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A Survey of the Literature on Crowding Out in Italy*

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I. Introduction

During the 1970s, the public sector increased its involvement in the Italian economy. It increased its intervention both to redistribute and to allocate resources. As a result, both financial support by the state for families and enterprises, and direct state production of goods and services, which were previously produced privately, have grown. The government's deficit has also risen: the state sector borrowing requirement in 1982 was equivalent to 15.5 percent of GDP and 72 percent of total domestic credit. In 1972, by contrast, state sector borrowing was equivalent to 11.2 percent of GDP, and 46 percent of total domestic credit. This has inevitably provoked considerable debate on how far public sector activities have been, and are, "crowding out" the private sector.

Theory suggests several different ways in which crowding out can occur. "Real" crowding out is said to exist when public economic activity absorbs the real resources that the private sector would otherwise use in the production of goods and services. Financial crowding out occurs when the financing of the public deficit leads to the displacement of credit intended for the private sector. In this context, a distinction is usually made between direct financial crowding out, when the credit available to enterprises is restricted, and indirect crowding out, which arises from the rise in interest rates needed to encourage the public to buy government bonds to cover the deficit. However, whether financial crowding out is direct or indirect, the key effects are those on private expenditure, so very often the effects of interest rates and credit shortages are analyzed together. Crowding out may also be caused by inflation, but this type is usually not so direct or explicit; it is mainly evident in a misallocation of resources, and in a worsening balance of payments that occurs over the medium to long term.

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This study attempts to summarize the academic debate on crowding out in Italy. This debate differs from that in other industrial economies, since it is closely related to the Italian financial and monetary situation of the 1970s, when the government consistently attempted to influence the distribution of credit across sectors and by source of financing. Indirect credit control was applied, beginning in 1974, through the regulation of bank reserves, the monetary base, and interest rates on debentures and Treasury bonds. 1/ Meanwhile, selective, direct control was instituted through portfolio requirements imposed on banks (obliging them, for instance, to invest part of their own assets in government bonds), and through the establishment of a ceiling on the growth of credit to the private sector. 2/

This attempt by the government to control credit led to questions whether the share of total domestic credit allocated to the public sector to finance its deficit did not preempt part of the share available to the private sector. But since a large share of the public expenditure financed private enterprises through transfers, some argued that the demand of private firms for credit was thereby reduced. The degree of such crowding out was therefore the subject of controversy.

This was only the beginning of a broad-ranging debate which ultimately focused on the role of transfers in sustaining private economic activity. Section II of this paper deals with this issue. Section III discusses various specific hypotheses on crowding out in Italy; this represents an extension of the analysis in Section II, in that these supposedly new forms of crowding out are all directly or indirectly caused by increased public sector borrowing and reallocation among private enterprises according to criteria different from those in the free market. Section IV discusses an econometric model by Verde which has been used to estimate the amount of direct crowding out of private investment, given both a curb on total domestic credit and an expansion of public borrowing. The effects of inflation on the public deficit and on crowding out are analyzed, as are the feedback effects that the composition of the deficit may have on inflation. 3/ Section V provides some concluding thoughts.

1/ For an exhaustive description of monetary policy in Italy, see Fazio (1979).

2/ These credit ceilings have been recently relaxed.

3/ The effects that the rise of interest rates can have on private expenditure, and particularly on private investment, will not be discussed for two reasons. First, during the 1970s private expenditure was mainly controlled through quantitative curbs on financial flows, and not through their price--that is the interest rate. The second point (related to the first) is that the interest rate is believed not to have been the primary determinant of private investments. The situation is presently different. Credit ceilings and other direct controls on financial flows have been relaxed and control is exerted indirectly through the structure of interest rates. This means that during the 1980s, the main avenue through which crowding out can manifest itself is the interest rate.

II. The Controversy on Crowding Out in Italy

1. The issue

Before 1976-77, the existence of crowding out in Italy, if not taken for granted, was at least regarded as highly probable, given the size of the public deficit, its annual growth rate, and the control exercised by the monetary authorities over both the annual expansion of total domestic credit and the share allotted to the public sector. ^{1/} Though not directly specified, most of the discussion referred to direct financial crowding out (D'Adda (1979)), though the lack of precision often caused confusion.

However, in the late 1970s, various authors (Spaventa (1977), Banca Commerciale Italiana (1978), Cavazzuti (1978)) began to argue that some public expenditures, and measures reducing public revenues, even if they increase the deficit, may have positive effects, both direct and indirect, on the financial accounts of private enterprises (for example, through public purchases of private goods and services, payment of social charges by government on behalf of enterprises (fiscalizzazioni), tax relief, and commercial credits). The focus then shifted to public transfers to private enterprises, and whether such transfers do or do not offset any financial crowding out.

Monti and Siracusano (1979) and (1980) initiated the debate, arguing that the traditional division of total domestic credit between the public and the private sector was misleading. It would suggest that in the 1970s the public sector regularly absorbed more than 50 percent--at times 70 percent--of available credit, crowding the private sector out of the credit market and thus forcing private enterprises to reduce real expenditure. (At this stage in the debate, the possible effects of price changes on crowding out were ignored.) Monti and Siracusano argued that since private activity did not diminish, the public sector must have acted as a financial intermediary, draining liquidity from the credit market, and transferring it to enterprises. Thus, part of the public sector's credit demand in fact served to finance the private rather than the public sector. Hence, conclusions should not be drawn that financial crowding out existed from a simple observation of the traditional credit data. The authors recommended subtracting the transfers from the financial requirements of the public sector and assigning them to the private sector. The resulting division of total domestic credit would then more clearly represent the real use of credit by each sector.

^{1/} Total domestic credit, used in Italy as the intermediate objective of monetary policy, is defined as the sum of loans (both in lire and in foreign currencies) by banks and special credit institutions to the private sector, of bonds issued by enterprises, and of the financial requirements of the public sector financed internally.

The ensuing debate was lively, with journalistic overtones. The discussion focused on three issues: (i) the appropriate measure of the size of transfers; (ii) the degree of substitutability between transfers and bank credit; and (iii) the distortions created by the state's role as a "hidden banker" or financial intermediary through its transfers. 1/

2. Size of transfers

The issue of quantifying these transfers arose because almost every author presented his own estimate, which varied mainly with the particular public sector aggregate referred to, and with his own judgment of the contribution made by the various forms of transfer to meeting the real need of enterprises for funds. The basic choice of items to include under transfers also tended to depend on the thesis an author wanted to prove.

Statistical problems

A transfer is defined as the unrequited disbursement of funds. The Italian public sector comprises various aggregates in addition to the state (or core central government). These include: (i) the State Sector--the state plus autonomous agencies (aziende autonome), i.e., the various public monopolies, the Telephone, Post, and Telegraph, the Railways, the Forestry Agency, the National Road Board (ANAS), the Deposits and Loans Bank (Cassa Depositi e Prestiti), and the Bank for the South (Cassa per il Mezzogiorno); (ii) the Central Government--the state plus the Forestry Agency, the National Road Board, the Deposits and Loans Bank, and the Bank for the South, plus several other central government agencies (the Central Statistics Institute, the National Research Council, the Religion Fund, the State Agency for Agricultural Market Support, etc.); (iii) the General Government--the Central Government, Local Governments (regions, provinces, communes), and other agencies of local government such as universities and social insurance agencies; and (iv) the Enlarged Public Sector--the General Government plus the monopolies, Telephone, Post and Telegraph, Railways, municipal and provincial agencies, and the National Electric Power Board (ENEL).

The volume of transfers obviously varies according to the aggregate being considered. For example, there will be a difference between the contributions of the General Government Sector and those of the

1/ Monti (1978) coined the expression "the hidden banker state" to refer to the resource transfer activities performed by the public sector in Italy. The expression is designed to make clear that the state's transfer activity is that of a typical financial intermediary. The appropriateness of the expression will become clearer in Section III.

Enlarged Public Sector to enterprises. In this analysis, the definition of transfers in official sources will therefore be used. 1/ These identify net transfers to enterprises by the Enlarged Public Sector as consisting of the sum of the following:

(i) Contributions to production, i.e., net current transfers to enterprises, the purpose of which is to reduce sale prices or to increase the return on factors of production. These include contributions to the interest account for subsidized credit. 2/

(ii) Contributions to investment, i.e., net capital transfers to enterprises to be used to finance restructuring, reconversion, or new investments.

(iii) Loans and equity investment, mainly net contributions to the endowment funds of enterprises with state participation and to financial intermediaries--either in the form of endowment funds or revolving funds for subsidized credit. These include share participations and capital contributions, loans and advances, and other net financial items, and exclude repayment of loans.

(iv) Settlement of overdue debts to enterprises, i.e., payment of overdue public sector debts.

less (v) Loans from suppliers to the public sector, i.e., payments to the public sector from outside entities.

1/ These sources are the General Report of 1979, and the Treasury Report of 1980. It should be noted that although this survey uses official sources as a reference, the meaning of direct transfers to enterprises in state documents has varied over time. In fact, until the publication of the two documents cited, direct transfers to enterprises did not include settlement of overdue debts and did include loans from suppliers.

2/ Contributions to interest accounts are merely a special type of credit subsidy. In Italy, there is a direct system of subsidized credit that can be viewed as an interweaving of credit and subsidization. On one hand, there are the special credit institutions, which originated officially with the 1936 banking law, characterized by specialty (e.g., agricultural, shipbuilding, moviemaking, etc.), by the degree of public control over them, and by the length of loan maturities (medium term to long term). On the other hand, there are credit subsidy programs that affect the financial operations of these institutions in various ways. The influence may be direct if, for example, the subsidy comes as a contribution to an interest account which would reduce the debt burden of an enterprise. The impact may also be indirect, as when the contribution is made in the form of guarantee funds, revolving funds, advances, refinancing, etc., that orient special credit institutions toward operations consistent with the "public purposes" of industrial policy, but at the same time reduce the costs involved.

And less (vi) Direct taxes on enterprises.

Several problems arise in presenting conceptually meaningful measures of net transfers to enterprises, even with this official definition in mind. Transfers affect the crowding out issue because of their possible impact on easing the financial problems of enterprises and in contributing to private capital accumulation. Therefore, the figures on transfers should identify the recipient sectors and the purposes for which transfers were made. This allows the public contribution to be compared with the investments undertaken, the enterprises' outside financial requirements, and with business cycle indicators. However, the official data for Italy do not categorize transfers by recipient enterprise, either geographically or sectorally (Di Majo and Frasca (1977); Monti and Siracusano (1979)), therefore precluding analysis of these issues. A relatively disaggregated analysis is possible only for the State Sector, while for units within the Enlarged Public Sector one can only identify the type of transfer, and not the recipient sector. Moreover, the concept of transfers expressed by the Contabilità Nazionale, which issues the government accounts, is based primarily on legal and accounting considerations; this means that only those items involving a transfer of title to funds are recorded in the national accounts as transfers. This makes the statistical aggregate much less meaningful. 1/

A second estimation problem arises because the distinction in the official data between capital and current transfers does not readily capture some important characteristics, and thus can lead to misclassification errors and a bias in the estimates of transfers. Many capital transfers serve principally to replenish capital lost on account of losses by both public enterprises and the National Electric Power Board (Cotula, Maserà, and Morcaldo (1983)). Logically, these should be treated as current transfers. Their present classification as

1/ An example of this are the contributions to the endowment funds of government-owned holding companies, public enterprises, and the special credit institutions. Even if the state retains title to these contributions, the fund is not remunerated at market prices, and in this way the beneficiary is subsidized. What is more, to the extent that these contributions cover current losses and not investments, the title ownership of the funds remains an uncallable claim. Another example occurs in the case of state subsidization of loans. This takes three principal forms: (i) contributions to the interest payments that the enterprise must make to a special credit institution; (ii) contributions to the endowment funds of these institutions to reduce the cost of collecting them; and (iii) direct state financing on the basis of the appropriate subsidization laws. The accounting system records only the first type as a transfer, though it is well known that only a small part of the funds involved in the other two types will be repaid by the enterprises (Brosio (1978)).

transfers to capital accounts, however, makes them appear as indirect investments by the state, with the consequence, of course, that the contribution of such state expenditures to private accumulation is exaggerated (Chiancone (1973); Saraceno (1977); Milone (1978)).

