



ISTITUTO DI STUDI E ANALISI ECONOMICA

**National accounts, fiscal rules and fiscal policy.
Mind the hidden gaps**

by

Maurizio Bovi

ISAE, Piazza Indipendenza, 4, 00185 Rome, Italy
Department of Macroeconomics
e-mail: m.bovi@isae.it

Working paper n. 76
January 2007

The Series “*Documenti di Lavoro*” of the *Istituto di Studi e Analisi Economica* – Institute for Studies and Economic Analyses (ISAE) hosts the preliminary results of the research projects carried out within ISAE. The diffusion of the papers is subject to the favourable opinion of an anonymous referee, whom we would like to thank. The opinions expressed are merely the Authors’ own and in no way involve the ISAE responsibility.

The series is meant for experts and policy-makers with the aim of submitting proposals and raising suggestions and criticism.

La serie “Documenti di Lavoro” dell’Istituto di Studi e Analisi Economica ospita i risultati preliminari di ricerche predisposte all’interno dell’ISAE: La diffusione delle ricerche è autorizzata previo il parere favorevole di un anonimo esperto della materia che qui si ringrazia. Le opinioni espresse nei “Documenti di Lavoro” riflettono esclusivamente il pensiero degli autori e non impegnano la responsabilità dell’Ente.

La serie è destinata agli esperti e agli operatori di politica economica, al fine di formulare proposte e suscitare suggerimenti o critiche.

Stampato presso la sede dell’Istituto

ISAE - Piazza dell’Indipendenza, 4 – 00185 Roma.

Tel. +39-06444821; www.isae.it

ABSTRACT

Underground activities affect crucial fiscal ratios generating “gaps” both in government revenues and in national accounts. I address this topic exploiting the peculiarities of the Italian situation. First, I describe the pros and cons of the Italian method to estimate the (non trivial share of) shadow economy. This sheds some light on the reliability of GDP estimates and allows unraveling some policy-relevant national accounts gaps. Second, I examine the links between undeclared incomes, tax burden and fiscal policy in a system possibly suffering from unpleasant arithmetic. Data suggest that government revenues and tax evasion go hand-in-hand and highlight the difficulties of policymaking.

Keywords: Fiscal Rules, National Accounts, Shadow Economy, Taxation.

JEL Classification: C32, C53, E26, H26.

NON-TECHNICAL SUMMARY

This paper focuses on how the underground sector affects fiscal variables and policies. It deals only with the Italian situation for the following reasons. Unlike other countries, Italy releases official (and, consequently, reliable and NA consistent) data on its underground sector. Then, data suggest that the Italian hidden economy is not trivial. Last but not least, Italy has both internal - a high debt-GDP ratio and downward-rigid public expenditures (owing to interests on debt, “immature” fiscal devolution, ageing, etc), and international (European) commitments, which are likely to impose, at least in the medium term, a high level of tax proceeds. This unpleasant arithmetic might, in turn, trigger the quit option, emphasizing the normative impact of the hidden gaps.

Results show that government revenues and tax evasion go hand-in-hand. In addition, the analysis of the hidden gaps may help explaining the recent and reiterated opinions, hold in political circles, that i) the reduction of the tax evasion must be a prerequisite for tax cutting and that ii) implementing policies targeted both to reduce the tax evasion and to increase the tax burden is a difficult task. Moreover, the proposed analysis suggests how to address this latter Italian dilemma. As a matter of fact, a part of tax evasion not directly depending on taxation is pointed out - contrasting it is an escape route for peculiar situations such as the current Italian one.

CONTI NAZIONALI, REGOLE FISCALI E POLITICA FISCALE ATTENZIONE AI DIVARI SOMMERSI

SINTESI

Riducendo l'affidabilità degli aggregati economici e gli incassi governativi, le attività sommerse incidono profondamente su fondamentali indicatori fiscali e, perciò, sulla politica fiscale. Questo articolo vuole evidenziare alcune delle relazioni che esistono tra conti nazionali e politica fiscale nel sistema italiano, dove sono disponibili stime ufficiali dell'economia in nero, la loro metodologia di calcolo e la presenza di forti vincoli alla politica fiscale. Oltre a descrivere le principali criticità del metodo ISTAT per la stima dell'evasione, il lavoro sfrutta la conoscenza del Pil irregolare per analizzare alcune variabili di grande impatto normativo, quali la pressione fiscale a carico degli onesti, l'evasione di base imponibile, ecc. In base alle informazioni qui raccolte, si possono tentare tre considerazioni di politica fiscale. La prima riguarda i condoni implementati negli ultimi anni che, se fatti con l'intenzione di far emergere base imponibile in modo permanente, avrebbero dovuto produrre sia maggior gettito sia minore evasione. Per quanto è dato di vedere nei dati aggregati qui analizzati, simili dinamiche non trovano riscontri. La seconda interpretazione normativa è che in Italia la gestione delle entrate pubbliche appare particolarmente complicata. Esse, dal lato emerso, devono confrontarsi con rigidi vincoli sovranazionali, con un debito abnorme, con una spesa (nel breve termine) sempre meno comprimibile e (nel lungo termine) sempre più decentrata mentre, dal lato sommerso, esse sembrano subire vigorose reazioni ai tentativi di reperire incassi aggiuntivi. Insomma, il quadro prospettato dovrebbe far intuire perché, nei dibattiti di politica fiscale in corso, si sente spesso dire che i) la (più che trentennale!) "stagione" dei condoni è ormai finita e che ii) la lotta all'evasione fiscale è un prerequisito per la riduzione della pressione fiscale. Infine, si sottolinea come parte dell'evasione fiscale potrebbe non essere direttamente provocata dalla tassazione. Questa parte, quindi, potrebbe essere la chiave di volta per migliorare i conti pubblici senza dover agire sulle aliquote legali.

Parole chiave: regole fiscali, conti nazionali, economia sommersa, tassazione

Classificazione JEL: C32, C53, E26, H26.

CONTENTS

1	INTRODUCTION	Pag.	9
2	THE LABOR GAP	"	13
3	TURNOVER AND SUPPLY-DEMAND GAPS	"	16
4	NATIONAL ACCOUNTS GAPS. ISSUES	"	17
5	TAX EVASION AND TAX BURDEN	"	20
6	CONCLUDING REMARKS	"	25
	REFERENCES	"	26

*Taxation, pushed to the extreme,
has the lamentable effect of impoverishing
the individual, without enriching the State.
(Say, JB A Treatise on Political Economy 1834: 453-54).*

1 INTRODUCTION ¹

Comprehensive coverage of national accounts (NA) estimates is important²; however, it is often thwarted by gaps in the recording of economic activity – the so-called “non-observed economy” (OECD, 2002). The concerns created by the missing links between NA and reality may be emphasized by looking at the prominence of the inclusion of the non observed economy (NOE) in the economic aggregates and of its univocal definition. As for the former, the reliability and the exhaustiveness of basic national accounts data have important implications on the implementation, the monitoring and the evaluation of national policy decisions. At an international level, problems may stem because measures of economic activity are used increasingly by international and supranational organizations as the basis for levying contributions and distributing grants. European agreements, such as the Maastricht Treaty and the Stability and Growth Pact (SGP), are based on indicators whose reliability and comparability is simply fundamental³. Then, there are remarkable links between NOE and taxation. While untaxed production and non-measured underground production may sometimes overlap, they must not be bewildered – the only clear-cut is that the former relates to a shortfall in government revenues, the latter to a shortfall in GDP estimates - a whole range of taxes can be evaded, and not just those levied on incomes (OECD, 2002). As noted by Tanzi (1999), taxed income cannot be clearly separated by untaxed production

¹ Institute for Studies and Economic Analyses (ISAE), Piazza dell'Indipendenza, 4, 00185, Rome, Italy (e-mail: m.bovi@isae.it). Paper prepared for the Economic Seminar Programme of the DG Economic and Financial Affairs (European Commission, Brussels, 25th Sept. 2006). I would like to thank Seminar participants for their helpful comments and to acknowledge the able assistance of Ms. Debora Stenti. The opinions expressed herein are those of the author and not necessarily reflect the views of the ISAE.

