0440

DOCUMENT OF INTERNATIONAL MONETARY FUND AND NOT FOR PUBLIC USE

January 18, 1991

WP/90/115
Correction 1

Subject: <u>Management of the Nominal Public Debt Theory and Applications</u>

        The attached page 17 of WP/90/115 (December 1990) is reissued to include the last four lines, which were inadvertently omitted.

Att: (1)

Other Distribution:
Department Heads
Division Chiefs

exhibited by the evolution of actual maturity. In the case of the U.S., the new index appears to perform slightly worse.

This exercise, therefore, suggests that the model's implications concerning debt maturity are not very sensitive to the failure in accounting for the actual inflation experience, provided that this failure is related to considerations which can be safely interpreted as affecting the time-path of the parameter A_t. One particular consideration which could have a bearing on the time-path of A_t is the issue of credibility. In principle, one could associate a strengthening of credibility with an increase in the value of A, that is, with an increase in the relative cost of inflation to the policy-maker. In this vein, the simulations suggest that, while affecting substantially equilibrium inflation, changes in credibility would not necessarily lead to significant changes in the observed maturity structure the public debt. An entirely different way of thinking about credibility, however, is to associate a strengthening of credibility with moving to a world in which forms of partial policy precommitment are possible. In this alternative view, as shown by Calvo and Guidotti (1990a), changes in credibility may lead to significant changes in the optimal maturity structure of the public debt. 1/

V. Concluding Remarks

Accounting for the potential incentive problems associated with the presence of nominal government debt provides the basis for formulating a theory of optimal public debt management in which both changes in the level and in the maturity composition of the public debt matter. In a world of incomplete markets and less that full policy precommitment, the equilibrium time-consistent policy does not replicate the optimal policy which obtains when policy-makers have the ability to fully precommit their (and their successors') future actions.

Despite its stylized nature, the model appears to be capable of accounting for some important aspects of actual public debt management. Particularly, it can explain the observed co-movement of maturity and the stock of public debt as well as produce implications which are qualitatively consistent with the evolution of actual maturity. Extensions to this work would take explicit account of random shocks so as to be able to generate estimable stochastic Euler equations. Also, it appears important at this point to explore the microfoundations of the model a little further, particularly to improve our understanding of the costs of unanticipated inflation (see Calvo and Guidotti (1989) for a discussion).

Finally, to improve the model's ability to explain actual government behavior, it appears important to endogeneize the real interest rate and to connect our theory of the maturity structure of the nominal public debt with considerations of a real nature as those explored by Lucas and Stokey (1983) (see also Persson and Tabellini (1990)), and issues related to confidence crisis (see, for instance, Giavazzi and Pagano (1990)).

1/ Of course, in the extreme case of full precommitment debt maturity becomes irrelevant.

Appendix: Data Sources and Definitions

Italy:

Data on the privately-held domestic public debt stock and its maturity composition was obtained from the Relazione Annuale, Banca d'Italia, various years, and L'Indebitamento Pubblico in Italia, (Roma: Camera dei Deputati), 1985. Long-term debt comprises "Titoli a medio e lungo termine sul mercato" (see Relazione Annuale, Banca d'Italia) but excludes from this category debt which is indexed to the short-term interest rate (i.e., it excludes "Buoni Ordinari del Tesoro" (see Relazione Annuale, Banca d'Italia)). Data on tax revenue was obtained from Revenue Statistics of OECD Member Countries, OECD, various years, and from the Government Finance Statistics, International Monetary Fund. Data for CPI inflation and GDP was obtained from the International Financial Statistics, International Monetary Fund.

Ireland:

Domestic public debt data was obtained from the Quarterly Bulletin and the Annual Report of the Bank of Ireland. The domestic public debt stock comprises "Marketable Irish Government Securities" (see Quarterly Bulletin, Bank of Ireland) but excludes debt held by the Central Bank. Long-term debt is defined as the portion of the outstanding debt with maturity of 3 or more years (see Quarterly Bulletin, Bank of Ireland). Data on tax revenue was obtained from Revenue Statistics of OECD Member Countries, OECD, various years, and from the Government Finance Statistics, International Monetary Fund. Data for CPI inflation and GDP was obtained from the International Financial Statistics, International Monetary Fund.

United States:

Domestic public debt data and its maturity composition was obtained from the Economic Report of the President, various years. The domestic public debt stock is measured by the stock of "Marketable interest-bearing public debt securities held by private investors" (see the Economic Report of the President). Long-term debt is defined as the proportion of the outstanding debt with maturity longer than one year. Data of tax revenue, CPI inflation, and GDP was obtained from the International Financial Statistics, International Monetary Fund.