An analogous difficulty arises with transfers to municipal enterprises. Rather than serving to facilitate investments by these enterprises, such transfers serve to cover the losses in their profit and loss appropriations accounts arising from their subsidized provision of municipal services. One might argue that part of these transfers should be classified as subsidies to families.

A third problem with the official data is that of timing. The transfer expenditure recorded in the public account often does not become available to the enterprises during the same accounting period, and the stimulatory effects of the expenditure on private demand may be felt during a different period (Virno (1983)); to wit:

"The assistance to payment of interest on subsidized credit is provided to the enterprise by the state only after the special credit institution has granted it the financing for the investment; it is thus likely that by that time the enterprise has already begun work and thus exercised its demand.

The disbursements of funds to interest accounts are provided to special credit institutions when the latter have already exhausted the preceding fund. The total allocation recorded in the state balance sheet will thus have no relationship either to the subsidized credit granted prior to the allocation of the funds, or to a credit to be granted later.

The contributions to the endowment funds of financial intermediaries do not translate into immediate benefits for the enterprises because the credit institutions will use these funds to grant subsidized financing only at a later time." 1/

Finally, a complete picture of public support to enterprises should include not only transfers, but also the subsidies involved when they obtain public goods and services at artificially low administered prices, as well as the positive effects of implicit expenditure operations, such as tax relief, on enterprise accounts (Brosio (1978)). It is often impossible to obtain such information (Scognamiglio (1981)).

1/ Virno (1983).

3. Substitutability

a. The issue

The issue of how much public transfers to companies substitute for bank credit is obviously of critical importance to the subject of crowding out and has been debated at length in the Italian literature. Transfers and bank credit may be viewed as two normal goods; as such, for enterprises they are linked by a relationship of either substitutability or complementarity. If the coefficient of substitution between bank credit and transfers equals 1, an increase in transfers implies an equal reduction in the demand by enterprises for bank credit; if the coefficient is zero, there will be no effect on the demand for credit by enterprises, implying no change in the level of financial crowding out; if it is negative (i.e., if transfers and credit are complements), an increase in transfers produces an increase in enterprises' demand for bank credit.

Monti and Siracusano (1979) posit a substitution coefficient of close to 1 for all categories of transfers related to loans and equity investments in enterprises, on the grounds that public enterprises, without such transfers, would resort to the market and, given their political and social influence, would obtain funds at the expense of other enterprises. For the other types of transfers, Monti and Siracusano maintain that an analysis of the title ownership of resources is needed to determine the coefficient of substitution: as a matter of fact, out of net current transfers, net capital transfers, and loans and equity investments, only the last category is legally under the title ownership of the state, while the others do not imply any repayment. The authors therefore calculate that the coefficient of substitution for the first two categories is actually larger than 1--transfers induce a larger reduction in demand for bank credit, given the financial "security" they create for the recipient enterprises.

So, in its transfer activities, the state acts as a "hidden banker," financing companies as if it were a financial intermediary, but not on the same terms and conditions as banks. This is evident, according to Monti and Siracusano, in the increasing size of transfers and the decreasing size of bank loans to enterprises as a percentage of the assets in the banks' balance sheets; the picture is completed by the simultaneous increase of investments by the banks in Treasury bills and the increase in that part of bank assets earmarked for the financing of the public sector.

b. Criticisms

The method used by Monti and Siracusano to arrive at the coefficient of substitution has been strongly criticized by a number of authors (among others, Nardozzi and Onado (1980); Caranza, Di Majo,

and Macchiati (1980); Arcelli and Valiani (1979); Serravalli (1981); Silvestri (1981)). There now seems to be a consensus that substitutability varies with the different technical forms of transfers rather than their title ownership; to evaluate the varying effects of transfers on the demand of enterprises for credit it is necessary to observe operational practices. 1/

In fact, these studies suggest more evidence of complementarity between transfers and bank credit than might be expected. For example, current transfers in the form of interest subsidies are granted when an enterprise has already applied for a loan from a special credit institution. Since a decision to invest may often be based on the low cost of the subsidized loan (that for some periods has been negative in real terms), this relationship between transfers and the demand for credit may be complementary. Most probably, enterprises would not apply for bank credit if the interest rate charged were much higher.

Similarly, current transfers other than interest transfers might at first glance appear to be substitutes for bank credit. But these transfers are, for the most part, either used to subsidize the prices of goods or services that are "socially useful," or constitute transfers for social purposes to enterprises or sectors that would otherwise have to cut back on employment. Many of these enterprises are more like public than private undertakings; the state operates through them in the market, and the transfers are nothing more than an unavoidable cost to the state budget, once these goods and services have become part of the social utility function.

The alternative to the transfers would be direct production of the goods and services 2/ by the state. The transfers recorded in the state budget would then decrease but the public deficit would increase by an equal amount, thus producing no overall effect on the credit market, assuming that the state could produce as efficiently as the previous private operator (a highly optimistic hypothesis). The net effect on the credit market would then be zero.

Putting the question in terms of substitutability may, therefore, be misleading. What was said about interest transfers is also valid for capital transfers; in particular they can be a determining factor in the decision to undertake an investment, and in triggering multiplier effects on the demand for bank credit.

1/ Title ownership in Italy is anyway a rather vague concept. Very often the commitment to repay exists only on paper.

2/ Among these goods and services are several that produce positive externalities, making the principle of dividing the cost of production between direct consumers and taxpayers acceptable. This allocative criterion, however, is probably not respected in Italy, because a high increase in the cost of the public budget has not been matched by a corresponding increase in externalities (Di Majo and Frasca (1977)).

As for transfers that appear more obviously substitutable for bank credit, such as loans and advances, or capital contributions to enterprises with state participation, closer examination shows that these too may actually be more complementary than expected. Consider public enterprises: is it not possible that by the latter half of the 1970s, these enterprises had reached the upper limit of their ability to borrow, and the state had to take the place of the banks in financing them? This aspect will be discussed more thoroughly in Section III.2, but it is evident that the Monti and Siracusano approach of comparing the declining trend in bank investments in enterprises with the increasing trend of transfers cannot establish any precise relationship between cause and effect.

There also is reasonable consensus that transfers that can substitute for credit can do so only for a brief period. For a given financial requirement, a flow of public funds may reduce the initial demand of enterprises for loans, but in general, over the medium to long term, such transfers can create a concurrent need for bank credit. To the extent that they finance operations that otherwise would not be undertaken, they lay the foundations for later demand for bank credit.

In summary, the literature has weakened the hypothesis of substitutability between transfers and bank credit, either because analysis shows more evidence of complementarity, at least in the medium term, or because the very concept of substitutability is misleading--as we have seen in the case of transfers to enterprises that produce goods or services at a subsidized price. Nevertheless, the theory of the state as a hidden banker has lingered and revitalized a very fertile field of observation on the distorting effects of state intervention in the economy. This area is of interest because the more the state transfers resources in an inefficient way, the more it can damage the private sector and thus the entire economic system. If distortions are proved to result from the state's transfer activities, one would have to weigh their beneficial effect on individual enterprises with the damage done to the economic system as a whole.

4. Distortions and the "hidden banker"

The policy instruments principally used in industrial policy are transfers, credit subsidies, and the establishment of public enterprises; all have the advantage to the state that it can delegate a major part of the work to organizations outside its own administrative structure. This type of industrial policy has been strongly criticized. Even to the extent that one accepts the argument of complete substitutability between state transfers to enterprises and their demand for bank credit, the resulting allocation of the resources is likely to be different from that which would have arisen if resources had been allocated by market criteria through the banking system (Caffè (1979)). But the main criticism of the literature has been that the distributional efficiency of such resources is considerably reduced by state involvement in the provision of credit.

Subsidized and special credit have been and still are the main instruments of industrial policy in Italy. During the 1970s, the legislation on credit facilities was revamped to make it more flexible and at the same time, more controllable politically (Pontarollo (1980)). The authorities concentrated on a few priorities--geographical balance, industrial restructuring and reconversion, applied research, and export promotion. The banking system was intended to be the executive arm of policy. However, the numerous interministerial bodies involved in policy control lacked the technical and administrative capacity to handle subsidies, so the technical investigation of requests was entrusted to the credit institutions, which became the real decision makers (Cassese and Graziosi (1981)).

However, the efficiency of these institutions was impeded in several ways. First, formal governmental involvement, at times a purely official approval of the investigation already completed by the special credit institution, only lengthens the red tape involved in granting a credit. Second, a body of legislation has evolved that limits the degree of discretion both of policy authorities and the credit institutions in the decision-making process on loans. As a result, the subsidization system has become rigid and inflexible. A sample of requests for subsidies shows that the average total time between an application for a loan and the granting of approval was 14.5 months. 1/ Another indication of the complexity of the decision-making process is the significant difference between sums authorized and amounts actually disbursed. 2/

A second category of criticism against the current industrial policy refers to its harmful effects on the development of Italian industry. These criticisms focus on two main points. First, transfers to enterprises appear to have maintained stability in the production structure (Croce (1977); Monti and Siracusano (1979)). Empirical work suggests that when transfers to enterprises are increased, the sectors receiving most of them maintain their share of value added. If the survey is extended to include government expenditures for goods and

1/ This is derived from data on 131 requests for subsidy submitted by the Institute for Industrial Development of the South to the Cassa per il Mezzogiorno (Bank of the South). The problem of red tape was also taken up by the legislature and time limits were established for credit investigation procedures. The maximum periods between submission of the request and disbursement of the loans have been set as follows: 10 months for investments up to 2 billion lire; 11 months for investments between 2 and 10 billion lire; 14 months between 10 and 15 billion lire, and above 15 billion lire, no maximum limit. Obviously, there is no need for comment on the still excessive length of these periods.

2/ For the period 1971-77 with regard to several laws on industrial reconversion and reorganization taken together (1470/61, 184/71, 1101/71, and 464/72), the ratio of amounts disbursed to amounts appropriated was 39 percent (Pontarollo (1980)).

services, this tendency of public expenditures to maintain the pre-existing production structure is further accentuated (Di Majo and Frasca (1977)). Almost all analyses of public expenditure flows broken down by sector show that the state has probably slowed down a natural industrial restructuring.