² Since the early 1990s the European Economic Commission (EEC) promoted a research on that (EEC Council Directive 89/130, Euratom and Commission Decision n.94/168/EC of February 1994).

³ On September 2006, Greece revised its GDP upward by 25% (*sic*, twenty-five!) due to the inclusion of the NOE. Needless to say it arises many of the issues here addressed.

as taxable income may be generated by activities that are not productive⁴. On the other hand, informal production is untaxed (or hard-to-tax) but it is included in official GDP (see below). An example may clear the matter. A householder discouraged from employing a painting contractor due to taxation/regulation burden may decide to employ a black economy worker or undertake the painting personally. While in the former case the activity (possibly) implies an increase of irregular GDP and (surely) tax evasion, in the latter it (possibly) enters informal GDP and (surely) is not tax evasion. It is easy to imagine their impact on crucial fiscal ratio such as the tax-GDP ratio. The value of the definition of NOE can be drawn by the fact that it was officially established at an international level (U.N. *et al.*, SNA93). According to SNA93, the non (directly) observed economy includes illegal, informal, and underground activities. The former are defined as productive activities forbidden by law or productive activities which are usually legal but carried out by unauthorized producers⁵. The informal sector is broadly characterized as consisting of production units with the primary objective of generating employment and incomes to the persons concerned and, as such, forms a part of household unincorporated enterprises⁶. It is worth noticing that informal workers are considered regular; however, the part of their production which is sold is added to irregular GDP⁷. The underground sector represents the area of legal production activities that are not directly observed due to reasons of an economic and/or statistical nature. The former are the activities carried out with the deliberate desire to avoid taxes, social contributions or, also, to avoid observing the law provisions concerning minimum wages, the number of work hours, job safety, etc. The latter are all those production activities that are not registered: a) due to the failure to fill out the administrative forms or statistics questionnaires because of the lack of sensitivity to statistics of those asked to fill them out and/or shortcomings in the statistics system; b) due to the difficulty in grasping the

⁴ In Italy (and not only), the “income” of a robbery is taxable; but it does not enter national account aggregates (see note 4).

⁵ According to ESA95, illegal activities to be included are those with mutual agreement between the parties (e.g. sale of drugs is included, extortion is not). Putting aside tobacco smuggling (ISTAT, 2004), they are still not recorded in Italian national accounts due to the difficulty of estimation.

⁶ Just to mention how tricky may be the topic, the International Expert Group on Informal Sector Statistics (known as the Delhi Group) recently, after long discussions, joined data users in concluding that the definition and measurement of “employment in the informal sector” (which includes all jobs in informal sector enterprises, *i.e.*, firms with less than five/ten employees) needed to be complemented with a definition and measurement of “informal employment” (which comprises the total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households).

⁷ Informal activities are included in Italian regular GDP.

changes of the rapidly evolving productive systems, especially those (like Italy) characterized by small productive activities which are often not detectable with the traditional survey techniques.

Needless to say, addressing the NOE is meaningful not only for national accountants, but also for economists and policymakers. This is the main motivation of the present paper. In fact, the mainstream literature (Fugazza and Jacques, 2004; Ihrig and Moe, 2004; Schneider and Enste, 2000) does not distinguish between contiguous (but remarkably different both from the normative and the positive standpoints) phenomena such as informal and underground activities. On the other hand, understandable enough, the economic theory on tax evasion (Slemrod and Yitzhaki, 2002) offers only very general normative hints (e.g., it usually deals with a single and linear tax rate and it, by and large, assumes that tax evasion depend only on taxation). Similarly, in political circles borderline NOE objects such as black economy labor and tax evasion are sometimes confused. Disappointingly, despite NA harmonization and completeness has greatly improved across Europe (e.g., via the adoption of the European System of National Account, ESA95), as far as I know no country releases official estimates of its underground NOE production.

Against this backdrop Italy is a notable exemption, giving the occasion for this paper. The Italian National Institute of Statistics (ISTAT) periodically publishes data on shadow GDP and on irregular workers. Using official definitions and data, this paper may afford to have a well-defined focus – the underground sector for economic reasons⁸. Its purpose is to point out some of the connections linking national accounts, shadow activities and fiscal policy (sections 2,3,4). Needless to say, the topic is far from being new and descriptions of the ISTAT method are already available (Baldassarini and Pascarella, 2003; OECD, 2002). The contribution of this work consists in emphasizing the potential issues of the ISTAT method (suggested as benchmark for other OECD countries) and in adding some insights on the practical policymaking in peculiar situations. As for the former, the economic literature (Tanzi, 1999; Bernardi and Franzoni, 2004) shows many attempts to deal with the tax evasion by comparing NA aggregates with fiscal data, the hypothesis being that NA data include even undeclared incomes. Thus, although not fully recognized in the literature, studying the “benchmark” is simply paramount. On the normative side, it may be of some interest to know the reliability of estimated “national accounts gaps”, such as the hidden GDP coming from the shadow employment (labor gap) or that stemming from under/over declaration of revenues/costs (turnover gap). Something, once

⁸ Henceforth I will refer to it as shadow, hidden, irregular, undeclared, etc., economy.

again, usually neglected by the literature. Then, the knowledge of the methods and estimates of regular and irregular GDP allows understanding some functional aspects of policymaking. Previewing one of the proposed analyses, compute the tax burden hitting honest taxpayers (total revenues on declared GDP). While this measure is attractive *per se*, its normative appeal is magnified in a highly indebted-underground system with binding fiscal rules. In fact, although the SGP deals with the budget balance with a medium-term perspective, in Italy, due to a high debt-GDP ratio and to downward-rigid public expenditures (owing to interests on debt, ageing, “immature” fiscal devolution, etc⁹.), it imposes not-short-living high level of tax proceeds¹⁰. As a matter of fact, a high debt-GDP ratio is not necessary in presence of widespread hidden employment. Indeed, even low indebted systems such as most new member countries have problems similar to Italy. In those economies, high tax burden on labor have likely affected the incentive to work, employment rates are low and the underground economy is estimated to be very large (Schneider and Enste, 2000). For these reasons, several new members have opted for a policy of low income and corporate taxes. This strategy has brought Estonia, Lithuania and Slovakia to adopt a flat rate tax system, a solution partly (but not surprisingly) similar to that implemented by the Italian Government in 1998¹¹. Summing up, especially in presence of fiscal rules and unpleasant arithmetic, may be useful to examine the links between hidden gaps and policymaking.

⁹ A study by the European Commission (Franco and Munzi, 1997) has estimated the effects of demographic changes on main age-related expenditure items (such as health care, education and family allowances). The share of total primary expenditure to GDP over the period 2000 to 2030 should increase by almost six percentage points in Germany, by approximately five percentage points in Belgium, Italy, and the Netherlands. European Commission (2000) shows that almost 75% of the changes in the tax burden in EU Member States, the US and Japan appears to be related to changes in public expenditure. Finally, according to the European Commission Spring 2006 forecasts, Italy should show an increase of the expenditure-GDP ratio up to the last year of forecast (2007).

