement ratio, no open-market operations, and a balanced budget. The balanced-budget argument prompts one to see Chicago rule designed to act *inter alia* countercyclically too, from the viewpoint of monetary policy and in combination with the remaining three premises of this tradition. In this comment, we maintain that from an intergenerational point of view, Chicago rule is consistent with these premises only under government borrowing of commercial bank seigniorage. Chicago rule nullifies by definition central bank seigniorage and hence, government expenditure based on money issuance. So, taking recourse to commercial banks to obtain the purchasing power of their own seigniorage is necessary, because it would be seriously suboptimal to sustain government expenditure based exclusively on tax revenue given also that no open-market operations are allowed. In the absence of central bank seigniorage, the only solution left is to take advantage of commercial bank seigniorage, borrowing it during deflation to pay it back during inflation. Borrowing it to spend it and boost the economy when circumstances dictate so, and paying it back when the state of the economy commands government spending contraction.

But, which exactly is the commercial bank seigniorage under Chicago rule? It is the opportunity cost of holding reserves, namely, the difference between the lending and the deposit interest rate, the foregone profit rate. The lending interest rate is the nominal interest rate, which is set equal to zero and hence, commercial bank

seigniorage is identified with the deposit rate times the volume of deposits. This would be the case under a full-reserve requirement, too. In deflation, a zero nominal interest rate implies a positive real rate of interest to which the deposit rate should be equal given perfect or nearly perfect competition in commercial banking. This is the case when the government borrows from the banks the deposit rate payments owed by them to the public. In inflation, the deposit rate is as negative as the real interest rate is, and it is the case when the government pays the loans back to the banks. So, how much exactly should the government be borrowing in principle without jeopardizing liquidity? People must be able to withdraw from the banks any amount at any time. Two are the scales of the answer to this question.

First, note that the deposit rate is also the public's opportunity cost of holding cash instead of a deposit account with a bank. As such, it is like a uniform commodity tax, which by optimal taxation theory, should be equal ideally with the tax rate under linear direct taxation. Therefore, the optimal percentage of deposit-rate payments borrowed by the government should be the one which is consistent with this equality. Spending based on tax revenue should be equal with spending based on commercial bank seigniorage in compliance as a total with the balanced-budget rule. That is, totally, at disequilibrium, the public sector should be expanding/contracting at the same rate as that of the symmetric fiscal and monetary expansion/contraction prescribed by Chicago rule.

The answer to the second scale of the last question regarding liquidity risks might be a 100% deposit insurance, which is however not in the spirit of the Chicago School; the 100% reserve requirement ratio is. In July 1939, Douglas et al. advanced "A Program for Monetary Reform"− already known as "Chicago Plan"− having adopted Irving Fisher's (1936) version of the full-reserve thesis: *The key feature of this plan was that it called for the separation of the monetary and credit functions of the banking system, first by requiring 100% backing of deposits by government-issued money, and second by ensuring that the financing of new bank credit can only take place through earnings that have been retained in the form of government-issued money, or through the borrowing of existing government-issued money from non-banks, but not through the creation of new deposits, ex nihilo, by banks."* (Benes and Kumhof 2012, p. 4).

IMF's Benes and Kumhof (2012), Kotlikoff and Leamer (2009) and Rothbard (2008), are some of those who still support the full-reserve requirement. But, there do exist many and strong voices against such a scheme, too. For example, according to Douglas and Dybvig (1986, p. 65-66): "*…to impose a 100% reserve requirement…restricts banks from entering the transformation business (they cannot hold illiquid assets to transform into liquid assets),…*[which] *is a dangerous proposal that would do substantial damage to the economy by reducing the overall amount of liquidity.*" And, there were always voices pointing to the similarity of this requirement with the otherwise harmless as claimed 100% deposit insurance option from the viewpoint of safeguarding against illiquidity. This is a reason why the interest in the 100% reserve requirement subsided after the emergence of the FDIC and why one of the reactions to "The Chicago Plan Revisited" of Benes and Kumhof (2012) is that the modern banking system is more or less consistent with it (see e.g. Giraud and Pottier 2012 of the Paris School of Economics). It appears to be ignored that the Chicago School policy tradition is one put forward in a first-best setting whereas opposition

wonders what is going to happen in a second-best environment. Therefore, the government borrowing of deposit-rate payments should be implemented within the broader context of the full-reserve requirement. After all, according to Keister and McAndrews (2009), there may be instances of bank lending not out of bank reserves but out of newly created deposit money *ex nihilo*.