A second criticism of government involvement in industry is that the distribution of transfers among sectors and by scale of enterprises is often not in accordance with the criteria and declared objectives of the legislature. The length of time it takes the bureaucracy to process transfers—which seems to vary from 12 to 24 months—tends to exclude a large number of smaller companies from applying for subsidies (Artoni and Termini (1980)). Moreover, as they disburse subsidized financing, the special institutions necessarily superimpose their own criteria (risk protection, guaranteed profitability, etc.) on the economic policy criteria established by the legislature.

This discrepancy between legislative and institutional priorities is most clearly evident in the legislation on the terms of subsidized credit to the South (Law 853/71, Artoni and Termini (1980)). This law, based on the previous negative experience of support for investments in large scale basic industry in Southern Italy—a support that created the so called "cathedrals in the desert"—sought to assist the nonbasic small and medium size manufacturing enterprises considered more suitable to the social and productive structure of the region. Eight years after the law went into effect, the flow of public transfers had still not shifted in favor of small and medium size enterprises; by 1978, 76 percent of disbursements were still absorbed by the two basic sectors—chemicals and metallurgy—that had been defined in legal provisions as nonpriority.

This continued channeling of subsidies toward certain sectors draws attention to a third negative consequence of this system of transfers. A restrictive monetary policy that aims to control borrowing and therefore spending capacity, in reality also punishes the marginal uncompetitive enterprises by raising the borrowing rates. These marginal enterprises will be forced to close. If, however, the public sector, which is not controllable by the monetary authorities, transfers large sums to unprofitable enterprises over a number of years, the restrictive effects will fall most heavily on the enterprises that are not assisted. Some argue that this has led to a privileged circle of inefficient enterprises in Italy that have drawn frequently from the public purse. One need only look at the results of one of the subsidization laws—1470/61—to observe that there have been many successive allocations of public funds to the same enterprises, 40 percent of which have failed or are in very serious difficulties (Pontarollo (1980)) in spite of these subventions (Reviglio (1977); Cotula and De Stefani (1979)).

5. Some indicators of crowding out

a. Some macroeconomic ratios

Relationships between macroeconomic variables have been used mainly to obtain proxies for direct financial crowding out, since this is the principal basis for showing the crowding out of private spending.

In the case of Italy, since the annual flow of total domestic credit must be held within certain bounds, it seems valid to regard the ratio of the public sector borrowing requirement to total credit as an indicator of direct financial crowding out (see Table 1). This indicator provides an estimate of the pressure exerted by the public sector's demand for funds on the credit market. But part of the public sector's requirements are determined by its financing of credit institutions, both in the form of contributions to capital and to the revolving funds for subsidized credit and in the form of deposits of the excess cash of agencies outside the state sector (Caranza, Di Majo, and Macchiati (1980)). Thus, the public sector borrowing requirement should be computed net of changes in bank deposits and of transfers to financial intermediaries.

When the flow of public funds to financial intermediaries and changes in deposits with credit institutions are taken into account, the net public sector borrowing requirement emerges clearly from Table 1. In particular, the distribution of credit flows changes as a result of these corrections.

In addition, issues of stock and flows of foreign capital not intermediated by credit institutions are excluded from the definition of total domestic credit. It is clear that such factors should be considered in assessing the degree of tightness of credit. Thus, before pronouncing final judgment on the combined tightening effect of a restrictive monetary policy and a growing public deficit, one must also note any changes in the composition of credit flows to the private sector. (One might recall the increase in the size and efficiency of the money market in Italy in the second half of the 1970s and its positive effects on the financial accounts of both lenders and borrowers.)

Historical series on the borrowing/credit ratio involve a further problem, stemming from the fact that it is an ex post ratio that does not explain the changes over time in the underlying variables. As noted earlier, to assess the demand of enterprises for external financing, it is necessary to examine the real and financial factors which determine it. If the value added, investment, and inventories of enterprises have fluctuated significantly, one cannot assume that their borrowing demand has remained constant in relation to sales. With respect to financial factors, a decline in borrowing requirements in relation to sales (as occurred in Italy in the second half of the 1970s) can of course reduce the demand for external financing (Nardozzi and Onado (1980)).

Table 1. Ratio of the Public Sector Borrowing Requirement
to Total Domestic Credit, 1970-78

(In billions of lire)

	1970	1971	1972	1973	1974	1975	1976	1977	1978
(1) Transfers to financial intermediaries	54	184	143	254	32	156	424	111	340
(2) Public sector borrow- ing requirement (Net of (1))	4,145	6,758	8,345	10,239	11,594	19,098	18,345	20,185	33,849
(As a share of total domestic credit)	(50.9)	(57.7)	(54.7)	(49.2)	(59.7)	(62.1)	(55.2)	(56.5)	(68.6)
(3) Change in bank depos- its of public agencies	-7	1,090	-45	1,170	-162	1,045	1,935	2,059	7,235
(4) Public sector borrow- ing requirement (Net of (1) and (3))	4,152	5,668	8,390	8,529	11,756	18,053	16,410	18,126	26,614
(As a share of adjusted total domestic credit) <u>1/</u>	(51.0)	(53.4)	(54.8)	(44.6)	(60.1)	(60.8)	(52.4)	(53.8)	(63.2)

Source: Caranza, Di Majo, and Macchiati (1980).

1/ Adjusted total domestic credit is exclusive of changes in bank deposits of public agencies.

On the other hand, it could be argued that the tightness of credit gave rise to internal adjustment processes in the enterprises, thus causing the changes observed in these variables. This means that ex post observation of time series showing the existence of a preferential distribution of financing between "public" and "private" borrowers disregards all the adjustment mechanisms internal to an economic system which are set in motion by exogenous shocks (whether increases in the public sector borrowing requirement or a certain tightening of credit). As Caffè (1979) noted, "the ultimate results depend on the institutions and the policies." These indicators therefore need to be accompanied by quantitative observations and qualitative judgments.

b. Public transfers to enterprises

In Italy, of course, public transfers to enterprises must also be considered in developing a measure of crowding out. The earlier discussion has noted the difficulties underlying the concept of substitutability. However, since external borrowing by enterprises is controlled as a residual of the public sector borrowing requirement, it is conceptually correct to calculate the shares of total domestic credit flowing to the public and private sectors in the short term, deduct the net transfers from the public to the private sector from the former, and add it to the latter. This is correct because the public sector in turn draws upon total credit to finance enterprises and it is certain that, in the short term, for a given borrowing requirement (and with, therefore, both saving and investment given), the flow of public funds to enterprises reduces their demand for credit from the banking system. If this deduction and addition is not made, there is a risk of underestimating the funds actually available to enterprises. This procedure is valid only for the short term, because one may assume that in the medium and long term (as has already been discussed in Section II.3.b), the transfers may have the effect of boosting the demand for bank credit, thus positively influencing the level of bank intermediation. Similarly, it will also be recalled that disbursements reaching enterprises after the date when they are reported are often charged to the public budget on the reported date. Hence, while it is correct to subtract the transfers from the public sector borrowing requirement, in such cases it may be wrong to add this type of disbursement simultaneously to the financing of the private sector. In such cases the estimates of public transfers need to take account of these lags (Virno (1983); Artoni and Termini (1980)).

Given the statistical difficulties involved in measuring public transfers to enterprises, it is no surprise that the estimates of transfers in the literature differ. In reviewing these estimates, the principal focus is to obtain a correct allocation of total domestic credit as between the "market" and the "state" sectors. This suggests transfers from the Enlarged Public Sector to enterprises outside it.

The reason for this is that presumably the credit demand of enterprises within the Enlarged Public Sector is less elastic with respect to interest rates than is that of the private sector (Serravalli (1981)). ^{1/}

Supporters of the thesis that public transfers to enterprises, particularly during the latter half of the 1970s, reduced the amount of direct financial crowding out have offered as evidence, among other data, those reported in Table 2 (Monti and Siracusano (1979)). These data are compared with those of an opponent of the thesis (Silvestri (1981)) and of others whose data are useful in illustrating the diversity of estimates (Caranza, Di Majo, and Macchiati (1980)). The differences are rather obvious, especially for 1979. It should be noted that Monti and Siracusano give a definition of direct transfers that differs from the official definition discussed above; these authors prefer to subtract overdue debts from the official data and direct taxes on enterprises and credits from suppliers. This obviously swells the total of transfers (Silvestri (1981)).

As we have seen, the reported data are imperfect from various points of view, but at least give an idea of the extent of transfers to enterprises from the Enlarged Public Sector. The growth rate of the volume of transfers increased in the second half of the 1970s even though the rate of increase was larger for advocates of the hidden banking theory. Great differences are also evident in the aggregates for the given years, depending on the author; particularly diverse are the corrected shares of credit flows, depending on the type of correction the authors used.

III. New Forms of Crowding Out

1. The issue

The previous section suggested that the state played the role of a hidden banker to the private sector during the 1970s. Several authors have further argued that this form of state financial intermediation is not neutral for the economic system, but produces three new forms of crowding out:

(1) The public sector, by engaging in intermediation, takes away from commercial banks part of their role of financial intermediation. This is contingent, of course, on the validity of the substitutability hypothesis.

^{1/} If, for example, we were interested in the stimulus of transfers in terms of the creation of the monetary base we would have to distinguish between the state sector and those recipients not included in that sector; the reason for this is that in Italy only the state sector is financed from additions to the monetary base (in addition to taxes and bonds).

Table 2. Italy: Alternative Indicators in the Literature on the Effect of Transfers on Measures of Crowding Out, 1970-79

(In percent)

		1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Monti and Siracusano (1979)	Tr/GDP	...	...	...	...	...	2.4 <u>1/</u>	3.2	3.0	3.9	4.7 <u>2/</u>
	Tr/PSBR	...	...	...	...	...	18.1 <u>1/</u>	26.9	28.5	25.7	34.4 <u>2/</u>
	PSBR/TDC	...	...	...	50.3	57.7	61.9	56.4	55.9	69.0	68.0 <u>2/</u>
	PRI/TDC	...	...	...	49.7	42.5	38.1	43.6	44.1	31.0	32.0 <u>2/</u>
	PSBR ^c /TDC <u>3/</u>	...	...	...	40.0	47.4	52.0	41.2	40.0	51.2	44.6 <u>2/</u>
	PRI ^c /TDC <u>3/</u>	...	...	...	60.0	52.6	48.0	58.8	60.0	48.8	55.4 <u>2/</u>
Silvestri (1981)	Tr/GDP	...	...	...	...	...	...	3.2	3.1	3.9	3.5
	PSBR ^c /TDC <u>3/</u>	...	...	...	...	...	...	41.2	39.8	51.8	42.6
	PSBR ^{uc} /TDC	...	...	...	...	...	...	53.1	55.0	65.3	55.6
Caranza, Di Majo, and Macchiati (1980) <u>5/</u>	Tr/PSBR	43.3	30.7	26.7	22.2	19.4	21.6 <u>4/</u>	25.4	30.5	17.3	29.8 <u>2/</u>
	PSBR/TDC	50.9	57.7	54.7	49.2	59.7	62.1	55.2	56.5	68.6	57.4 <u>2/</u>
	PRI/TDC	49.1	42.3	45.3	50.8	40.3	37.9	44.8	43.5	31.4	42.6 <u>2/</u>
	PSBR ^c /TDC	28.9	40.0	40.0	38.3	48.2	48.7	41.2	39.3	49.8	40.3 <u>2/</u>
	PRI ^c /TDC	71.1	60.0	60.0	61.7	51.8	51.3	58.8	60.7	50.2	59.7 <u>2/</u>

Note: GDP = Gross domestic product.