¹⁰ Actually, while the 1990s saw considerable progress in public budget consolidation across Europe, recently some country find harder to control its budgetary position (European Commission, 2006).

¹¹ Somewhat curiously, all these “flat-rate tax” reforms are currently (or have been) questioned in Europe.

2 THE LABOR GAP

For the present purposes the main features of the ISTAT method (ISTAT, 2004; Baldassarini and Pascarella, 2003; OECD, 2002) can be summarized in the following way. Various techniques are used:

- exhaustive estimates of the volume of work;
- methods for measuring tax evasion through the revaluation of several production aggregates;
- analyses of the differences between the demand and the aggregate supply during the squaring of the accounts.

As for the first item, the most important sources of information from the enterprise's (demand-side) standpoint are the following: Industry, Services and Institution Census, Agriculture Census, data on VAT declarations from the Finance Ministry. Main sources of information from the households (supply-side) perspective are the Population Census and the Labor Forces Survey of sampling nature. The integration of supply-side and demand-side sources permits to have a coherent and exhaustive database from both points of views. The next step is their comparison at a detailed level of territorial analysis (region) and economic activity (five-digit industry level according to the classification of economic activities ATECO¹² 2002). The assumption is that firms provide a measure of regular jobs (both primary and secondary), *i.e.*, they provide information on employment for which legal provisions and obligations are full filled, while data collected via households measure the total number of employed persons, that is both regular and irregular. The logic behind is that individuals have less reason than enterprises to conceal the nature of their work. The existence of such a situation has been repeatedly verified by researches carried out by ISTAT. As a consequence, the following definitions are used:

- regulars: employed people who equal the number of jobs;
- full-time irregulars: employed people exceeding the number of jobs;
- regulars multiple jobs: jobs exceeding the number of employed people.

¹² ATECO 2002 is identical to NACE Rev.1.1 (the reference classification for economic activities) at four digit level.

There remain additional occupational segments which are estimated outside of this procedure due to the fact that they are directly captured through specific statistical surveys or because they remain outside of the field of observation and therefore are estimated in an indirect manner. Two of them are remarkable in the present context. The first is the so-called “collaborazione coordinata e continuativa” (CoCoCo, freelance coordinated work), whose source¹³ is the Social Security Institute (INPS). This labor input is a sort of cornerstone, something borderline to many keywords of this paper. Since its favorable fiscal treatment (and flexibility), it is widespread - according to INPS, about 1.5 million persons were working as CoCoCo in 2004. Also, many policymakers looked at this “low-cost” labor input as a regular (and tax paying) chance to otherwise hidden workers. It is worth noticing that the huge increase of CoCoCo led recently policymakers to contrast this anti-shadow-employment tool. The logic behind, now, is that too many workers tend to remain CoCoCo for too many years. In other terms, while CoCoCo contracts were introduced to reduce shadow employment, now they are suspected to reduce “normal” (*i.e.* full-time and permanent) employment. The other notable occupational piece deals with irregular multiple jobs (data are collected from sources on expenditure side) and with non resident foreigners (estimated on the basis of information provided by the Ministry of Internal Affairs). The product of the whole process is the number of jobs, which ISTAT then converts into Full-Time-Equivalent (FTE) units to quantify the volume of work¹⁴. Finally, ISTAT attributes to irregular employees the same gross compensation (net of social contributions) of corresponding (same industry, same firm’s size, etc.) regular ones. All that creates our first NA gap, the labor one. FTE time series are reported in the following Figure 1. It clearly shows that the shadow employment ratio has been rising up until 1998. Thus, unlike what often evoked in political circles, data seem to suggest that the real question now is the *level* of the labor gap, not its *growth* (Bovi, 2005). Another policy-relevant question emerging from the irregularity ratio (black economy employment on total FTE) is the impact of the legalization-regularization of about 700,000 illegal immigrants (274,000 in FTE units¹⁵) in 2002 (ISTAT, 2004). This suggests that policymakers may

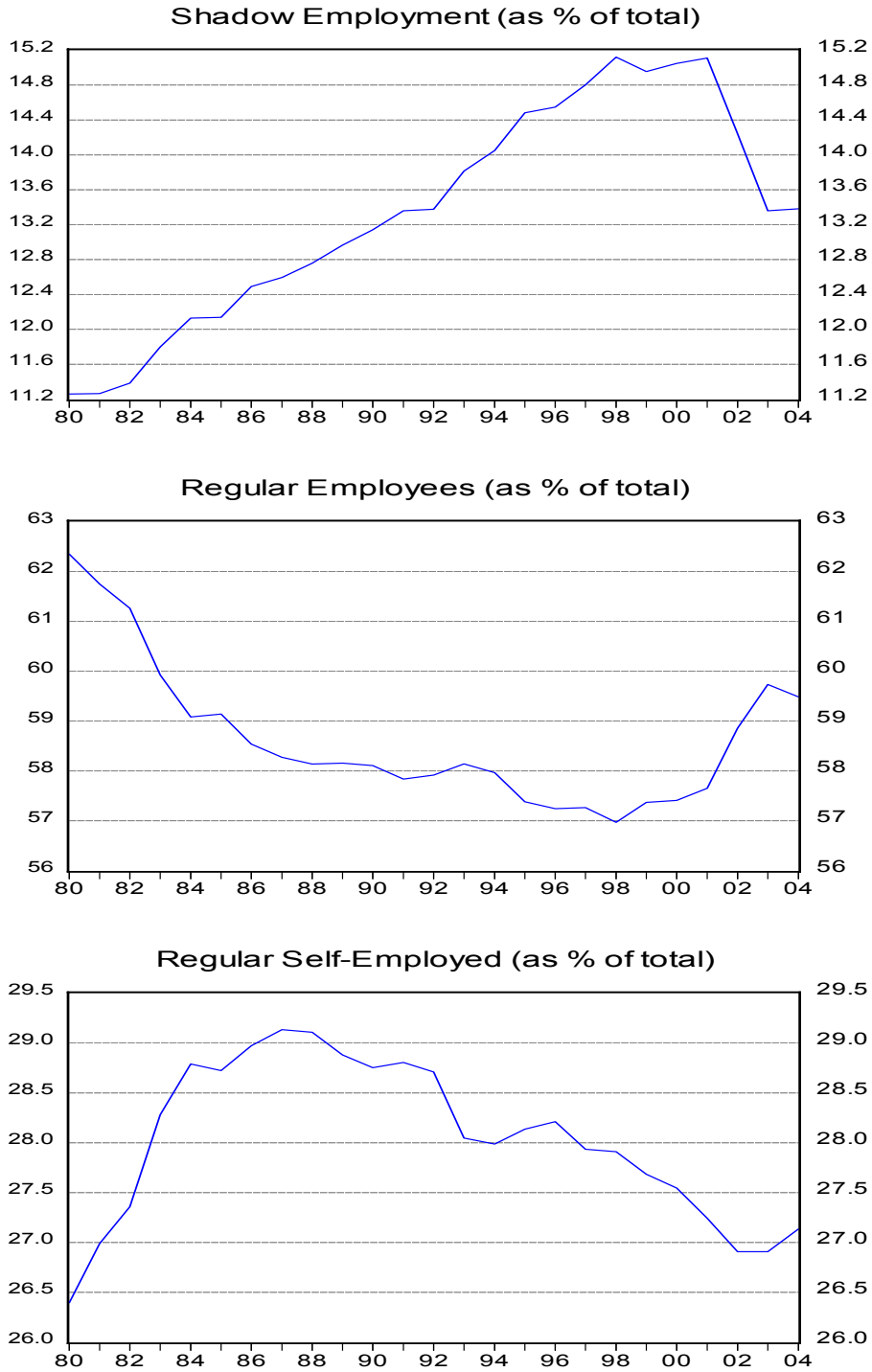
¹³ The income of CoCoCo is recorded by firms as an intermediate cost, not as a salary. That is why ISTAT exploits INPS data and not the firms’ ones.