In sum, the cornerstone of the Chicago tradition appears to be the Chicago rule under a broader, a social planner's point of view rather than in strict economistic terms. Under commercial banking, the Chicago rule acts like a full-reserve requirement, but such a requirement has merit on its own grounds in protecting against illiquidity shocks. The four pillars of this tradition aim at acting as a built-in-the-system stabilizer, to become an institutional feature of a market socioeconomy in line rather than at discrepancy with its market underpinnings. Underpinnings, having come out of the historic evolution of the socioeconomy as the first-best alternative to social welfare maximization. But, is the Chicago rule the only optimal rule and by extension, is the Chicago route the only one available to a planner aiming at maximizing this welfare *vis a vis* the multiplicity of the market-interventionist discretionary policy-making? And, even if it is, what kind of societal arrangement would prompt the emergence of such a commercial banking system that would make this rule and the Chicago tradition in general applicable?

These are critical questions that may come up only under an overlapping generations modeling in which, however, Chicago rule is found often to be one only out of many other similar optimal monetary policy rules or non-optimal at all. The first part of the next Section shortens out the matter of uniqueness in the standard central-bank only environment. It is argued that overlapping generations models do not incorporate explicitly a social welfare function in terms of the generational utility functions so that the social-welfare maximizing and thereby, Chicago rule out may be picked out of the many other optimal rules. The second part of the next section, introduces commercial banking as a non-market means of ensuring efficient intergenerational transfers. This is the view of commercial banking under which the nexus between commercial bank seigniorage and Chicago rule-cum-Chicago tradition are discussed in the same subsection. Section 3 concludes with speculations on the political economy surrounding this discussion.

2. The Intergenerational Perspecitive

2.1 The Chicago Rule under Central Only Banking

Contrary to money-in-the-utility-function infinitely-lived representative agent models, the cash-in-advance-constraint overlapping-generations models postulate two usually types of agents, young, *y*, and old, *o*. Hence, although the intertemporal distribution of taxes and transfers is inconsequential in the former models (Ricardian equivalence), it does matter in the latter at least in so far as Chicago rule is concerned. To cite characteristically from Gahvari (2007, Abstract, p. 581): "*In overlapping generations models, money growth creates intergenerational wealth effects and leads to the breakdown of the Friedman rule; the rule can be restored via lump-sum tax and transfers that neutralize these wealth transfers. Additionally, and in contrast to money-in-the-utility-function models, the Friedman rule is not unique in cash-in-*

advance-constraint models of money: A continuum of combinations of money growth rates and consumption taxes implement the first-best allocation."

According to this note, the problem with the overlapping-generations models is that ever since Diamond (1965), it has become standard practice to be based on a utility function of the type:

$$u_t^y = u(c_t^y, c_{t+1}^o), \qquad (1)$$

where *u*, *c*, and *t* denote utility, consumption, and time, respectively. This has been a standard practice ever since Diamond (1965). These are really social welfare functions, i.e. functions of the individual utility functions of *y* and *o*, which in essence they have been equated with the corresponding consumption levels,

$$v^y(c_t^y) = c_t^y \quad \text{and} \quad v^o(c_{t+1}^o) = c_{t+1}^o.$$

Under these circumstances, the utility, $v^y - v^o$, space and the consumption, $c_t - c_{t+1}$, or the same, $c^y - c^o$, space coincide, and the social indifference curves have the same slope as the utility possibility frontier does. The absolute value of the slope of both would be,

$$\frac{dv^o}{dv^y} = \frac{c^y}{c^o} = \frac{1}{1+r},$$

which is the cotangent of the angle with the horizontal axis; *r* presumably is the real rate of interest. The result, of course, is indeterminacy and non-uniqueness of equilibrium. If the *v* functions were postulated so as to ensure a concave to the origin of the axes utility possibility curve, the equilibrium consumption tax and thereby money growth rate would be unique in so far as Chicago rule is concerned.