Tr = Net public transfers to enterprises.

PSBR = The public sector borrowing requirement.

TDC = Total domestic credit.

PSBR^c = PSBR corrected by subtracting the amount of public transfers to enterprises.

PRI = The portion of TDC reaching the private sector (families and enterprises).

PRI^c = PRI corrected by adding public transfers to enterprises.

PSBR^{uc} = PSBR corrected by subtracting the amount of net transfers. 6/

1/ Average values during the period 1970-75.

2/ Estimates.

3/ In these two papers, Tr is defined as equalling contributions to production plus contributions to investment plus credits and equity investments.

4/ The average during 1970-75 was 21.06 percent.

5/ These authors define Tr as equalling contributions to production plus contributions to investment plus credits and equity investments plus settlement of overdue debts net of funds to financial intermediaries. PSBR is defined as net of transfers to financial intermediaries.

6/ These are derived from the 1980 Relazione di Cassa (cash operations report of the Treasury) and the 1979 Relazione Generale (government's annual report on the Italian economy).

(ii) Transfers displace some private enterprises to the advantage of others, assuming that the state is not an efficient allocator of such resources and that it distributes them somewhat differently than the banks.

(iii) Transfers, if they increase rapidly, reduce the resources that the state budget can devote to expenditures on real goods and services.

These concepts of crowding out are completely different from the traditional ones. Those responsible for crowding out and those who are being crowded out are so different that it is impossible to identify an economic rationale for the process; one simply finds public expenditure categories that are increasing or decreasing, or one may even find "passive" displacing agents--enterprises that receive subsidies and displace those that do not. Some of these excessively diverse phenomena have only the name in common with crowding out, since they are very far from the original concept. The broad use of the term has certainly not contributed to clarity in the analysis.

On the subject of displacement of banks from the credit market, for example, it is misleading to describe all state transfers to enterprises as financial intermediation, and to compare state efficiency with that of the banking system. This overlooks the fact that the criteria guiding the state in its allocations are obviously different from those of a banking establishment, and that it is not possible to compare two actors with different objectives.

2. Crowding out of banks

The thesis that the state's transfer activity has displaced the banks from the credit market was previously discussed in the context of the controversy over substitutability. Other criticisms have been raised by a number of authors on the subject. For instance, the theory of Monti and Siracusano (1979) implicitly assumes the constancy of all the factors that combine to determine credit demand of enterprises (Nardozzi and Onado (1980)). In reality, several of these factors--such as the magnitude of real investment, value added, and inventories--all show a declining trend between 1974 and 1978. ^{1/} This fact alone would have caused enterprises to demand less credit. There was also, during the same period, a general decline in the financial requirements of enterprises in relation to turnover; this, too, would have depressed their demand for credit. On the other hand, the use of bank credit per unit of value added by enterprises sharply increased up to 1974, and hence a reduction in credit to enterprises in the subsequent period could have simply been a return to normality.

^{1/} In a reply to this criticism, Monti and Siracusano (1980) assert that investment remained steady, while value added declined. It is beyond the scope of this paper to determine who is right.

Thus, the decline in bank loans to companies may have had little to do with the "banking" behavior of the public sector. The choice of the reference year for analyzing trends in bank credit to enterprises is obviously critical: while Monti and Siracusano use 1974 as the base year for analysis, Nardozzi and Onado note that 1974 was a year of maximum recourse to bank credit by enterprises, and that by 1978 there was a return to the 1970 level of bank intermediation; hence, according to this criticism, bank disintermediation in the latter half of the 1970s was purely a return to normality after a short-term cyclical expansion of bank credit.

In fact, if one focuses on the relationship between banks and enterprises with state participation, it is even possible to advance an argument completely contrary to that of the displacement of banks by the hidden banker. From 1974 to 1976, there was an exceptional increase in bank lending to public enterprises; a corresponding decrease in state contributions to their endowment funds therefore took place (Nardozzi and Onado (1980); Artoni and Termini (1980)). 1/ In subsequent years an explosion of state transfers to endowment funds occurred, as the state attempted to redress the state-bank balance in the financial accounts of enterprises with state participation that were loaded down with huge bank debts incurred earlier. 2/

The state's disbursements during 1977 and 1978 were thus aimed at restoring a "normal" ratio between own capital and fixed assets of public enterprises; it would seem inaccurate to call this bank disintermediation. This is an important argument since, in 1977 and 1978, state disbursements to enterprises with state participation constituted 47 percent and 74 percent, respectively, of total allocations to industry and handicrafts; this explains much of the increase in the overall volume of transfers that took place in those years.

Similarly, there is also evidence (Cesarini (1981)) that the banks, after a period of high expansion of loans in 1970 to 1974, realized that some, particularly to public enterprises, were risky because they were difficult to collect; thus a period of easy credit was followed by a period of severe restrictions that forced the public enterprises to seek state assistance. This interpretation suggests that the decline in the rate of increase of loans was the product of a "desired discommitment" (Cavalieri (1979); Silvestri (1981)). In this case, the concept of substitutability is misleading because, even if the transfers and bank credit are substitutable, it does not imply crowding out.

1/ During this period, about 60 percent of all financing of public enterprises was obtained from banks, and only 7.4 percent from state capital contributions (Artoni and Termini (1980)).

2/ In 1977, state contributions to endowment funds provided 24.3 percent of the financing received by enterprises with state participation, while loans by banks constituted 34.5 percent; in 1978, these percentages had changed to 55.2 percent and 7.5 percent, respectively (Artoni and Termini (1980)).

Other arguments have been used to suggest that an increase in transfers leads to an increase in bank intermediation, contrary to the hypothesis of Monti and Siracusano. Specifically, the hypothesis is that a portion of the public transfers to the private sector is destined for financial intermediaries (Cavaliere (1979)). State settlement of overdue debts of the private sector to a special credit institution, for example, will obviously increase financial intermediation, by expanding that institution's liquid assets. Similarly, the state makes capital contributions to special credit institutions and to the revolving funds for subsidized credit. Subsidized credit was always the preferred approach in Italy to providing incentives to production and investment, and the special credit institutions grew in step with the growth of the subsidized and special credit system (Serrani (1971); Amato (1972)).

Ordinary banks are also closely tied in to the special credit system. Banks in the "autonomous section" have a portion of their capital allocated for a particular purpose, such as the long-term financing of small enterprises. Another important category is the "special institution," with its own legal identity, that has an endowment fund subscribed not only by the state but also by ordinary banks. Furthermore, the banks maintain close working ties with the special institutions through several financial operations such as the opening of accounts, allowing advances, underwriting their bonds, etc. Thus, at the same time as the special institutions, with the support of public transfers to enterprises, are financing private enterprise, the ordinary banks are also likely to increase their own intermediation activity through the activities of these institutions.

Finally, one should note that the term "state financial intermediation" can be misleading. There is a fundamental difference between the case in which the state provides funds to enterprises and the case in which a bank does so: bank credit uses savings; there is an assumption of risk, and there is an obligation to repay. But state transfers involve taxpayers' money; there is effectively no assumption of risk, and no obligation to repay. Public transfers are made explicitly to improve the earnings of enterprises, to encourage them to pursue objectives that are in some way socially useful. Trying to compare credit and incentive funds without specifying this difference certainly does not help one understand the phenomenon under discussion. This should not imply that state incentives are not substitutable for bank credit, but simply that they are not comparable; it is incorrect to call the state a hidden banker, since its transfers are carried out according to criteria quite different from those of a bank.

3. Crowding out among sectors

In the context of the debate over crowding out in Italy, the state's role as an entrepreneur in the industrial sector has been strongly criticized for the low productivity associated with public transfers to enterprises. Valiani (1979) has argued that this has led to a new type of crowding out, no longer of private enterprises by the

public sector, but, within the private sector, of healthy and competitive companies by companies that need subsidies to survive. This view contains the implicit assumption that the banks would distribute their credit somewhat differently than the state (Arcelli and Valiani (1979)).

This aspect of the debate over the hidden banker is probably, more than any other, based on what appears to be an inappropriate argument. It is not valid to compare the financial activities of credit institutions and those of the state, just as one cannot compare multinational banks, like First National City and Chase Manhattan, with the World Bank, and go on to argue that the financing activity of the World Bank distorts the international allocation of resources because it develops sectors or finances projects that the private banks would not finance.

Clearly, public subsidization alters the competitive situation within a country and hence benefits certain enterprises to the detriment of others, but such interference in the market mechanisms is dictated by public purposes that the market would not fulfill if left free to do its job. ^{1/} This is not the place to argue whether a "free system" is more efficient than one in which the state is involved in the major production activities; in Italy the state has historically assumed, directly (through the public enterprises) and indirectly (through the system of special and subsidized credit), responsibility for capital accumulation and for guidance of the productive system (Cotula and de' Stefani (1979)). Given this situation, the public sector will finance initiatives that may be uneconomic from the microeconomic point of view but (if the choice of financing them is socially or politically efficient), not for the economy as a whole.

This industrial policy approach is faulty, however, if public enterprises and/or the mechanisms of subsidization are inefficient. This is the real problem. In the debate on crowding out, the distortions created by the inefficiencies of enterprises with state participation and of the system of special credit institutions have been confused with the displacement effect among companies that is natural whenever the state intervenes in the economy. No one would deny that the financial intermediation of the public sector has an impact on the allocation of resources, but its intervention cannot be neutral; if it were, there would be no purpose to it. State intervention would not be justified if it served only to take financial resources from certain enterprises and then return them to the same enterprises.

To recapitulate, the concept of crowding out as between companies is of little value because:

^{1/} As a matter of fact we have already noted how many authors have commented negatively on the state's intervention in the Italian economy (see Section II.4); but the issue we are dealing with now is the right perspective from which to compare state and bank financial activity.

(i) The state's intervention in the economy is, by definition, intended to achieve an allocation of resources different from that of the free market.

(ii) Crowding out among enterprises is not caused by the increase in the public deficit itself but, if anything, by the inefficiency of its performance as an allocator of resources.

4. Crowding out of real expenditure by transfers

A final thread in the debate on the hidden banker is that the state's financial intermediation has displaced real investment expenditures by the government and substituted government expenditure on other goods and services (Monti (1978a)). This point, once raised, has not been revived, simply because it is taken for granted. Indeed, the facts speak clearly; the only problem is that it seems excessive to stretch the concept of crowding out to cover this phenomenon.

Table 3 shows all transfers, both to families and to enterprises, between 1965 and 1981. A large part of the transfers to enterprises serves to hold down the prices of goods and services considered socially useful, such as the price of public transportation. The reason for these transfers is evident: they have been the easiest way to supplement the real purchasing power of families at a time when strong union demands needed to be reconciled with the impossibility of increasing enterprises' labor costs. Having the public budget shoulder these costs made them appear free; this was a financial illusion, of course; sooner or later, such increased costs had to be distributed throughout the economy and paid for through taxation and/or inflation (Reviglio (1977)). To this must be added the fact that Italy has one of the industrial world's lowest government-investment-to-GNP ratios. 1/

Thus, the deterioration in spending has impelled the public sector to provide society more with direct subsidies than public goods or services. The increase in transfers to families has served as a substitute for additional income from labor, while the higher transfers to

1/

Gross Fixed Investment by Government in
the EEC Countries (Average 1973-75)

(In percent of GDP)

Ireland	4.7	France	3.4	Luxembourg	4.8
Belgium	3.2	Germany	3.8	Netherlands	3.8
Denmark	4.4	Italy	3.1	United Kingdom	5.0

Source: Reviglio (1977).