¹⁴ Full time equivalent units are equal to the number of jobs corresponding to full time. The total of full time equivalent units is obtained by the sum of (primary and secondary) full-time jobs and part-time jobs transformed into full-time units. Actually, the first best solution would be to quantify how many hours has been performed. However this is not always possible, therefore ISTAT converts jobs in FTEs, as suggested by the SNA93.

¹⁵ Due to administrative lags, some of them impacted on 2003 data.

increase the tax base and government revenues, even without modifying the legal tax rate.

Fig. 1. Labor Input Mix (Full-Time Equivalent units). Italy 1980-2004
(Source: ISTAT)



3 TURNOVER AND SUPPLY-DEMAND GAPS

The estimate of a NA aggregate (e.g. value added) is obtained by multiplying the estimated total (regular and irregular) employment by per capita value of that aggregate. This operation takes place at a level of 101 industries and for 8 dimensional classes of enterprises. Since there could be some under reporting in the per capita values declared by enterprises, ISTAT closes the gap via the methodology proposed by Franz (1985). The hypothesis underlying such adjustments is that the income of the self-employed worker of an enterprise should be at least equal to the average wage of the regular employees. The income of self-employed workers is obtained subtracting from the value added of the enterprise the compensations of employees, the capital consumption and other components in accordance to the SNA93 scheme (passive interests, banking expenses, rents, etc.). When the level of income of self-employed workers is less than the level of compensation of employees, the former is re-evaluated. As a consequence, the production and the value added are also adjusted by the same amount – the turnover gap. To the present aim, it is worth noticing that the underground economy from output aggregates is more surely connected to the tax evasion than to the shadow employment, which may not depend on the presence of taxation. For instance, an illegal immigrant simply *must* be irregular.

The third phase of the ISTAT procedure consists in inserting the obtained “supply-side” estimates into an input-output scheme to be compared with the corresponding estimates made on the demand side. This last NA gap is very important as far as the analysis of the exhaustiveness of the national accounts is concerned, since the comparison among several independent estimates (in the sources and/or in the calculation methods) makes it possible to make a very stringent consistency check. The estimates of the demand and supply are then balanced with the typical algorithm used in the national accounts (Stone *et al.*, 1942). This item is surely more problematic than the others, because in this case it is much harder to see if and how much the gap has a statistical or an economic nature. As a matter of fact ISTAT releases two point estimates, the “hypothesis minimum”, which comes from the first two gaps and the “hypothesis maximum”, which amounts to the minimum plus this last adjustment.

Before closing the section, it is useful to nail down some basic remark. Even if ISTAT knows (and surveys) only regular firms, from households' answers it can detect irregular workers engaged both for regular and for irregular firms. Then it should be clear that, within the NA framework, underground activity and tax evasion are not necessarily the same thing. It

there could be irregular activity even with no taxation, if firms do not observe the employment protection legislation. Similarly, the “bureaucratic shadowization” may be linked to illegal immigrants and natives such as retirees and civil servants, which simply can not work regularly (*ex lege*, retirees and civil servants can not have another regular labor income). On the other hand, it there could be tax evasion with no underground, if tax evasion deals with, e.g., financial and/or real estate markets. The final outcome of the whole ISTAT procedure is reported in the following table 1, which I will comment in the next section.

Tab. 1 **Shadow Gaps in the Italian GDP**
(millions of current Euros and % on overall GDP)

Years	Total Gap Max		Total Gap Min		Turnover Gap		Labor Gap		Supply_Demand Gap	
1992	123533	15.8	100956	12.9	37770	4.8	63186	8.1	22577	2.9
1995	157774	17.1	145920	15.8	66244	7.2	79676	8.6	11854	1.3
1998	179796	16.8	169482	15.8	76724	7.2	92758	8.6	10314	1.0
2000	196805	16.9	176777	15.2	78432	6.7	98345	8.4	20028	1.7
2001	213081	17.5	172938	14.2	69846	5.7	103092	8.5	40143	3.3
2002	204182	16.2	189459	15.0	86670	6.9	102789	8.2	14723	1.2
2003	217250	16.7	192929	14.8	93384	7.2	99545	7.6	24321	1.9

Source: ISTAT. Total Gap Min=Turnover+Labor; Total Gap Max=Total Gap Min+Supply_Demand.

4 NATIONAL ACCOUNTS GAPS. ISSUES

The ISTAT method it is simple to describe and it is internationally recognized to be a very good one such as to be recommended as the most appropriate to estimate the input of labor (OECD 2002). Furthermore, Eurostat has adopted it for verifying the exhaustiveness of GDP estimates in the EU. Nevertheless, its practical application is more difficult. Previous section told us that ISTAT focuses mainly on that part of tax evasion generated in the labor market and in small firms. In turn, it means that the actual irregular GDP is likely to be somewhat larger than that estimated by ISTAT (Bovi, 1999 and section 3). As for the ability to uncover the real status of workers via surveys, the literature has raised some concerns. Even if it is reasonable to assume that individuals have less reason than enterprises to conceal the nature of their work, Boeri and Garibaldi (2002) point out that if employees cooperate in shadow activities they

may decide not to declare to be working. As reported in their paper, a joint ISTAT-Fondazione Curella survey reports that about 25% of the black economy is wrongly assigned to the inactive status by the labor force survey. Also, some individuals who indicate to their interviewer that they are self-employed may actually be laboring in the underground economy. A study of the US General Accounting Office¹⁶ found that, in 1992, 56% of the tax gap (the difference between the amount of income taxes owed and the amount voluntarily paid¹⁷) could be attributable to misclassified workers - individuals who reported they were self-employed but were actually employees. In general, the respondent may want to avoid telling anyone the truth about sources of income, and so will have concocted a convenient story intended to arouse the least suspicion. A non-specific but legitimate sounding job would appear the easiest way out for those individuals. Thus, supply-side sources can capture illegal workers which, instead, should be considered outside the underground sector. Then, one can speculate that unemployment could be overstated in the surveys because respondents who should have been classified "out of the labor force" are fearful that they would lose benefits unless they indicated they were looking for work (Gutmann 1978). Finally, as Tanzi suggests (1981), the first issue for the irregular sector worker when approached by the interviewer, is whether to become a respondent and not what to answer. It seems reasonable to assume that he is more likely to be a non-respondent than he would be if he were not in the irregular sector. In the ISTAT approach, non-respondent are included in the "statistical underground", which is allocated to the observed economy. In 1998 the percentage of non response was 3 of total GDP (ISTAT 1998). Evidence reported in Di Nardo *et al.*, (2000) may give an idea of the potential bias. In that paper is described a survey carried out in San Giuseppe Vesuviano, a town near Naples known for its widespread black economy employment. The standard method was that of the census survey, but conducted three times for the same universe in a period of a few months. Once by an interviewer not known to the local area; once by an interviewer who was known, using the indirect method of contacting 'key observers'; and once by a known interviewer using the direct, door-to-door survey method, but establishing trust with the respondents and exploiting (fortuitously) her particular personal situation - she had to finish her thesis and she was pregnant. Where the standard method produced a result of 31.1% and that of the "informed persons" one of 35.8%, the

¹⁶ US General Accounting Office, "Estimates of the Tax Gap for Service Provider", GAO/GGD-95-59, Dec. 1994.