To stick with the example from Gahvari (2007), the intuition derives from his observation (in p. 588) that "*the opportunity cost of holding real balances* (by the old)*... works like a tax on consumption when old, much in the same way as τ is a tax on consumption when young.*" Nevertheless, the opportunity cost of holding real balances is seigniorage, and the consumption tax on the young might be viewed subsequently similarly, with the tax rate τ, equaling seigniorage per monetary unit, with θ, in Gavhari's model. We shall see this formally immediately, but taking it for the moment for granted, note that a steady state path is contingent upon a specific value of τ, and much as specific should monetary growth be even if τ is not connected conceptually with θ. But, then, again, as much specific should the θ connected with this growth and hence, Chicago rule be. By definition, the Chicago rule is a steady-state relationship, and the rule is to be adjusting it to anticipated inflation either as a disequilibrium phenomenon or as the price-change accompanying equilibrium growth.

Anyway, letting $\alpha<1$ be the fraction of c_{t+1} financed through money, θ be the opportunity cost per monetary unit, the government budget constraint be:

(1+n)(tax on c_t *at rate τ plus lump-sum tax on y)+(lump-sum tax on o)=0,*

and the marginal rate of substitution of c^o for c^y be denoted by denoted by MRS$\equiv\frac{\partial u/\partial c^o}{\partial u/\partial c^y}$, the latter is found by Gavhari based on (1) to be,

$$MRS = \frac{1}{(1+\tau)(1+r)}\left[1+\alpha\left(\frac{1+r}{1+n}-\frac{1}{1+\theta}\right)\right] \qquad (2)$$

while (in p. 588), "*the steady-state utility attains its maximal value at r = n and the continuum of combinations of τ and θ that satisfy*,

$$\theta = \frac{\tau}{\alpha-\tau}." \qquad (3)$$

Setting $\theta=\varepsilon\tau$, (3) becomes $\varepsilon=1/(\alpha-\tau)=>\alpha=(1+\varepsilon\tau)/\varepsilon$, which of course implies that only $1\leq\varepsilon$ is sensible, since otherwise $1/\varepsilon>1$ and hence, $\alpha>1$ contrary to what has been plausibly assumed about α. Now, when this α is inserted in (2), it yields that,

$$MRS=\frac{\varepsilon(1+n)(1+\theta)+(1+\varepsilon\tau)[r(1+\theta)+\theta-n]}{\varepsilon(1+\tau)(1+r)(1+n)(1+\theta)},$$

which can become, $MRS=1/(1+n)$ and since $r=n$ at steady state,

$$MRS=\frac{1}{1+r}, \qquad (4)$$

only if $\varepsilon=1$ and thereby $\theta=\tau$. The focus of this note is this exactly expression, since it is the one connected with Chicago rule.

First, it is clear that the source of the indeterminacy is the use of a "regular" utility function in the place of a social welfare function, containing a utility function for individuals of type *y* and one such function for those of type *o*. This is the reason, the Diamond (1965) that is "practice", why Gahvari (2007) arrives at a similar conclusion in Gahvari (2009). Second, (4) obtains from (2) by setting $\tau=\alpha=0$, which is mathematically meaningful, but setting $\tau=\alpha=0$ in (3), the fraction $\tau/(\alpha-\tau)$ becomes $0/0$ and since $\theta=\tau$, (3) becomes $0=0/0$, which is not sensible mathematically and which certainly cannot be connected with any policy rule. Third, setting τ only equal to zero and hence, $\theta=0$ too, (3) becomes $0=0/\alpha$, which does make sense mathematically and which case is supposed to be connected with Chicago rule. It is indeed the case when fractional commercial banking is assumed away. As a matter of fact, $\tau=\theta=0$ would be the case only if there were no public sector at all: how else would this sector be covering its expenses if not from taxation and money issuance-cum-borrowing/lending?

Hung (2005, p. 715), for example, concludes that: "*If only income taxation is used for financing* [public investment]… *then the optimal tax rate is…too high to be a practical income tax rate. However, if there is demand for money in transactions then the optimal income tax rate is…close to the practical income tax rate…*[T]*his result highlights the importance of allowing both income taxation and seigniorage for financing public investment in infrastructure*"… And, in the bottom line, postulating a policy rule not to be having policymakers would be a contradiction in terms. Consequently, neither the case $\tau=\theta=0$ could be thought of as being in the spirit of Chicago rule, which in turn has to be appreciated only in the realm of a fractional reserve system.