Table 3. Italy: Public Sector Transfers, 1965-79

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
<u>(As a share of GDP)</u>															
Transfers to enterprises	2.14	2.10	2.58	2.62	2.73	2.88	2.41	2.66	2.34	2.46	3.23	3.17	3.52	3.63	3.74
Transfers to families	13.06	13.17	12.62	13.20	12.89	13.08	14.00	14.81	14.80	14.68	17.23	16.70	16.11	17.80	16.93
Public investment	2.96	2.92	2.69	2.99	2.83	3.21	3.03	3.14	2.85	3.12	3.56	3.43	3.34	3.11	3.09
<u>(As a share of total public expenditure)</u>															
Transfers to enterprises	6.20	6.10	7.61	7.50	7.94	8.31	6.51	6.82	6.15	6.40	7.43	7.44	8.17	7.85	8.19
Transfers to families	37.84	38.16	37.22	37.79	37.49	37.68	37.88	38.01	38.93	38.20	39.66	39.21	37.33	38.47	37.40
Public investment	8.58	8.47	7.93	8.56	8.24	9.25	8.21	8.07	7.51	8.13	8.20	8.06	7.74	6.71	6.77

Source: Ghesi (1983).

enterprises have prevented lower profits or have financed consolidated losses. This particular evolution of expenditure, which has not been followed by an equally sustained increase in taxes, has prompted a perception that crowding out has led to an incentive to consumption at the expense of investment (Cotula, Masera, and Morcaldo (1983)). Again, this is an extension of the concept of crowding out, which refers chiefly to the medium- and long-term productivity of public expenditure, and to its sustaining effects on the productivity of the private economic system. Reference to the crowding out of government investment by government consumption makes little sense unless it relates to the qualitative composition of expenditure and its effects on the structural growth of the economic system. In fact, in the short term, the income effects of consumption expenditure or investment expenditure are about the same.

IV. Macroeconomic Models of Crowding Out in Italy

The Italian literature also contains many contributions in the Anglo-Saxon tradition of theoretical models for the analysis of crowding out, but they also take account of the institutional conditions and developments in the Italian economy in the 1970s. ^{1/} The first part of this section presents an empirical approach to estimating the crowding out arising from curbs on the expansion of total domestic credit at a time when the public sector borrowing requirement is growing. The second part examines the relationship between the public deficit and inflation, analyzing the effects of inflation, through budget constraints, on the real burden of the public debt.

1. An econometric estimate of direct financial crowding out

The crowding out caused by curbs on the expansion of total domestic credit at a time when the public sector borrowing requirement is growing is the least controversial type of crowding out. This phenomenon is

^{1/} There is an important theoretical literature which is not dealt with in the paper. Its thrust is that the effects of fiscal policy are conditioned by the particular financial context of policy. A key paper on this was written by Monti, Siracusano, and Tardini (1983). This presented a detailed theoretical IS-LM model, which was constructed in such a way as to allow for alternative financial structures, differentiated either by financial instrument or by economic actor. The model was thus sufficiently flexible to ascertain the sensitivity of fiscal and monetary policies to a particular financial structure. It also allowed for an analysis of the effects of a government bond-financed increase in transfers to enterprises. It argued that the effects of public transfers to enterprises depend jointly on: (a) the level of substitutability with bank credit, or in other words, on the final use of the transfers--to cover losses or to finance investments; (b) the particular financial structure involved; and (c) the methods used to cover the deficit.

estimated by comparing the development paths of an economy in two models that differ only in the fact that one of them imposes curbs on the expansion of the private sector borrowing requirement (Verde (1979)). An annual model with 53 equations, of which 25 are behavioral, is used.

Five of the equations are critical. Two are behavioral. The first makes real private nonagricultural investment (exclusive of housing) a function of profits, the degree of capacity utilization, the flow of outside financing to private sector enterprises (inclusive of public transfers received), and of real private nonagricultural investment in the preceding period. The second equation treats the "desired" ratio of enterprises of outside financing relative to the value of investment as a function of the amount of undistributed profits and of the degree of capacity utilization. The remaining three equations are definitional: the change in total domestic credit is defined as the sum of general government borrowing in a given year and of financing of the private sector. General government borrowing is defined as the difference between total government expenditure and total revenue. The flow of outside financing to private enterprises (inclusive of public transfers received) is defined as the sum of loans to enterprises and of public transfers to enterprises.

The second behavioral equation noted postulates that the supply of outside financing desired by private enterprises is endogenous; it does not include any variable representing the interest rate on bank loans. This is consistent with the specification of most econometric models of the Italian economy, which do not incorporate any negative effect on investment arising from an increase in interest rates due to excessive credit demand by the public sector (implying indirect financial crowding out). Such models do, however, consider the direct financial crowding out caused by the government's distribution of credit between the public and private sectors. 1/ This approach confirms the hypothesis advanced

1/ Judging from three Italian econometric models (Banca d'Italia (1979); Heimler (1979); ISPE (1979)), no explicit consideration is given to the effects of interest rates on investment (Monti, Siracusano, and Tardini (1979)). In the Banca d'Italia model, the structure of interest rates affects the ability of the special credit institutions to disburse subsidized credit, which in turn is used to finance investment in equipment and transportation. The investment demand function contains the value of loan applications approved by special credit institutions and the evolution of gross profits (in addition to other variables not relevant here). Heimler's model takes account of a "net profit" variable, obtained by subtracting enterprises' financial liabilities from their gross profits; in this model sectoral investment is a function of the change (from the preceding period) in the value added by the sector and for three of seven sectors, of the change in the amount of subsidized credit granted. ISPE's specification is also in line with this investment function, with the availability of medium- and long-term funds, changes in value added, and utilized productive capacity, among the explanatory variables.

by several authors (see Section II.4) that while the growing public deficit indeed crowds enterprises out of the bank credit market, there remain preferential channels (in the form of special credit institutions and various subsidy laws) for financing private investment, at low interest rates. Moreover, the enterprises which use and do not use these channels are almost always the same. It should be added that throughout the 1970s, the behavior of the demand for subsidized credit was completely independent of the business cycle, and hence of cyclical changes in the interest rates. These considerations explain the difficulty of evaluating the effects of interest rates on the investment of private enterprises. If the interest rate charged by banks is included in the Verde model as an explanatory variable for the demand for outside financing for private enterprise investment, it yields a highly unstable coefficient. 1/

The Verde model was estimated for 1954-73. After verifying the stability of the estimated parameters, the values actually observed for 1974-77 for the independent variables were used to yield (from the second equation) the value of the flow of outside financing desired by enterprises in each year. 2/ When the flow of such financing actually reaching the enterprises was obtained from the fifth equation, a measure of the rationing of credit was derived from the simple difference between the demand and supply of such outside financing. The value of this difference was added to the supply of outside financing to obtain, through the first equation, the investment level that would have been achieved had there been no controls on the credit aggregates. Then, to obtain a measure of the crowding out of investment as a result of financial crowding out, it is sufficient to compare the investment levels with and without controls on the credit aggregate. This solution is obtained from a simulation of the 53-equation model for 1970-77 without credit curbs.

1/ It is worth noting that this model does not have these problems when one tries to calculate a single equation for private investment which includes, as an explanatory variable, the public sector deficit, or the portion of the deficit which is financed by recourse to the capital markets (Sylos Labini (1971)). Such a single investment equation may be seen as a reduced form compatible with various structural forms and hence with various theoretical reference models; furthermore, there is a reciprocal relationship between the public deficit and the volume of investment. There are also strong links between the level of income (influenced by investment) and certain public budget items which contribute to the deficit. It may also be assumed that the public sector seeks to compensate for changes in private investment through budget measures.

2/ Reference is to the period beginning in 1974 simply because that is when the central bank began controlling total domestic credit as an intermediate objective.

The principal result of the Verde model is that private investment expenditure has been substantially crowded out; in the four years under review, the public sector absorbed about 4,000 billion current lire (equivalent to 1,728 billion 1970 lire) that would have gone to the private sector.

It must be noted, however, that the model includes a definition of public transfers to enterprises that is quite unrealistic. Only production subsidies are included, and these cover only some transfers. The difference between these aggregates and actual subsidies is large enough to render the results of the model ambiguous, although a different definition of transfers would change only the amount of crowding out. Another important result which confirms the importance of the real factors mentioned in Section II is that the amount of outside financing desired by enterprises is strongly dependent on the level of economic activity, approximated by the level of plant capacity utilization.

Hence, Verde's results confirm that the observation of preferential shares in the distribution of total domestic credit between public and private sectors is certainly important, but any conclusions on real crowding out must depend on the behavior of other real and financial variables that explain the actual need of enterprises for funds in a given time period. The importance of time lags is also evident; in the model, credit rationing in a given time period exerts a negative effect on investment in several subsequent time periods.

These results suggest that financial crowding out, approximated by the shares of total domestic credit allocated, is one thing, while the crowding out of investment is another; the measurement of crowding out of real expenditure will depend on a number of real and financial factors, internal and external to the enterprises, which will strongly influence the final results of any financial squeeze.

2. Some effects of inflation on the public deficit

Inflation is generally considered as one of the mechanisms through which crowding out occurs. In an economy as highly indexed as that of Italy, its high inflation crowds out private demand chiefly through a decline in the efficiency of the price system as an allocator of resources, and hence through a decline in the productive efficiency and potential of the entire economic system. Inflation may also operate through its negative wealth effects. This section initially concentrates on the crowding out generated by inflation through a redistribution of resources between the public and private sectors. It then examines how the behavior of the public sector can generate or contribute to inflation.

a. Crowding out via the negative wealth effect

When the public sector runs a deficit, the bonds issued, along with the monetary base created in borrowing from the central bank, become a part of the economy's financial wealth (i.e., the wealth of families plus that of enterprises). When prices change, the purchasing power of the assets held in the economy changes as well. This is why budget constraints at the end of a given period must be computed in real terms, showing that a portion of the new financial assets created by the public sector is actually needed to offset both the loss through inflation in the purchasing power of already existing financial assets and the partial loss of purchasing power of the assets newly created during the period. The use of real resources by the public sector is financed not only by taxes, but also by a reduction in the real value of the assets created to finance present and past deficits. Resources are effectively expropriated from the economy to meet the difference between the flow of interest payments at constant prices and the monetary erosion of the financial assets. Estimates of the scope of this difference are supplied in Table 4.

While, in the short run, Italian public expenditure and the deficits accompanying it certainly contain strong elements of support for private consumption, crowding out mechanisms, operating through the negative wealth effect caused by inflation, may be created in the medium term. The next section will examine the amount of inflation generated by the public budget; this discussion takes inflation as given and examines its impact on private spending via the negative wealth effect on financial assets issued by the public sector to cover its own deficit. If the hypothesis advanced is true, the negative wealth effect should help explain the course of GDP.