¹⁷ This is another interesting hidden gap to study (Desai, 2003 and 2004; Mills and Plesko, 2003; Bovi, 2005a).

third approach got 43.7%. While this kind of research may suggest that the bias could be significant, its scientific content and replicability is questionable. Those shares are in fact directly indicated by (more or less) informed persons, so the amount is “subjective”, as shown by their threefold evidence (Bovi, 2006). As should be clear, the ISTAT method is different (and better) because it uncovers hidden workers indirectly. Last but not least, it is really hard to imagine how this method could be structurally implemented in the system of national accounts.

The main issues of the procedure to address the turnover gap are the following. First, the correction is minimal because self-employed workers should have, on average, a greater wage than their employees¹⁸. Then, the benchmark wage may be undervalued if working hours and/or “extra” take-home pay are under declared, if there are differences between actual and contractual status of the employee, etc. Moreover, ISTAT does not apply the Franz method neither to cooperatives, because of the difficulties in separating self-employed workers from employees, nor to corporations with more than fifty employees. Di Nicola (2006) and Bovi (2005a) suggest that this implies a non trivial undervaluation of the tax evasion.

The last step of the ISTAT procedure should be a catchall device for all the underground activities left uncovered by the two previous gaps. In fact, since these latter deals with the labor market and with budgetary “arrangements”, squaring the NA should allow to take into account the tax evasion stemming from, e.g., real estate and financial markets. Therefore it is somewhat surprising that, according to the figures reported in table 1, this process leads to the smallest contribution in terms of hidden GDP. Even more so recalling that part of its contribution stems from statistical issues. Possibly, part of the explanation may be link to the treatment of hidden wages. To increase exhaustiveness but due to lack of information, as mentioned, ISTAT attributes to irregular employees the same gross compensation (net of social contributions) of corresponding (same industry, same firm’s size, etc.) regular ones. That is, the overall GDP includes the personal income tax “paid” by black economy workers. This has two effects. First, it leads to an overestimation of the overall GDP; second, it unduly closes part of the supply-demand gap. To sum up, the picture emerging seems to suggest that the squaring method, while indispensable for national accountants for obvious reasons, suffers from pitfalls as an instrument to quantify tax evasion.

¹⁸ Actually, the average wages refers to clusters of “homogeneous” (*i.e.* similar size, turnover, location, etc.) firms.

5 TAX EVASION AND TAX BURDEN

Tax burden (by and large, government revenues as % of the tax base) and tax evasion are key concepts in many (not to say in all) economic and political circles. As for the former, its measurement is subject to controversy: '*all current measures reviewed have at least some important shortcomings.*' (OECD, 2000, p. 3). Just to mention, which is the tax rate actually pushing people underground? Is it the top, the average or the marginal tax rate? And what about tax reliefs, allowances, etc.? In this subject, the gap between the huge complexity of the reality and the simplification of the economic theory is quite large – the literature often analyses one single and linear tax rate. To add some further notion, we may take advantage of what said in the previous sections. In fact, the knowledge of the hidden (and hence of the regular) GDP allows computing some unusual but policy relevant versions of the tax burden. Indeed, while the “usual” tax-GDP ratio is based on the overall (regular plus shadow) GDP¹⁹, one may well argue that only regular incomes pay taxes. Dividing total government revenues by the three available GDPs (the overall and the two regulars stemming from the two versions – maximum and minimum – of the hidden sector), one ends up with three different tax-GDP ratios. Table 2 collects the results.

Tab. 2 Maximum (a), Medium (b), Usual (c) Tax-GDP ratios (%)

Years	(a)	(b)	(c)	(a-c)	(b-c)
1992	49.68	48.03	40.59	-9.09	-7.44
1993	52.26	50.52	42.25	-10.01	-8.27
1994	49.53	48.34	40.24	-9.29	-8.10
1995	49.69	48.93	40.12	-9.57	-8.81
1996	51.41	50.69	41.83	-9.58	-8.86
1997	53.70	52.56	43.21	-10.49	-9.35
1998	51.17	50.58	41.75	-9.42	-8.83
1999	52.29	51.04	42.54	-9.75	-8.50
2000	52.05	51.00	42.29	-9.76	-8.71
2001	52.13	50.12	41.93	-10.20	-8.19
2002	50.78	50.08	41.41	-9.37	-8.67
2003	51.72	50.59	41.97	-9.75	-8.62

Source: author's elaboration on ISTAT (GDP) and OECD (Tax) data.

Usual=Tax/overall GDP; Medium=Tax/ (overall GDP-Total gap min); Maximum=Tax/ (overall GDP-Total gap max). Tax=total tax revenues.

See also table 1.

¹⁹ Note that, due to the exhaustiveness efforts asked by the ESA95, official figures of GDP are likely to include the underground production even for those countries which do not release/compute shadow activity data (see also note 2).

The normative glamour of these figures is self-evident but, before commenting them, it is also important to understand what really they can tell us. *E.g.*, a question naturally arises – which is the most reliable indicator? To answer, it may be useful to see why the Maximum tax rate is a maximum. First of all, it is the average tax rate hitting honest taxpayers only. Thus, obviously, it is greater than Usual, which is computed by the overall GDP. Without statistical underground the Maximum ratio would crumple to the Medium one; this latter, in turn, without tax evasion (*i.e.*, with zero labor and turnover gaps) would collapse to the Usual tax burden. Since the presence of a non trivial amount of tax evasion is a fact-of-life all over the world, this latter measure is the less reliable. However, recalling that all the three ratios share the same numerator – namely, the total amount of government revenues - other considerations can be done. As it should be harder to hide consumption than income, indirect taxes are paid even by (income) tax dodgers. To the extent it happens the Usual ratio, by taking into account even hidden incomes, is a less biased measure of the true average tax rate as compared to the other two burdens (which over-estimate the effective ratio on law-abiding citizens). Likewise, illegal incomes are (partly) spent in the legal sector. Thus, like irregular earnings, even them pay indirect²⁰ taxes²¹. However, as already noted (section 2), illegal activities, unlike the irregular ones, do not enter the overall GDP. All that implies an over-estimate of all the three effective tax rates – the GDP being unaffected, a part of the government receipts is paid neither by regular nor by irregular incomes. All that considered, the true fiscal pressure should lie somewhere between the two extreme ratios reported in table 2.

We may now turn the attention to the data. The picture depicted by table 2 shows that 1997 was an *annus horribilis* from the taxpayers' point of view – all the values registered a maximum. In fact, in that year an additional interim “euro-tax” was introduced. Another striking element of the backdrop is that the effective tax rate on honest taxpayers might have been as high as 50% for several years. Last but not least, all the figures point out that at the beginning of the current decade the average tax ratio was greater than what it was in the early 90s. This backdrop, together with the presence of fiscal rules and imbalances, seems to suggest that Italy is affected by unpleasant arithmetic. A bad news for policymakers. Further intriguing information on the relationship

²⁰ Recall that even illegal incomes should pay income taxes (see footnote 3).