Given this, let us continue the investigation of (3): Fourth, setting $\tau=1$ would yield $\alpha=2$, against any economic intuition. Fifth, letting $\alpha=0$, the result would be that $\tau=\theta=-1$ against intuition as well. And, finally, sixth, assuming an $\alpha=1$ would produce $\tau=0$, i.e. no tax finance of government expenditure at all, which cannot be part of any policy prescription. Therefore, an optimal monetary policy rule presupposes that τ and θ are defined over the open unit interval, with $\tau<\alpha$, and with $\tau=\theta$. Now, given that under a social welfare approach to overlapping generations would yield a unique such rule, this rule may be identified with the Chicago rule: The government has to be covering its expenses by relying both on taxation and seigniorage by equating at the optimum the per-unit opportunity cost of holding money with the tax rate. This is what the Chicago rule is all about from the viewpoint of a social planner's rule as it actually is supposed to be by conception. And, as soon as what is sought is optimality,

this $\tau=\theta$ would be disturbed by a budget deficit and hence, should be accompanied by a balanced-budget rule.

Identifying the opportunity cost with seigniorage and this in turn with the negligible production cost of fiat money, is certainly as wrong as to advocate one of two extremes, namely, either the elimination of taxation and of the public sector or a public sector under an exponentially increasing debt. This is the reason seigniorage has to been seen alternatively as an inflation tax (Baily 1956, Friedman 1953, 1971), as a commodity tax from the perspective of optimal taxation (Barro 1982, Mankiw 1987, Phelps 1973, Tobin, 1963) and/or related to the default risks accompanying credit money (Reich 2011) always in a growing steady-state economy rather than in a disequilibrium environment. And, this is the reason why the closely related to Chicago rule, the more practical, Friedman's k-percent rule had to be developed, too (Friedman 1960).

Seigniorage is a critical concept in understanding Chicago rule: (a) In the absence of commercial banks or the same, under a 100% reserve system and central bank only seigniorage, S, we have that, $S=i(H/P)$, where H is the monetary base and P is the price level. (b) From the quantity-theory equation, $H=kPY$ and hence, $S=i(kPY/P)=>S=ikY$, where Y is real income and $1/k$ is the velocity of circulation. (c) S acts like a uniform commodity tax at rate s, $S=sY$, which in view of (b) implies that $s=ik$. (d) According to the theory of optimal taxation, this tax is equivalent to linear direct taxation under rate τ and hence, $ik=\tau$. (e) Therefore, setting $i=0$ implies that $\tau=0$. There is no reason in printing money to cover the expenses of the state when the state does so in great part through seigniorage, and seigniorage is not allowed to exist by the same the state! To rely only on tax revenues would be gravely suboptimal and the state might as well cease to exist altogether right from the start rather than collapse under piling up budget deficits and debts.

2.2 Chicago Rule and Commercial Bank Seigniorage

But, in the presence of a commercial banking system regardless its fractional or not character and which benefits from commercial bank seigniorage, $V=[i(1-\rho)-r_d]D/P$, with a required reserve ratio $\rho\leq 1$ on deposited money $D/P=\lambda Y$ under a deposit rate r_d, and $H=F+D$, where F is cash, the total, the sum $S+V=(ik-\lambda r_d)Y$ and subsequently, $s=(ik-\lambda r_d)=\tau$ (see e.g. Baltensperger and Jordan, 1997). Now, $i=0$ implies that $s=-\lambda r_d=\tau$ but under perfect competition $r_d=r$ and since $i=0=>\pi=-r$, r_d is as negative as r is and hence, $-\lambda r_d>0$. This is commercial bank seigniorage even if bank profit has been squeezed to zero as we have actually assumed. It is the opportunity cost of the public per monetary unit deposited with the bank. Chicago-rule real-world relevance "begs" for an environment of commercial banking; otherwise, not even the presence of state is justifiable. The state can exist without its own seigniorage, because it can borrow it from the commercial banks, and so, it might tax people as well, preferably at the same rate.