One way to verify whether it does is to compute an equation, with constant price GDP as a dependent variable, derived as a reduced form of an IS-LM model (Cotula, Masera, and Morcaldo (1979)). The results obtained confirm the hypothesis. The public sector deficit in constant prices helps to explain the course of GDP better when the deficit is corrected for the monetary erosion of the stock and changes in the stock of public debt. This means that a traditional definition of public expenditure (which, as for Blinder and Solow (1973), includes disbursed interest payments) is not very relevant for predicting the effects of budget policy unless that expenditure is corrected for the loss of purchasing power of claims on the public sector. In particular, it is suggested that to be able to forecast the effects of a deficit on overall spending (Masera (1979)), one must omit that portion of nominal interest payments which is merely a compensation for inflation. ^{1/} In

^{1/} For a further discussion of this issue in the case of other industrial economies, see Heller, Haas, and Mansur (1985).

Table 4. Loss of Purchasing Power and Inflation Tax on
Net Public Sector Financial Liabilities, 1960-79

(In percentage of GDP)

	Loss of Purchasing Power of Total Net Public Sector Liabilities	Interest Paid by the Public Sector <u>1/</u>	Inflation Tax (-) on Total Net Public Sector Liabilities
1960	0.29	1.53	1.24
1961	0.52	1.45	0.93
1962	1.16	1.40	0.24
1963	1.19	1.31	0.12
1964	1.02	1.24	0.22
1965	0.51	1.31	0.80
1966	0.64	1.56	0.92
1967	0.56	1.74	1.18
1968	0.23	1.77	1.54
1969	1.01	1.85	0.84
1970	1.50	1.99	0.49
1971	1.42	2.30	0.88
1972	2.57	2.56	-0.01
1973	4.51	2.79	-1.72
1974	8.56	3.16	-5.40
1975	4.80	4.24	-0.56
1976	9.31	4.88	-4.43
1977	5.97	5.11	-0.86
1978	5.55	6.42	0.87
1979	9.06	6.48	-2.58

Source: Cotula, Masera, and Morcaldo (1983).

1/ In 1970 constant prices. Figures deflated by the annual value of the consumer price index.

addition, in confirmation of the hypothesis that wealth effects operate with a time lag (Vaciago (1978)), the test results improve if the variables are lagged over time.

It is clear that the effects of inflation on the spending decisions of private persons do not stop here. For example, the development of expectations that inflation will accelerate can stimulate private demand rather than depress it through the wealth effect (D'Adda (1979)). In particular, it is plausible that demand could shift from financial to real assets. On the other hand, Masera (1979) has demonstrated that the relationship between the deficit in constant prices (reduced by the loss of purchasing power of assets held by private persons representing claims on the public sector) and GDP in constant prices may be exaggerated, in view of other variables not included in the equation, which exert a simultaneous impact in the same direction on the deficit and on GDP.

b. Econometric estimates of the effects of
the public sector on inflation

This section examines how public spending, by virtue of its size, composition, and means of financing, and public revenue can generate or contribute to inflation and, thus, to crowding out. Another of Verde's (1979) results is interesting in this regard. The model shows that these effects of crowding out on the key economic variables fluctuate sharply with changes in the structure of the public budget, thus confirming the intimate relationship between crowding out and budget policy.

In another econometric study, Cavazzuti (1979) sought to evaluate the effect of changes in various successive aggregations of public expenditure and revenue on certain economic variables. Public budgetary items were grouped not by their legal or accounting classification, but by their relationship to prices, quantities, consumption, and investment in the economic system. In other words, revenues and expenditures were classified according to:

- (i) the speed and intensity with which their change leads to a change in prices; and
- (ii) the way their change affects demand--directly or through other channels--such as the disposable income of families or the savings of enterprises.

For example, the first budget aggregation has, on one side, the expenditures which do not affect prices immediately (the model assumes less-than-full employment) and which are direct components of demand, and on the other side the revenue items which do not affect prices immediately and which are direct (negative) components of demand. This category includes expenditures for goods and services and public investment, as well as direct taxes on families and social insurance contributions by workers. The first net budget figure thus obtained is a large surplus.

The effect of changes in these budget items is calculated in two ways. Table 5 presents the GDP multipliers of the individual items (made to change by equal amounts) at the end of the first, fourth, eighth, and twelfth quarters (i.e., the multipliers are observed over a three-year period). Second, all items examined are made to change by 10 percent of their actual values in the public budget. Table 6 presents the impact of such variables on GDP, consumption, investment, imports, and disposable income.

The results suggest the importance of specifying the kind of public expenditure or revenue being changed. For example, the multiplier effect of investment is smaller than that of an increase in public expenditures on goods and services because there is a greater import component in the former. Moreover, a percentage change in the budget which leaves the composition of revenue and expenditure unchanged vis-à-vis the actual composition, leaves the level of economic activity substantially unchanged.

The expenditure and revenue aggregates are progressively enlarged, until ultimately all the items in the public budget and the direct and indirect effects of changes in those items on a large number of variables are covered. Several results of Cavazzuti's exercise are of particular interest (Table 7):

(i) the high degree of automatic stabilization incorporated in the compulsory taxation system greatly influences the ability to dampen the multiplier effects of public spending;

(ii) the greatest effect of public capital transfers seems to be the alleviation of the financial situation of the enterprise, once the investment has been made, rather than the provision of an incentive to further investment; and

(iii) the net effect of overall budgetary action on real demand is essentially neutral when the action does not alter the composition of expenditure or revenue vis-à-vis its actual composition.

The public budget presents a tax structure whose effects are manifested chiefly through the price system, reducing real demand. At the same time, public expenditure appears to do little more than restore the purchasing power of families, eroded by inflation, and support the accumulated profits and financial accounts of enterprises; thus, expenditure does not offset the negative effects of revenue.

Cavazzuti's exercise has the merit of presenting both a breakdown of budget items by their economic nature rather than by their legal and accounting character and a breakdown by recipient of the expenditure (families or enterprises). His inclusion of various price indices is also important for determining the various redistributive effects of inflation. However, the results of his exercise depend to a considerable extent on the hypotheses underlying the econometric model, and

Table 5. GDP Multipliers at the End of Different Periods
in Response to Equal Changes in Line Items

	Quarter			
	1st	2nd	3rd	4th
Direct taxes on families	-0.20	-0.40	-0.72	-0.77
Purchases on goods and services	0.98	1.26	1.50	1.60
Public investment	0.98	1.26	1.30	1.31

Table 6. Effects of a 10 Percent Change in Direct Taxes
Payable by Families, in Purchases of Goods and
Services and in Public Investment, 1976-78

(Percentage changes computed on basis of amounts in 1970 prices)

	1976	1977	1978
Gross domestic product	0.3	--	--
Consumption by families	-0.4	-0.8	-0.9
Total investment and purchases	3.4	3.4	4.2
Imports of goods and services	0.1	0.2	0.2
Disposable income of families	-1.0	-1.0	-1.2

Table 7. Effect of a 10 Percent Change in all Budget Items
Other than Those of a Financial Nature, 1976-78

	1976	1977	1978
Gross domestic product	0.6	-0.3	-1.0
Consumption by families	0.5	--	-0.9
Total investment and purchases	3.5	3.2	3.0
Exports of goods and services	-0.7	-1.4	-1.5
Imports of goods and services	1.4	2.8	3.2
Disposable income of families	1.5	--	-0.5
GDP deflator	1.2	2.5	3.1
Family consumption deflator	1.7	3.4	3.8
Investment deflator	0.7	1.6	1.9
Export deflator	0.2	0.8	0.9

these are subject to some criticism. For example, he hypothesizes that only public expenditure for goods and services and investment creates value added, while public spending on wages is similar to a transfer and thus is to be classified among those public expenditures which become components of families' disposable monetary income. This has been regarded as fairly restrictive (Padoa-Schioppa (1979)), since it assumes that the productivity of those employed in the public sector is zero. By eliminating this hypothesis and, after estimating the actual productivity of workers in the Enlarged Public Sector, regarding at least a portion of their wages as a component of value added, one would certainly obtain a higher multiplier for this type of expenditure. These considerations and others regarding the hypotheses underlying the model would, if accepted, lead to a rise in both nominal and real income (Pedone (1979)). In addition, a comparison between Anglo-Saxon models and Cavazzuti's model (Padoa-Schioppa (1979)) reveals that:

(i) The real Anglo-Saxon multipliers peak after 8 to 12 quarters and then decline, while those obtained by Cavazzuti behave asymptotically after that period (Fromm and Klein (1976)). This difference may be explained by the clearly restrictive hypothesis of noninflationary financing of the public deficit.

(ii) The highest values of the multipliers in the Anglo-Saxon models are between 2 and 3, while the highest obtained by Cavazzuti is 1.6; this, too, may be explained by the hypotheses' extreme stand on the relatively low contribution of public spending to value added.

Disregarding differences in the values of multipliers, the consensus on the simultaneously low productivity and high inflation resulting from Italian public expenditure and revenue is quite striking. Over the long term, the public sector's contribution to the inflationary process was summarized by Cotula, Masera, and Morcaldo (1979) as follows:

(i) having neglected efficiency in the management of services and production of public goods, it has done much to reduce the productivity of the system; and

(ii) it has assumed an assisting or, defined in another way, an "additive" type of behavior (Salvati (1980)); in the face of pressures to satisfy undeniable social demands, the government has made no effort to make room for them by cutting other expenditures. Instead it has merely met the new demands along with the old. Thus, it has made choices which have favored short-term objectives (such as employment and minimization of social unrest) over macroeconomic compatibility.

In addition to these multiplier effects, there are others which presuppose the joint operation of fiscal and monetary policy over the medium and long term. Given the low productivity of public expenditure, its financing can create major problems, particularly in the medium and long term, since it will not be possible to finance it out of savings generated by the expansion of income. The result is an increase in

financing of the deficit through monetary measures and through short-term bond issues (especially in highly inflationary times). This phenomenon has only been partly relieved by government credit controls. This increase in short-term assets lays all the necessary groundwork for Italy's well known recurring monetary crises. Given strong inflationary expectations, which may be caused by the growing public deficit, an excess of liquidity can lead to a capital outflow and speculative accumulation of inventories, provoking a crisis in the foreign exchange markets and a push toward further inflation. In such cases, restrictive credit measures designed to drain liquidity from the market may jeopardize not only the position of speculators, but also the financial condition of basically healthy enterprises.

Therefore, to explain the effects of the public sector on the change in prices one must first distinguish between the effects of spending, the effects of taxation, and the effects of deficit financing, bearing in mind that the final value of the multiplier (recognizing that there are various multipliers for expenditure) on the real sector of the economy is the result in part of changes in the nominal value of the variables. To ignore the depressive effects on the real value is to produce estimates with little empirical value. One must also realize that, together with the immediate effects of the composition of the budget, there are medium- and long-term inflationary effects which should not be underestimated.

V. Conclusions

This survey has dealt with four main topics:

(i) the role of public transfers to enterprises in diminishing the effects of credit shortages arising from the financing of the public sector;

(ii) the possibility that some crowding out may have occurred in Italy which is not treated in the traditional theoretical literature on the subject;

(iii) the impact on the crowding out mechanism that occurs when the effects of fiscal policy on national income may depend on such factors as the structure of financial intermediation, or the interaction of fiscal policy with monetary policy and inflation; and

(iv) some possible ways of estimating and measuring crowding out.

These topics have been discussed with close reference to the Italian economy of the 1970s, primarily for two objective reasons. First, the public sector borrowing requirement and public transfers to enterprises have grown significantly in Italy during the decade.