²¹ Some authors (Caragata and Giles, 1998; Giles and Tedds 2002) have addressed the question of whether taxing consumption induce less tax evasion than taxing incomes. Their motivation is understanding the empirical relevance of the generally perceived view that disguising income is easier than hiding consumption. Since literature mainly deals with legal incomes, what I am saying about illegal incomes may add some insight on this topic.

between tax-GDP ratios and tax evasion may be extracted by comparing fiscal revenues and tax evasion dynamics. Columns (b) and (c) of table 3 suggest that, despite anti-evasion interventions and zero-tolerance announces, in the last decade tax dodgers have more than persisted in cheating. Even more strikingly, it seems that the hidden sector has been much more dynamic than the others especially what, according to ISTAT, should be *surely* considered tax evasion (91% its growth in the decade, against an average of less than 66%). On the other hand, the smallest numbers are recorded by the declared GDP (column (d)). Also, data inform that the first half of the '90s was a dramatic period in the sense that it shows quicker tax evasion than tax receipts. Afterwards the scene

Tab. 3 Fiscal revenues and Tax Evasion Dynamics (%)

Years	(a)	(b)	(c)	(d)	(e)
1993	7.19	9.65	11.31	1.78	2.99
1994	0.75	4.03	9.86	6.12	5.78
1995	7.61	11.97	18.20	7.16	7.93
1996	10.47	6.02	6.73	5.94	5.96
1997	7.94	8.49	4.77	3.68	4.48
1998	0.54	-0.93	3.87	5.11	4.06
1999	5.23	4.46	-2.38	3.04	3.27
2000	5.06	4.79	6.85	5.85	5.68
2001	3.95	8.27	-2.17	4.16	4.84
2002	2.43	-4.18	9.55	5.36	3.73
2003	4.50	6.40	1.83	2.48	3.10
(03/92)	71.4	75.9	91.1	63.9	65.7

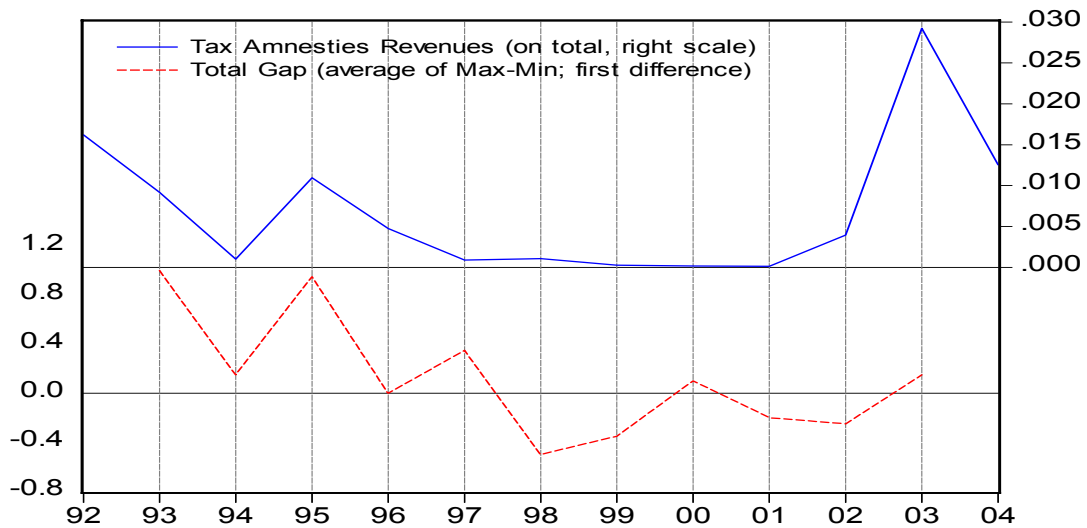
Source: author's elaborations on ISTAT and OECD data. Rates of growth of:

(a)=Fiscal revenues, (b)=Tax evasion=total gap max; (c)=Tax evasion=total gap min; (d)=Declared GDP=Overall GDP-total gap max; (e)=Overall GDP.

improves, but the aggregate result still remains negative. Finally, note that a working tax amnesty should tend to increase fiscal revenues *and* to reduce tax evasion – once emerged as stimulated by the amnesty, hard-to-tax individuals should not be allowed to cheat again. This is why tax amnesties and zero-tolerance announces usually go hand-in-hand. Throughout the '90s data tell another story and this medium-term scene may help understand why in Italy, recently, policymakers often claim that there is no more room for tax

amnesties²² (DPEF, 2006). Since tax amnesties were significantly reduced during the period 1996-2000, it permits a rough check of the relationships between tax amnesties and tax evasion. Figure 2 compares the share of the revenues stemming from tax amnesties on total and the tax evasion share dynamics. Despite the obvious *caveat* surrounding this kind of exercises there is the impression that, if any, a sort of asymmetric tendency to comove emerges – while in the years with amnesties tax evasion was increasing, in the no-amnesty-period tax evasion activities did not show a clear negative trend. Another bad news for policymakers.

Fig. 2 Relationships between Tax Amnesties and Tax Evasion Dynamics



Source: author's elaborations on ISTAT data (see also Tab. 1).

Actually, data of tables 2 and 3 depict a more general situation. That is, what just said about tax amnesties may, in fact, be generalized - policies targeted both to reduce evasion *and* to increase government revenues are likely to be tricky in Italy. Since the unpleasant arithmetic and the “fiscal effort” claimed by the reformed SGP imply that the Italian government must be a revenue-maximizing one, a dilemma emerges. Speculating about a related question, the causal relationship between tax evasion and tax burden, may help rationalize another recent mantra echoing in Italian political circles - the reduction of the tax evasion must be a *pre-requisite* for tax cutting. Needless to

²² Possibly, it may be due to the fact that Italian policymakers implemented several tax amnesties since the '70s in that reducing the credibility of the reiterated zero-tolerance announces. Bernasconi and Lapecorella (2006) confirm the poor outcomes of the tax amnesties implemented in Italy.

say, policymakers²³ would like to know if they may reduce the tax evasion via tax cuts or if they may lower (legal) tax rates only *after* the increase of revenues following a fall in the hidden sector. For instance, some transitional highly-underground countries have opted for a policy of lower taxes (see Introduction). However, unlike Italy, those systems are low indebted. Therefore, once again, exacerbated by national and European commitments, the timing issue is paramount in Italy. Rather than performing implausible causality tests (due to data shortage), it seems more productive to recall that the tax evasion is only partially linked to the taxation. To the extent it is true, there is an additional “degree of freedom” for policymakers. The recent literature (Johnson *et al.*, 1997; Friedman *et al.*, 2000) shows that economic systems can only be in two very different stable equilibria, one good and one bad. In the former, a wide tax base and large public revenues are ruled by an efficient and uncorrupted government, which rises the costs to be underground (*i.e.* the expected penalty, and the exclusion from public services). On the other hand, public institutions are honest and well functioning because sufficiently supported by large flows of public receipts. In the latter, the spiral works in the opposite direction, leading to inefficient and corrupt institutions operating side-by-side to a large irregular sector. Interestingly, this strand of the literature reports cross-country empirical evidence showing that *higher* tax rates are associated to *lower* tax evasion. The logic behind is that the power to tax is positively correlated to good institutions. This story is somewhat congruent with what previously said about the tax rate reduction implemented in (endogenously imposed to?) some transitional countries. From the normative point of view and with the aim to fight the tax evasion, the two-equilibria framework suggests that the marginal euro spent to improve the institutional setting could be more productive than the one spent in tax rate cutting. In turn, this may help understand the priority of increasing the tax base in the Italian backdrop. As already mentioned, another possibility to increase the tax base without reducing the legal tax rates deals with “bureaucratic” tax evasion. Actually, one of the most successful policy in converting shadow employment in regular one was the 2002 legalization (section 3). It is worth noticing that, according to the two-equilibria theory, in order to further increase the tax base the additional revenues should be spent in improving the institutional setting rather than in cutting the tax rates down. At the moment, this is one of the hottest topic in Italian political circles and no final decision has been taken so far.