In this and only in this case, Chicago Rule acts countercyclically: Reverse π via equiproportional change in θ and τ, *ceteris paribus*: If a10% inflation takes out 10% of the purchasing power of consumers, and if the original purchasing power was the social-welfare maximizing one, restore it through symmetric monetary and fiscal contraction, *ceteris paribus*… As we have already seen, Chicago rule, this rule, would

be a contradiction in terms without fractional commercial banking. And, we shall start justifying the emergence of such banking in the form of intergenerational banking by noting at the outset that a societal optimum would be a Pareto efficient state of affairs, a tangency of the utility possibility curve with a social indifference curve, not necessarily Nash equilibrium. It may be encompassing thereby an intergenerational equity vs. envy-freeness trade-off; a trade-off even after the second-fundamental-theorem-of-welfare-economics prescribed lump-sum taxes/transfers needed to maintain Ricardian equivalence as follows.

Envy and equitability are by definition subjective and hence, private information and there can be no Arrow-Debreu insurance markets to handle them efficiently. For example, the young may be considering that too much goes to social security and the elderly may be consuming too much out of the social-security check under a *dum vivimus,vivamus* (while we live, let us live) mentality. Or, Alper et al. (2008) find seigniorage to be a burden on old households, which is not compensated unambiguously by public investment, but which investment does compensate for the taxation burdening the current generation. Do the elderly favor public consumption expenditures, which the young would oppose? Indeed, envy-equitability preoccupations manifested by the young is a factor akin to the uncertain preference regarding the time of consumption mainly by the elderly, which such markets cannot handle and prompt the emergence of intergenerational banking *a la* Diamond and Dybvig (1983).

In a monetized market economy, all of these factors pose illiquidity threats; they may incite generational bank-runs, the protection against which is what is supposed to be dictating bank policy. Young and old have money on deposit with the bank at rates r_{d1} and r_{d2}, respectively. According to Qi (1994), if the elderly have uncertain preferences about the time of consumption, the intergenerational bank can nullify the subsequent illiquidity risks through the selection of the appropriate combination of r_{d1} and r_{d2}. The intergenerational bank acts in this case as a non-market and specifically, as a social-planner surrogate of efficient Arrow-Debreu insurance by providing liquidity insurance; and a similar argument may be made *a priori* with regard to envy-equity: Chicago rule continues holding.

Indeed, there are many contexts within which this rule has been shown to be optimal, (see, e.g. Phelps 1973, Kimbrough 1986, Guidotti and Vegh 1993, Correia and Teles 1996, Chari, Christiano, and Kehoe 1996, Ireland 1996, or Mulligan and Sala-i-Martin 1997). They are contexts which preclude liquidity preference shocks; neither envy-equity nor high discounting of the future is a shock element. Protection in the fear of random relocation by holding more cash than is optimally needed and actual relocation is an example of circumstances that may do induce liquidity preference shocks; in which case Chicago rule appears to cease being optimal. Quite instructive of this point of view is Smith's (2003) work on the role of bank intermediation under such shocks: To the extent that relocation introduces frictions that prevent the operation of the Modigliani-Miller theorem and that the altered capital structure of the bank does take its toll on growth prospects, keeping the nominal interest rate too low may be suboptimal. Under a liquidity preference shock, a social-planner intergenerational bank fostering social welfare maximization from the viewpoint of growth as well is inconsistent with Chicago's rule.

Relocation models are not genuinely overlapping generations models in that they do not postulate explicitly two separate utility functions, one for the young and one for the old; they assume instead one intertemporal utility function. Yet, their thesis is quite plausible, validated empirically, and there is no *a priori* reason why it should not be confirmed within an original overlapping generations environment: High/low nominal interest rates imply high/low opportunity cost of holding reserves and this in turn, high/low lending and growth and subsequently, low/high insurance against the risk of relocation. Consequently, the social optimality of Chicago rule should be sought not in connection with this line of reasoning, but in the fact that this reasoning describes a response to a disequilibrium shock whereas Chicago rule focuses on countering the disequilibrium with a view to long-run equilibrium. After all, although under commercial banking, the Chicago rule acts like a full-reserve requirement, following such a requirement would do protect against illiquidity shocks. It all depends on whether the social planner's concern is the cyclical short- or acyclical long-run, on whether the planner deems appropriate to manipulate the cycle as such or in combination with the institutional context of the acyclical long-run within which it is unfolding.

