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Growth, Welfare Costs and Aggregate Fluctuations in Economies with Monetary Taxation

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There is large body of empirical literature devoted to study the relationship between inflation and long-run growth. Recently, levine and Renelt (1992) encouraged by new developments in growth theory investigated, within a unified framework, the effet of a number of variables on per capita growth. The authors found that there was no robust srelationship between the two variables. On the contrary, fisher (1991-1993) using the Levine and Renelt growth equation approach supports the convetional view that inflation is an important determinant of the rate of economic growth and that the effects of important determinant of the rate of economic growth and that the effets of inflation are stronger at low and moderate inflation levels. Levine and Zervos (1992) include in the same framework an index of economic policy and concluded that growth and low inflation low budget deficit are positively correlated. Additional evidence supporting a negative relationship between inflation and growth can also be found in De Long and Summers (1992) and De Gregorio (1993), among others.

The predominantly negative correlation between inflation and growth observe in the data has not been properly rationalized in models where identical agents behave rationally and where money has a significant impact of the evolution of real variables. In monetary versions of the neoclassical growth model the quantitative importance of money is quite modest inducing only small growth and welfare effects and playing almost no role in explaing the fluctuations of real variables. Because of the same reason, these models have not been successful at identifying a channel through which inflation plays a more meaningful role in the economy.

There are numerous plausible channels through which may affect growth and welafre. However, the implications of many of them have not been fully explored or the simply have not been successful. Feasible channels are nominally denominated depreciation allowances, partially indexed tax bracketing, eserve requiriment on bank deposists, invetment purchases subjet to cash-in advance (CIA) constrain (Stockman, 1981), investment purchases and labor service payments subject to CIA constraint (Chistiano, 1991) etc.

Nevertheless, as a result of this research program, the distorting effects of inflation on the labor leisure choice has risen as the basic mechanism at work in monetary models . In models with no growth (Cooley and Hansen, 1989), inflation reduces labor effort through its effect on the return to working because part of the labor income has to be carried over,as cash balances, into the next period’s cashgood trade. In models with endogenous growth (Gomme, 1993; Jones and Manuelli, the rate of growth of the economy. Within the first type of models, the welfare cost of a 10% inflation rate was calculated in 0.4% of income; within the second, Gomme (1993) computes a welfare cost of less than 0.03% of income for a 8.5% inflation rate. This kind of evidence endorses

the generally accepted conclusion that welafre costs of inflation are very samall and they are even smaller in models with endogenous growth(1).

In this paper I explore one alternative avenue through which inflation can have real effects and estimate its quantitative importance. The assumption that taxes are directly collected in money is imposed to capture the real world feature that money is the requiered means of taxation payment. Most, if no all, of the literature has studied econmies in which money exclusively has a private use (to buy goods or assetes or factor payments) ignoring its public use in taxation and the fact that they are closely related in modern economic arrangements where the value of money is not tied down to gold or any other kind of backing. It has long been recognized that if the government "(..) declines to accept some kind of money in payment of obligations to itself, it is difficult to believe that it would retain much of its general acceptability. (...) Its general acceptability, which is its all-important attribute, stands or falls by its acceptability by the state" (Lener, 1947). In consequence, it is natural to consider an economy in which money fulfills two functions: the government accepts money from households in the settiement of tax liabilites and money is used as a medium of exchange.

The paper is organized as follows. In sections 2 and 3 I study three model economies sharing the common features of steady state growth and tax payments explicity modeled as a monetary obligation. I assume that taxes have to be paid with fiat money accumulated in advance. Welfare and growth effects of inflation are studied in an exogenous growth model, and endogenous growth model with human capital accumulation. The principal finding is that the size of growth and welfare effects are igher than those found in comparable monetary models. In contrast to the exisiting literature, welfare costs are driven by the effect of inflation on the rate of growth instead of the effect on the labor-leisure choice. In an economy with monetary taxation, inflation strikes the growth rate directy through the after-tax real rate of return on investment. This is the same channel through which distortionary taxation has important real effects (Rebelo, 1991).

In section 4 a real business cycle model (RBC) with monetary taxation is parameterized, calibrated and simulated. I address the cuestion of how the ability of the RBC model is affected when the tax payment technology is imposed. Section 5 extends the business cycle model to incorporate liquidity effects. The paper provides a "monetary" economy in which the observed labor market anomalies related to the correlation and relative volatility of hours worked and average productivity are not present. Section 6 presents a summary and conclusions. (1) A different strand of the literature -in economies where heterogeneous agents facing idiosincratic risk (income variability hold money to facilite consumption smoothing - has found grater welfare COST. Imrohoroglu (1992) estimates in 1.07% of total GNP the cost a 10% inflation. In contrast, the paper presented adpts the transaction-based approach to motivate yhe demand for money in economies inhabited by identical agents.

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