²³ Clearly, combating tax evasion is paramount not only because of budget problems, but also for a fairer competition, a more acceptable tax system, etc.

6 CONCLUDING REMARKS

Underground economy is a fact of life around the world. As any other production activity, even this shadow needs to be carefully analyzed in order to achieve an exhaustive knowledge of economic systems. In this paper I focused on how the underground sector affects fiscal variables and policymaking. I dealt only with the Italian situation for the following reasons. Unlike other countries, Italy releases official (and, consequently, reliable and NA consistent) data on its underground sector. Then, data suggest that the Italian hidden economy is not trivial. Last but not least, Italy has both internal - a high debt-GDP ratio and downward-rigid public expenditures (owing to interests on debt, "immature" fiscal devolution, ageing, etc) - and international (European) commitments, which are likely to impose, at least in the medium term, a high level of tax proceeds. This unpleasant arithmetic might, in turn, trigger the quit option, emphasizing the normative impact of the hidden gaps.

Data show that government revenues and tax evasion go hand-in-hand. In addition, the analysis of the hidden gaps help shed some light on the recent and reiterated opinions, hold in political circles, that i) the reduction of the tax evasion *must* be a prerequisite for tax cutting and that ii) implementing policies targeted both to reduce the tax evasion and to increase the tax burden is a difficult task. Moreover, the proposed analysis highlights how to address this latter dilemma. As a matter of fact, a part of tax evasion not directly depending on taxation is pointed out. Contrasting it could be an escape route for peculiar situations such as the current Italian one. The additional revenues should be spent in improving the institutional setting rather than in reducing (legal) tax rates.

Although relegated in the agenda, within the proposed framework other intriguing questions may be addressed. Just to mention, is there any connection between the "undeclared" and the expenditure side of the public budget? In fact, according to the common wisdom, in the '80s the Italian Government was the "employer of last resort" for otherwise unemployed/shadow workers. Has the unpleasant arithmetic affected this kind of outlays mainly targeted to buy "social consensus"? Then, there are also obvious links between taxation expenditure and hidden activities. Financing relatively generous tax-funded programs for social security, disability insurance, unemployment insurance, etc, may impose high tax burdens. Both taxation and benefits alter labor supply incentives in ways that discourage market work activity and increase employment in the underground economy.

REFERENCES

- Baldassarini, Antonella and Claudio Pascarella. (2003). "The Italian approach to estimating the extent of the Non-Observed Economy: methods and results." Proceedings of the Conference on The Non-Observed Economy: Measurement and Policy Issues (Roma, Jan. 20-21, 2003).
- Bernardi, Luigi and Franzoni, Alberto. (2004). "Evasione fiscale e nuove tipologie di accertamento: una introduzione all'analisi economica," *Rivista di diritto finanziario e scienza delle finanze*, 1, pp. 3-41.
- Bernasconi, Michele and Fabrizia La pecorella. (2006) "I condoni nel sistema tributario italiano" in Guerra M.C. and A. Zanardi eds., *Rapporto di Finanza Pubblica*, pp. 377-405. Bologna, il Mulino.
- Boeri, Tito and Pietro Garibaldi. (2002). "Shadow Activity and Unemployment in a Depressed Labour Market." CEPR Discussion Paper, 3433.
- Bertola, Giuseppe and Pietro Garibaldi. (2003). "The Structure and History of Italian Unemployment." CESifo working paper, 907.
- Boeri, Tito and Pietro Garibaldi. (2006). "Shadow Sorting." CEPR Discussion Paper, 5487.
- Bovi, Maurizio (1999). "Un miglioramento del metodo di Tanzi per la stima dell'economia sommersa in Italia." *Rivista di Statistica Ufficiale dell'ISTAT*, Vol. 2.
- Bovi Maurizio (2004). "The (Underground) Wealth of Nations", *Politica Economica*, 1: 117-139.
- Bovi, Maurizio (2005). "The Dark, and Independent, Side of the Italian Labour Market." *Labour*, Vol. 19, No. 4, pp 721-748.
- Bovi, Maurizio (2005a). "Book-Tax Gap. An Income Horse Race", *Documento di Lavoro ISAE*, 61.
- Caragata, Patrick and David A.E. Giles (1998). "Simulating the Relationship Between the Hidden Economy and the Tax level and Tax Mix in New Zealand." Mimeo.
- Carillo, Maria Rosa and Maurizio Pugno. (2004). "Underground Economy and Underdevelopment", *Economic Systems*, No. 28 pp. 257-279.
- Desai, A. Mihir (2003). "The Divergence between Book and Tax Income." In *Tax Policy and the Economy* 17, edited by James M. Poterba, 169-206. Cambridge, MA: MIT Press.
- Desai, A. Mihir (2004). "The Degradation of Corporation Profits." Working paper, Harvard University.

- Di Nardo, Tommaso, Caldarelli Raffaella, and Izzo Maria. (2000). "Le diverse verità della statistica: il caso delle forze di lavoro", *Economia Marche*, No. 2, pp. 17-35.
- DPEF (2006). Documento di Programmazione economico Finanziaria. Anni 2007-2011. Ministero dell'Economia e delle Finanze. Rome.
- Eurostat (1995). *European System of Accounts 1995 (ESA 95)*. Brussels.
- European Commission (2000). *European Economy. Public finances in EMU*. 3. Brussels.
- European Commission (2006). *European Economy. Public finances in EMU*. 3. Brussels.
- Franco, Daniele and Teresa Munzi (1997). "Ageing and Fiscal Policies in the European Union", *European Economy, Reports and Studies*, European Commission, 4. Brussels.
- Franz Alfred. (1985) "Estimates of the hidden economy in Austria on the basis of the official data", *Review of Income and Wealth*, vol.31,4.
- Fugazza, Marco and Jean F. Jacques. (2004). "Labor market institutions, taxation and the underground economy." *Journal of Public Economics*, No. 88, pp.395-418.
- Giles, David A.E. and Lindsay M. Tedds (2002). *Taxes and the Canadian Underground Economy*. Toronto: Canadian Tax Foundation.
- Gutmann Peter M. (1978) "Are the Unemployed, Unemployed?" *Financial Analysts Journal*, No. 34, pp. 26-29.
- Ihrig, Jane and Karin S. Moe (2004). "Lurking in the shadows: the informal sector and government policy", *Journal of Development Economics* No. 73, pp. 541-557.
- Italian National Institute of Statistics (2004). "La misura dell'occupazione non regolare nelle stime di contabilità nazionale: un'analisi a livello nazionale, regionale e retrospettiva a partire dal 1980." *Comunicato fuori calendario*, 29th December, Istat, Roma.
- Italian National Institute of Statistics (1998). *L'economia sommersa, problemi di misura e possibili effetti sulla finanza pubblica*. Hearing of the President of Istat. V° Commission. Chambers of Deputies. Roma.
- Johnson, Simon, Daniel Kaufmann, and Andrei Schleifer (1997). *The Unofficial Economy in Transition*, in *Brooking Papers on Economic Activity*, 2, 159-239.
- Mills, L. and G. Plesko. (2003). *Bridging the Reporting Gap: A Proposal for More Informative Reconciling of Book and Tax Income.*" *National Tax Journal* 865-893.