Second, the monetary policy pursued after 1974 was based on the government's active role in influencing the distribution of credit across sectors of the economy.

In the short term, when one can take the credit demand of the private sector of production as a given, it appears that public transfers to enterprises either helped production to continue or represented an alternative to banking credit. However, it should be noted that the principal effect was to support production rather than investment. Indeed, it could be argued that transfers to enterprises went largely toward maintaining a particular distributive structure of value added, and contributed to the lack of dynamism in the structure of Italian production. Thus, while state financial intermediation certainly alleviated the negative effects for enterprises of the growth in the financial requirements of the public sector, in a medium- to long-term perspective, the negative effects on the allocation of resources were greater than the short-term positive effects for enterprises.

The enormous expansion in public transfers to families and the constancy of the share of public investment in GDP lead to the same conclusion. The actual history of public expenditure shows strong support for private consumption and only a limited contribution to investment, which--in view of the ever-growing use of private savings to finance the public deficit--will have harmful repercussions for the growth path of the economy through its effects on the composition of demand. Likewise, the view of public transfers as an alternative to banking credit for enterprises is valid only for the short term. There are two principal reasons why this is so.

Historically, the credit system has been allowed to administer the system of subsidies for enterprises, thereby increasing the extent of its intermediation and enabling it to receive transfers from the public sector for this purpose. Moreover, since transfers are very often complements to rather than substitutes for bank credit, increases in transfers have led to a growth in the demand for loans, laying the groundwork for greater demand in the future.

The 1970s witnessed an ever-increasing anticyclical commitment by Italian monetary and fiscal policy--though there were limited possibilities to use the latter. Fiscal policy was constrained politically and channeled toward the pursuit of objectives around which a consensus could be rallied, often relegating it to a mere vent for social friction. Fiscal policy was also associated with inflationary effects, which diminished the ultimate value of the fiscal multiplier and contributed to a lowering in the real value of the outstanding public debt, thereby reducing the private sector's spending capacity. The inflexibility of fiscal policy, the inflationary expectations associated with the expansion of the budget deficit, and the growth in the liquidity of the public debt made monetary policy more difficult to conduct, particularly given the openness of the Italian economy and its exposure to currency speculation. Thus, only when one takes into account the successive

credit restrictions and expansions undertaken by the Bank of Italy, partly to alleviate the impact of the public sector, can one evaluate the conditions imposed on the private sector in order to take account of external constraints.

The conduct of monetary policy and public transfers to enterprises must be considered in any estimate of crowding out. However, if quantitative indicators are used (for example, the ratio of the public sector borrowing requirement to total domestic credit), one must explain the internal mechanisms by which the system adjusts to shocks, such as an increase in the borrowing requirement or a credit squeeze. Such indicators are of limited value, since they can only be estimated *ex post*. Thus they cannot take account of changes over time, either of the institutions or of the behavior of agents which together determine what happens. Some writers have seen a shortage of credit as probably having its greatest impact on private expenditure, while the interest rate, though included in econometric models of the Italian economy, is not seen as significantly affecting private expenditure for investments.

In view of the high levels of the public sector borrowing requirement, there is little doubt as to whether crowding out exists. However, there are three main reasons why it would be difficult to reach a precise, definitive conclusion as to its existence. First, it is probable that the full effects of public sector activities are felt only in the medium to long term; this is especially true in Italy, where the restructuring of demand by the public sector seems to have been important to the development process.

Second, empirical research has been inadequate. The almost complete absence of real interest rates in most econometric models has been noted. Moreover, there is as yet no model to predict or explain the rate of inflation with any accuracy, while some econometric models seem to take into consideration wealth effects alone.

Third, little thought seems to have been given to the relationships which might develop, in an open economy like that of Italy, between fiscal stimulus, the balance of payments, and the controls exercised by the monetary authorities. During the 1970s the Bank of Italy several times found itself managing a difficult situation in terms of exchange rates and its currency reserve position, and in order to correct the situation, was obliged at times to effectively cause crowding out. The theoretical models constructed up to now have great difficulty in incorporating external pressures, and thus cannot bring out the importance, in the Italian situation, of this channel through which private expenditure is crowded out.

References

- Amato, G., Il governo dell'industria in Italia (Bologna: Il Mulino, 1972).
- Ando, A., and F. Modigliani, "Impacts of Fiscal Actions on Aggregate Income and the Monetarist Controversy: Theory and Evidence," in J.L. Stein, Monetarism (Amsterdam: North-Holland, 1976).
- Antonioli Corigliano, M., "Gli effetti inflazionistici della finanza pubblica in Italia negli anni '70," Giornale degli economisti ed annali d'economia (March-April 1981).
- Arata, L., "Quale produttività della spesa pubblica?," Politica ed economia (May-June 1975).
- Arcelli, M., "Il rientro del deficit," Il sole 24 ore (February 14, 1978).
- _____, "Obiettivi intermedi e obiettivi finali della politica monetaria," Banche e banchieri (September 1978).
- _____, and R. Valiani, "Il Finanziamento Del Disavanzo Del Settore Pubblico," in Gerelli and Reviglio (1978).
- _____, and R. Valiani, "Crowding-Out: Some Reflections on Economic Policy," Review of Economic Conditions in Italy (No. 2, 1979).
- Artoni, R., "Il banchiere non è poi così occulto," Mondo economico (March 31, 1979), p. 65.
- _____, and V. Termini, "I trasferimenti dello stato all'industria," L'industria (No. 1, 1980).
- _____, and V. Termini, "Bilancio statale, credito agevolato ed industria nel periodo 1973-78," in Nardozzi (1980).
- Banca Commerciale Italiana, ed., Spesa pubblica e sviluppo dell'economia, il problema dello spiazzamento, in generale e con particolare riferimento all'esperienza italiana (Edizioni di Comunità, 1983).
- _____, Research Office, with the collaboration of M. Monti, Tendenze monetarie (Nos. 30, 31, and 32, 1978).
- _____, with the collaboration of M. Monti, "Credito totale interno e disavanzo pubblico: la logica degli indicatori semplici," in Nardozzi (1980).
- Banca D'Italia, Modello econometrico dell'economia italiana (M2-BI): settore reale e fiscale (Rome, February 1979).

Baratta, P., "Incentivi diretti ed incentivi reali", L'industria.

_____, P. Izzo, L. Pedone, A. Roncaglia, and P. Sylos Labini, "Finanza pubblica e controllo dell'economia," Mondo operaio (February 1977).

_____, "Spesa pubblica: problemi e prospettive," Mondo operaio (January 1978).

Barattieri, V., N. Colajanni, A. Pedone, and E. Peggio, "Come risanare la finanza pubblica," Politica ed economia (May-June 1978).

Barcellona, P., and A. Cantaro, "Soggetti pubblici e politica industriale," Economia e politica industriale (No. 30, 1981).

Basevi, G., F. Cavazzuti, C. D'Adda, and P. Onofri, "Inflazione, settore pubblico e finanziamento dell'economia," Prometeia (No. 1, 1978).

Bianchi, T., "Spesa pubblica ed inflazione," Il sole 24 ore (August 7, 1975).

Blinder, A.S., and R.N. Solow, "Does Fiscal Policy Matter?", " Journal of Public Economics (November 1973).

Brosio, G., "I trasferimenti alle imprese," in Gerelli and Reviglio (1978).

_____, "Tra banche e tesoro un giro occulto e perverso di denaro," Successo (April 1979).

Bruni F., and A. Porta, "Elementi teorici per un'analisi strutturale del sistema creditizio," in G. Carli, ed., La struttura del sistema creditizio italiano, elementi per un riesame (Bologna: Il Mulino, 1978).

_____, M. Monti, and A. Porta, "Bank Lending to the Public Sector: Determinants, Implications and Outlook," Giornale degli economisti (1980).

Buiter, W.H., "Crowding-Out and the Effectiveness of Fiscal Policy," Journal of Public Economics (June 1977).

Caffé, F., "Problemi controversi sull'intervento pubblico nell'economia," Note economiche (No. 6, 1979).

Cafferata, R., "Corsi e ricorsi dei sussidi alla produzione industriale," Economia e politica industriale (No. 33, 1982).

Cantaro, A., "Credito speciale e credito agevolato. Alcune osservazioni sul dibattito recente," Rivista trimestrale di diritto pubblico (No. 4, 1980).

Caranza, C., A. Di Majo, and A. Macchiati, Fondi pubblici e finanziamento delle imprese (Banca D'Italia, Research Department, March 31, 1980). Reproduced from typewritten copy.

Carli, G., "Da Carlo Marx a Milton Friedman," Corriere della sera (March 3, 1976).

_____, ed., Sviluppo economico e strutture finanziarie in Italia (Bologna: Il Mulino, 1977).

Carlson, K.M., and R.W. Spencer, "Crowding-Out and its Critics," Federal Reserve Bank of St. Louis Review (December 1977).

Cassese, S., and G. Graziosi, "Quale futuro per il sistema degli incentivi," L'industria (No. 3, 1980).

_____, "Ancora in tema di incentivi," L'industria (No. 2, 1981).

Cavalieri, D., "Intermediazione finanziaria: le polemiche sul banchiere Occulto," Economia pubblica (No. 6, 1979).

Cavazzuti, F., "Tre interrogativi nei conti di stammati," Il sole 24 ore (April 5, 1978).

_____, "I riflessi economici della spesa pubblica," Il sole 24 ore (July 2, 1978).

_____, "Alle origini del disavanzo pubblico: famiglie ed imprese," Politica ed economia (November-December 1978).

_____, "The Enlarged Public Sector Deficit: A Preliminary Analysis of its Effects on Prices and Quantities," Review of Economic Conditions in Italy (No. 2, 1979).

Ceriani, V., and A. Di Majo, "Le tariffe pubbliche nella politica economica," Contributi alla ricerca economica (Roma: Bank of Italy, Research Department, No. 8, 1978).

Cesarano, F., "Gli effetti delle politiche macroeconomiche in presenza di vincolo di bilancio per il tesoro," in Cotula and de'Stefani (1979).

Cesarini, F., "La situazione finanziaria," in E. Gerelli and G. Bognetti, eds., La crisi della partecipazioni statali: motivi e prospettive (Milano: Franco Angeli, 1981).

Chiancone, A., "I fondi di dotazione," Economia pubblica (August-September 1973).

Christ, C.F., "Some Dynamic Theory of Macroeconomic Policy Effects on Income and Prices Under the Government Budget Restraint," Journal of Monetary Economics (January 1978).

Cotula, F., and P. de'Stefani, eds., La politica monetaria in Italia: istituti e strumenti (Bologna: Il Mulino, 1979).

Cotula, F., R. Masera, and G. Morcaldo, "Il bilancio del settore pubblico e gli effetti di spiazzamento: un esame dell'esperienza italiana," in Banca Commerciale Italiana (1983).

Croce, "Struttura e prezzi relativi del sistema economico italiano," in G. Carli (1977).

D'Adda, C., "Commento," in Banca Commerciale Italiana (1983).

_____, "Maggiore precisione in tema di 'spiazzamento'," Moneta e credito (March 1979).

de Larosière, J., Restoring Fiscal Discipline: A Vital Element for Economic Recovery (Washington: International Monetary Fund, 1982).

Di Giulio, F., "I nodi della finanza pubblica e della riconversione industriale," Rinascita (August 8, 1975).