Indeed, the introduction of commercial banking and thereby commercial bank seigniorage and credit money from the viewpoint of intergenerational banking enriches the monetary-policy aspect of Chicago rule a lot. Noting that $V=V_1+V_2$ and letting $D_1=\sigma D$ and $D_2=(1-\sigma)D$, $0\leq\sigma\leq1$, total seigniorage becomes, $S+V=ikY-[r_{d1}\sigma+r_{d2}(1-\sigma)]\lambda Y$, where now $i=r+\pi+\varphi+\psi$, with φ being a risk premium with respect to credit money related default risks and/or bank runs, while ψ is a liquidity premium in connection with relocation and liquidity preference shocks in general. Setting $i=0=>\pi=-r-\varphi-\psi$ and the term $[r_{d1}\sigma+r_{d2}(1-\sigma)]$ is positive to the extent the r_d's follow the countercyclical of the rule. Indeed, anti-inflationary monetary contraction, for example, and reduction in default risks and/or illiquidity go together.

Nevertheless, it should be stressed again that the overall countercyclical contribution of the Chicago rule may be judged too weak by someone favoring discretionary policy-making. But, such a position derives from the perspective of rules *vs*. discretion, which is not methodologically the proper context within which to judge the optimality of a rule. As a matter of fact, it is as improper methodologically as to be identifying $i=0$ only with $r+\pi=0$, taking the presence of factors like φ and ψ as tokens of Chicago rule falsification. $r=[(1+i)/(1+\pi)]-1\approx i-\pi$ is the linear approximation of the Fisher equation, but the focus of Chicago rule is supply of real money consistent with the horizontal intercept of the money demand curve in the real money (horizontal axis)-nominal interest rate (vertical axis) space and hence, consistent with $i=0$ whatever thereby this i may be including.

3. Concluding Remarks

Anyway, what is socially optimal is certainly subjective and given that the planner is a democratically elected government, the content of social optimality is judged by the median voter. Ever since the Great Depression of the 1930's, the choice available to the electorate is the selection of the incumbent from political parties focusing on the Phillips curve and favoring this or the other policy instrument. It is clearly an election choice focusing on the short-run, "*as if any improvement, however slight, in control of the cycle justified any sacrifice, however large, in the long-run*

efficiency, or prospects for growth of the economic system" (Friedman 1948, p.245). Since the 1930's, the voter is being called for to choose among the various discretionary policies but never between discretion as such and the "*rule of law*" as Friedman (1948, p.246) would put it. The closest an economy can come to its long-run perspective is through Friedman's k-percent rule, which again is a monetarist thesis connected with the Phillips curve, too.

The voter should certainly have the opportunity to make up its mind by knowing at least what a long-run policy focus would involve as well. It appears that there should also be a political party aligned with The Chicago School of Thought, with the Simons-Fisher-Friedman tradition, since it is the only one persisting in the reconciliation between the short- and the long-run policy-wise: It does so by wanting to institutionalize a Chicago-rule constraint, a balanced-budget constraint, no open-market operations, and a 100% reserve requirement ratio, the latter being interpreted as in the introductory Section.

Under the interpretation of the Chicago School advanced *via* this tract, commercial banking becomes the cornerstone of the system. By doing so, the system places itself in the hands of commercial banks, the task of social planning becomes one shared equally by the private bank and the political authority, and the latter can only be hoping that the bank will not abuse its power. Consequently, Fisher's scheme would be much more helpful towards this direction. What the bank loses economically is gained socio-politically. If the bank does abuse power and the government does not choose to adopt a cooperative-game short of interaction with it, the subsequent conflict will jeopardize the whole system right from its roots. At the other end, the bank becoming an informal non-elected government partner in social welfare decisionmaking, absolved thereby from the trade-offs imposed on this decisionmaking by Arrow's impossibility theorem, may have to confront the would-be "compromises" implied by this theorem for the positions taken by the elected incumbent.

Under the Chicago policy guidelines, the political arrangement becomes internal to the economic sphere and to the phenomenon of money itself. The two psychological elements about money that are required for a functioning money economy are the security of its general recognition as a means of payments, trusting that this recognition will not break down in the future. Chicago rule and Chicago tradition guarantee the part of trust to the extent that commercial banks guarantee the part of security, echoing Keynes' (1923, p.1) word of caution: "*When the value of money changes, it does not change equally for all persons or for all purposes*", which is of particular importance within an intergenerational context. It has been shown that the Chicago rule and subsequently, the entire Chicago policy package may be non-optimal under various second-best settings (see e.g. Gahvari and Micheletto 2012).

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