- OECD (2000). Tax burdens. Alternative measures. Paris, OECD Tax Policy Studies.
- OECD. (2002). Measuring the Non-Observed Economy: A Handbook. Paris, OECD.
- OECD. (2004). Employment Outlook. Paris, OECD.
- Schneider, Friedrich and Dominik H. Enste. (2000). "Shadow Economies: Size, Causes, and Consequences." *Journal of Economic Literature*, Vol. XXXVIII, pp. 77-114.
- Slemrod Joel and Shlomo Yitzhaki. (2002) "Tax Avoidance, Evasion and Administration," in A. Auerbach and M. Feldstein (eds.), *Handbook of Public Economics*, Volume 3, North-Holland, pp. 1423-1470.
- Stone Richard and Champernowne D.G., Meade J.E. (1942) The precision of national accounts estimates 1930-1980, in *International Monetary Fund Staff Papers*.
- Tanzi, Vito. (1981). *The Underground Economy in the United States and Abroad*. Lexington, Heath and Co, MA.
- Tanzi, Vito. (1999). "Uses and Abuses of Estimates of the Underground Economy", *The Economic Journal*, 109, pp. 283-556.
- U.N., Eurostat, IMF, OECD, and World Bank (1993) *System of National Accounts*, Brussels, Luxembourg, New York, Paris, Washington D.C.

Working Papers available:

n. 31/03	S. DE NARDIS C. VICARELLI	The Impact of Euro on Trade: the (Early) Effect Is not So Large
n. 32/03	S. LEPROUX	L'inchiesta ISAE-UE presso le imprese del commercio al minuto tradizionale e della grande distribuzione: la revisione dell'impianto metodologico
n. 33/03	G. BRUNO C. LUPI	Forecasting Euro-area Industrial Production Using (Mostly)\ Business Surveys Data
n. 34/03	C. DE LUCIA	Wage Setters, Central Bank Conservatism and Economic Performance
n. 35/03	E. D'ELIA B. M. MARTELLI	Estimation of Households Income from Bracketed Income Survey Data
n. 36/03	G. PRINCIPE	Soglie dimensionali e regolazione del rapporto di lavoro in Italia
n. 37/03	M. BOVI	A Nonparametric Analysis of the International Business Cycles
n. 38/03	S. DE NARDIS M. MANCINI C. PAPPALARDO	Regolazione del mercato del lavoro e crescita dimensionale delle imprese: una verifica sull'effetto soglia dei 15 dipendenti
n. 39/03	C. MILANA ALESSANDRO ZELI	Productivity Slowdown and the Role of the Ict in Italy: a Firm-level Analysis
n. 40/04	R. BASILE S. DE NARDIS	Non linearità e dinamica della dimensione d'impresa in Italia
n. 41/04	G. BRUNO E. OTRANTO	Dating the Italian Business Cycle: a Comparison of Procedures
n. 42/04	C. PAPPALARDO G. PIRAS	Vector-auto-regression Approach to Forecast Italian Imports
n. 43/04	R. DE SANTIS	Has Trade Structure Any Importance in the Transmission of Currency Shocks? An Empirical Application for Central and Eastern European Acceding Countries to EU
n. 44/04	L. DE BENEDICTIS C. VICARELLI	Trade Potentials in Gravity Panel Data Models

Working Papers available:

n. 45/04	S. DE NARDIS C. PENSA	How Intense Is Competition in International Markets of Traditional Goods? The Case of Italian Exporters
n. 46/04	M. BOVI	The Dark, and Independent, Side of Italy
n. 47/05	M. MALGARINI P. MARGANI B.M. MARTELLI	Re-engineering the ISAE manufacturing survey
n. 48/05	R. BASILE A. GIUNTA	Things change. Foreign market penetration and firms' behaviour in industrial districts: an empirical analysis
n. 49/05	C. CICONI	Building smooth indicators nearly free of end-of-sample revisions
n. 50/05	T. CESARONI M. MALGARINI G. ROCCHETTI	L'inchiesta ISAE sugli investimenti delle imprese manifatturiere ed estrattive: aspetti metodologici e risultati
n. 51/05	G. ARBIA G. PIRAS	Convergence in per-capita GDP across European regions using panel data models extended to spatial autocorrelation effects
n. 52/05	L. DE BENEDICTIS R. DE SANTIS C. VICARELLI	Hub-and-Spoke or else? Free trade agreements in the "enlarged" European Union
n. 53/05	R. BASILE M. COSTANTINI S. DESTEFANIS	Unit root and cointegration tests for cross-sectionally correlated panels. Estimating regional production functions
n. 54/05	C. DE LUCIA M. MEACCI	Does job security matter for consumption? An analysis on Italian microdata
n. 55/05	G. ARBIA R. BASILE G. PIRAS	Using Spatial Panel Data in Modelling Regional Growth and Convergence
n. 56/05	E. D'ELIA	Using the results of qualitative surveys in quantitative analysis
n. 57/05	D. ANTONUCCI A. GIRARDI	Structural changes and deviations from the PPP within the Euro Area

Working Papers available:

n. 58/05	M. MALGARINI P. MARGANI	Psychology, consumer sentiment and household expenditures: a disaggregated analysis
n. 59/05	P. MARGANI R. RICCIUTI	Equivalenza Ricardiana in economia aperta: un'analisi dinamica su dati panel
n. 60/05	M. BOSCHI A. GIRARDI	Euro Area inflation: long-run determinants and short-run dynamics
n. 61/05	M. BOVI	Book-Tax Gap. An Income Horse Race
n. 62/06	M. BOVI	The Cyclical Behavior of Shadow and Regular Employment
n. 63/06	G. BRUNO C. LUPI C. PAPPALARDO G. PIRAS	The cross-country effects of EU holidays on domestic GDP's
n. 64/06	M. COZZOLINO F. DI NICOLA M. RAITANO	Il futuro dei fondi pensione: opportunità e scelte sulla destinazione del TFR
n. 65/06	S. LEPROUX M. MALGARINI	Clima di fiducia e spesa delle famiglie in Italia: un'analisi disaggregata secondo il reddito degli intervistati
n. 66/06	M. BOVI	Consumers Sentiment and Cognitive Macroeconometrics Paradoxes and Explanations
n. 67/06	G. ROCCHETTI	Modelli di business nel mercato del software e partecipazione delle imprese italiane al fenomeno open source
n. 68/06	L. CROSILLA	La stagionalità delle inchieste ISAE su imprese e consumatori: aspetti metodologici ed evidenza empirica
n. 69/06	C. OLDANI	Money demand & futures
n. 70/06	R. BASILE S. DE NARDIS A. GIRARDI	Pricing to market of italian exporting firms

Working Papers available:

n. 71/06	B.M. MARTELLI G. ROCCHETTI	The ISAE Market Services Survey: Methodological Upgrading, Survey Reliability
n. 72/06	M. FIORAMANTI	Predicting sovereign debt crises using artificial neural networks: a comparative approach
n. 73/06	S. ZECCHINI M. VENTURA	Public Credit Guarantees and SME Finance
n. 74/06	G. FERRI M. VENTURA	Macchinari del <i>made in Italy</i> e dinamiche dei distretti industriali
n. 75/07	R. BASILE	Intra-distribution dynamics of regional per-capita income in Europe: evidence from alternative conditional density estimators