Di Majo, A., "Incentivi fiscali, decisioni di investimento e riforma tributaria," Rivista internazionale di scienze sociali (January-April 1973).

_____, and A. Frasca, "Spesa pubblica e produzione per il mercato," in G. Carli (1977).

Dini, L., "Politica monetaria, disavanzo pubblico e fenomeni di 'crowding out'," Bancaria (No. 12, 1980).

Fazio, A., "La politica monetaria in Italia dal 1947 al 1978," Moneta e credito (September 1979).

Forte, F., "La piaga della spesa pubblica," Panorama (May 8, 1975).

Friedman, B.M., "Crowding-Out or Crowding-In? Economic Consequences of Financing Government Deficits," Brooking Papers on Economic Activity (No. 3, 1978).

Fromm G., and L.R. Klein, "The NBER/NFS Model Comparison Seminar: An Analysis of Results," Annals of Economic and Social Measurement, (1976).

_____, "The Relative Stability of Money and Credit 'Velocities' in the United States: Evidence and Some Speculations," NBER Working Paper (No. 645, March 1981).

_____, "Debt and Activity in the United States," in The Changing Roles of Debt and Equity in Financing U.S. Capital Formation (Chicago, 1982).

Gerelli, E., and R. Reviglio, eds., Per una politica della spesa pubblica in Italia (Milano: Franco Angeli, 1978).

Ghesi, G., La finanza pubblica in cifre 1965-1981 (Milano: Franco Angeli, 1983).

_____, "Spesa pubblica antisviluppo," Il sole 24 ore (November 3, 1976).

Heller, P.S., R. Haas, and A. Mansur, "A Review of the Fiscal Impulse Measure, with Estimates of the Structural Budget Balance (unpublished, International Monetary Fund, forthcoming DM, 1985).

Heimler, A., "Stima di funzioni settoriali di investimento nell'industria italiana," in Confederazione generale dell'industria italiana, Confindustria Research Center, Second Report on Italian Industry, Vol. II (Rome, June 1979).

ISPE, "Un modello econometrico dell'economia italiana, caratteristiche e impiego," Ispequaderni (No. 1, Rome, 1979).

Ingrao, B., "Aspetti generali," in Banca Commerciale Italiana (1983).

Izzo, L., "Commento," in Banca Commerciale Italiana (1983).

Lamfalussy, A., I mercati finanziari europei, (Torino: Einaudi, 1972).

Lassini, A., "La '675' è Ancora Utile?," Mondo economico (March 31, 1979).

_____, and A. Riva, "Investimenti ed agevolazioni," Mondo economico (November 3, 1979).

Marzano, A., "Credit Subsidies and Efficiency," Review of Economic Conditions in Italy (November 2, 1980).

Masera, R., Disavanzo pubblico e vincolo di bilancio (Edizioni di Comunità, 1979).

Mazzillo, "Spesa pubblica e distorsione del sistema," Mondo economico (March 12, 1977).

Meyer, L.H., "The Balance Sheet Identity, the Government Financing Constraint and the Crowding-Out Effect," Journal of Monetary Economics (January 1975).

Milone, L. M., "Il ruolo dei fondi di dotazione nel sistema delle partecipazioni statali," L'industria (No. 9, 1978).

Modigliani, E., "Risposta a Savona," Il sole 24 ore (February 12, 1978).

Monti, M., "Bastano 24.000 miliardi di credito interno?," Il sole 24 ore (March 24, 1974).

_____, "La spesa pubblica minaccia la fragile ripresa economica," Corriere della sera (June 9, 1978).

_____, "Il banchiere occulto," Corriere della sera (November 2, 1978).

_____, and A. Porta, "Bank Intermediation Under Flexible Deposit Rates and Controlled Credit Allocation: Problems of Performance and Regulation Emerging from the Case of Italy," in A. Verheirstraeten, Financial Markets: Structure, Performance and Regulation (London: MacMillan, 1981).

_____, and B. Siracusano, "The Public Sector Financial Intermediation, the Composition of Credit and the Allocation of Resources," Review of Economic Conditions in Italy (No. 2, 1979).

_____, and B. Siracusano, "Riposta a Nardozzi e Onado," Economia italiana (1980).

_____, B. Siracusano, and P. Tardini, "Spesa pubblica, finanziamento del disavanzo e 'crowding-out': l'intermediazione finanziaria privata e pubblica in un'analisi teorica applicata al caso italiano," in Banca Commerciale Italiana (1983).

Mortara, C. A., "Stabilizzazione dei tassi a lunga e instabilità dei mercati finanziari," Bancaria (February 1977).

Mucci, A., ed., "Grido d'allarme di Modigliani," Il sole 24 ore (February 2, 1978).

Nardozzi, G., ed., I difficili anni 70. I problemi della politica economica italiana 1973/79 (Milano: Etas Libri, 1980).

_____, and M. Onado, "I rapporti tra banche e imprese e il settore pubblico come intermediario finanziario. Osservazioni sull'articolo di Monti-Siracusano," Economia italiana (1980).

OECD, Budget Financing and Monetary Control (Paris, 1982).

Padoa-Schioppa, F., "Commento", in Banca Commerciale Italiana (1983).

_____, "I diversi effetti del finanziamento del deficit pubblico," Giornale degli economisti ed annali di economia (January-February 1979).

- Palmerio, G. and R. Valiani, Gli strumenti di controllo dell'economia a breve termine (Giuffrè, 1975).
- Parravicini, G., "Il mercato monetario e finanziario e la spesa pubblica," Bancaria (Nos. 5-6, 1977).
- Passalacqua, G., "Note," Review of Economic Conditions in Italy (No. 2, 1979).
- Pedone, A., "Commento," in Banca Commerciale Italiana (1983).
- Pera, A., "Alcune considerazioni sull'uso del credito totale interno come obiettivo intermedio di politica monetaria," Rivista di politica economica (November 1979).
- Pontarollo, E., "Le politiche di ristrutturazione industriale in Italia dal 1961 al 1977," L'industria (No. 3, 1980).
- Pyle, D.H., and S. J. Turnovsky, "The Dynamics of Government Policy in an Inflationary Economy: An 'Intermediate-Run' Analysis," Journal of Money, Credit and Banking (November 1976).
- Ragazzi, G., and C. Scognamiglio, "Un vincolo all'indebitamento delle imprese pubbliche," Il sole 24 ore (January 12, 1979).
- Rey, G.M., and P. Gnes, "Un modello di programmazione a breve termine dell'economia italiana," Contributi alla ricerca economica (No. 4, 1975).
- Reviglio, F., Spesa pubblica e stagnazione dell'economia italiana, (Bologna: Il Mulino, 1977).
- _____, "Occorre rendere palase il banchiere occulto," Corriere della sera (February 26, 1979).
- _____, "Lo stato a soccorso delle imprese," Mondo economico (February 10, 1982).
- Romano, R., "Deficit pubblico: macroimbroglio," Il sole 24 ore (May 19, 1976).
- Ruggeri, G., "Estimating the Enlarged Public Sector Borrowing Requirement: Comments and Prospects," Review of Economic Conditions in Italy (No. 1, 1981).
- _____, and S. Gambale, "La stima di cassa del settore pubblico allargato: Un contributo all'analisi ed alla politica finanziaria," Economia italiana (No. 1, 1980).
- Sacerdoti, E., "Economic Effects of the New Treasury Bill Market in Italy," Rivista internazionale di scienze economiche e commerciali (July 1973).

Salvati, M., Alle origini dell'inflazione italiana (Bologna: Il Mulino, 1980).

Saraceno, P., "Fondo di dotazione e oneri impropri nella economia degli enti di gestione delle partecipazioni statali," Bancaria (No. 3, 1977).

Savona, P., "Ecco dove Modigliani sbaglia," Il sole 24 ore (February 3, 1978).

_____, "Lo stato non è banchiere e neppure occulto," Il sole 24 ore (December 21, 1978).

Schiantarelli, F., "Vincoli finanziari, aspettative e politica monetaria in un semplice modello macroeconomico," Giornale degli economisti ed annali di economia (January-February 1980).

Scognamiglio, C., "Aspetti comparati delle politiche di sostegno pubblico all'industria in Europa," L'Industria (No. 2, 1981).

Serrani, D., Lo stato finanziatore (Milano: Franco Angeli, 1971).

Serravalli, "I trasferimenti pubblici alle imprese," Rivista di diritto finanziario e di scienza delle finanze (No. 1, 1981).

Silvestri, "I trasferimenti del settore pubblico allargato alle imprese," Rivista di diritto finanziario e scienza delle finanze (No. 1, 1981).

Smith, G., "The Long Run Consequences of Monetary and Fiscal Policies when the Government's Budget is not Balanced," Journal of Public Economics (February 1973).

Spaventa, L., "La contabilità dello stato: uno straccio da rivedere," Il sole 24 ore (June 17, 1978).

_____, "Buio su deficit e crescita," Il sole 24 ore (December 15, 1977).

_____, "Alcuni problemi del controllo della finanza pubblica," Banche e banchieri (July-August, 1979).

_____, "Commento," in Banca Commerciale Italiana (1983).

Spencer, R.W., and W.P. Yohex, "The Crowding-Out of Private Expenditures by Fiscal Policy Action," Federal Reserve Bank of St. Louis Review (1970).

Spinelli, F., "Commento," in Banca Commerciale Italiana (1983).

- Stein, J.L., "Inside the Monetarist Black Box," in J.L. Stein, Monetarism (Amsterdam: North Holland, 1976).
- Sylos Labini, P., "Investimenti e produttività finanziaria--riflessioni sull'esperienza italiana degli anni sessanta," Note economiche (June 1971).
- Tardini, P., "Un'analisi macroeconomica della relazione tra struttura finanziaria e crowding-out," Giornale degli economisti ed annali di economia (September-October 1980).
- Tobin, J., and W. Buiter, "Long-Run Effects of Fiscal and Monetary Policy on Aggregate Demand," in J.L. Stein (1976).
- Tullio, G., and G. Cristini, "L'effetto di crowding-out e il finanziamento della spesa pubblica," Moneta e credito (No. 115, 1976).
- Turnovsky, S.J., "Monetary Policy, Fiscal Policy and the Government Budget Constraint," Australian Economic Papers (December 1975).
- Vaciago, G., "Credito totale interno ed offerta di moneta," Rivista internazionale di scienze sociali (September-December 1975).
- _____, "Fiscal Versus Monetary Rules," Banca Nazionale del Lavoro Quarterly Review (March 1978).
- _____, "Commento," in Banca Commerciale Italiana (1983).
- Valiani, R., "Italian Public Finances," Review of Economic Conditions in Italy (No. 1, 1979).
- Ventriglia, F., "Il credito a medio termine e lo sviluppo economico del mezzogiorno," L'industria (No. 2, 1982).
- Verde, A., "Crowding-Out Once More, an Attempt to Estimate Its Size in Italy," Review of Economic Conditions in Italy (No. 2, 1979).
- Virno, C., I trasferimenti finanziari dello stato alle imprese, (Milano, April 1983). Reproduced from typewritten copy.
- Visentini, G., "Le più recenti agevolazioni finanziarie all'industria," Rivista di economia e politica industriale (No. 3, 1979).
- World Economic Outlook, A Survey by the Staff of the International Monetary Fund, Occasional Paper No. 21 (Washington: International Monetary Fund, 1983).