Political cycle and reported labour incomes in Italy: a quasi-experimental evidence on tax evasion

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Il prelievo fiscale corretto si aggira intorno a un terzo del reddito, se invece le tasse sono tra il 50 e 60% è troppo e così " è giustificato mettere in atto l'elusione o l'evasione".

The correct tax burden is about one third of the income; it is too much if the tax burden is around 50 or 60%, thus "it is justified to resort to tax avoidance or evasion."

Silvio Berlusconi,
speech during the electoral campaign, April 2008

Abstract

Tax evasion is a complex phenomenon affected by many factors and shaped by policy makers' and citizens' behaviours. Different claims about the acceptability of tax evasion between centre-right and centre-left coalitions clearly emerged in Italy in the last decades and these different attitudes could have influenced tax compliance according to the ruling coalition, affecting reported income of self-employed, who have much more room for manoeuvre than employees to implement tax avoidance or evasion strategies. Using a longitudinal dataset recording the entire working life of the sampled individuals, we focus on the period 1996-2005 (the only period when a complete political cycle took place in Italy) and, following a differences-in-differences approach, we compare employees and self-employed reported earnings and test whether self-employed reported earnings significantly changed when the coalition in charge of the Government changed. Our findings clearly show that self-employed reported earnings significantly reduced during the centre-right Government.

Keywords: tax evasion, political cycle, Italy, earnings, self-employed
JEL Classification: H26, D31, J31

1. Introduction

The political economy literature has deeply analyzed the interactions between voters and politicians and the influence of the political cycle on the economic variables. However, to the best of our knowledge, no emphasis has been placed on inquiring the effects on citizens' tax compliance of parties' preferences towards different groups of workers and towards contrasting tax avoidance and evasion.

The economic literature shows that self-employed and employees strongly differ with respect to their tax compliance (Andreoni et al. 1998, Bruce 2000). In most of countries, employees usually get taxes paid on their behalf by the employer, whereas self-employed directly deduct taxes from their gross income, so they have much more room for manoeuvre to choose strategies for underreporting labour income (e.g. artificially reducing proceeds or increasing production costs). Therefore, parties' weak preferences for contrasting tax avoidance and evasion could attract self-employed votes and parties' attitudes towards self-employed could induce politicians to affect determinants of tax compliance and tax morale, shaping self-employed propensity to correctly report labour incomes. Different policies (e.g. measures easing tax avoidance or affecting the probability to receive an audit or different enforcement efforts by the tax administration authorities) could be implemented by differently oriented parties, modifying the convenience of citizens to underreport their incomes. Furthermore, when a pro self-employed party is ruling, self-employed could feel a political atmosphere more favourable to their wishes (and this feeling could be strengthened by explicit politicians claims or by the introduction of tax amnesties), thus expecting softer controls and risks in case of inaccurate tax files.

Italy is characterized by a high level of tax evasion due to both unreported jobs and low tax compliance (Schneider and Enste 2000) and the size of the legal hidden economy is estimated to be around 11.5 % of GDP (Istat 2014). Different claims about the acceptability of tax evasion between centre-right and centre-left coalitions have clearly emerged in Italy in the last decades (Livadiotti 2014). Indeed, the centre-left coalition often stresses that fighting against tax evasion is a priority, while Silvio Berlusconi, the leader of the centre-right coalition since 1994, has repeatedly stated that evading excessively high taxes is justifiable.

As confirmed by analyses of election flows carried out by political scientists (Caciagli and Corbetta 2002, Diamanti and Lello 2005), self-employed – which represent a large share of the Italian workforce[1] – are the strongest political constituency of centre-right parties, while the majority of private and public employees support centre-left parties. Analyzing the votes of Italian citizens by occupations, INES (2001 and 2006) found that in the 2001 elections 63.4% of craftsmen and dealers voted for the centre-right coalition and the share rose up to 68.1% in the 2006 elections. Then, right-wing parties take more attention to needs and requests of self-employed, that frequently ask for a large reduction of tax burden and tend to consider the centre-left coalition as "tax lover" (Mastropaolo 2009). Consistently, Vincenzo Visco, the ministry of Finance during the centre-left Governments in the '90s and '00s was nicknamed "Dracula" by the centre-

[1] According to EUROSTAT data the share of self-employed is much higher in Italy than in the other EU countries (in the last decade around 23% in Italy vs EU28 and EU15 values amounting around 14%), representing about 10-12 millions of voters.

right oriented press, while tax evaders are considered the most powerful Italian lobby by the left-wing oriented press (Livadiotti 2014).

However, it is very difficult to inquire the effect of political cycles on tax compliance in Italy, because Governments are usually on charge for short periods and, since 1946 (when the Italian Republic was born) up to 1994 (when the so-called first Republic ended), the Centre Catholic party *Democrazia Cristiana* had the relative majority of votes and was on charge of the Government forming a coalition with other smaller parties. The only complete bipartisan political cycle took place in the decade 1996-2005, when the centre-left coalition was in charge of the Government for a five-year period (April 1996-April 2001) and, afterwards, the centre-right coalition, led by Silvio Berlusconi, ruled from April 2001 to March 2006.

In line with what previously argued, the aim of this paper is to analyze whether self-employed tax compliance changed in the decade 1996-2005 in Italy according to the political cycle. Actually, we aim to test whether the supposed different attitudes towards self-employed and tax evasion of the two coalitions have led to a change in self-employed reported incomes – compared to employees – when the coalition in charge of the Government changed.

We neither have at our disposal data on the actual incomes earned by self-employed and employees (a hidden information), nor we rely on data on the amount of individual tax evasion found by fiscal administration. Using an administrative panel dataset where the entire working life and annual gross earnings reported to the public administration are recorded, we follow a difference-in-difference approach, considering private employees (whose chances to underreport earnings are very limited) as the control group and craftsmen and dealers (the typologies of self-employed tracked in our sample) as the treatment group considering the coalition change in 2001 as the shock. Then, controlling for individual characteristics, business cycle and time trends, we carry out panel estimates as to measure whether self-employed reported earnings significantly reduced, compared to employees earnings, from 1996-2000 to 2001-2005. Note that our strategy does not allow us to compute the share of real earnings that is underreported by self-employed and employees. Instead, it allows us to identify a "marginal" effect of political cycle on evasion, i.e. the change in income underreporting that follows the change of the ruling coalition.

More in detail, the paper is organized as follows. We briefly review the literature on tax compliance and political cycle (section 2) and the main measures affecting tax evasion implemented in Italy in the last decades (section 3). Afterwards, we present the characteristics of the used panel dataset (section 4) and the empirical strategy (section 5). Finally, we show the main findings (section 6), carried out through individual fixed effect models and the Canay (2011) quantile fixed effect methodology, as to test whether the relative income of self-employed changed along the distribution in the two five-year periods. Section 7 concludes summing up the main evidence.

2. Tax compliance and political cycle: related literature

Tax evasion is a complex phenomenon that arises from the interaction of behaviours of politicians, who establish laws contents, and the citizens which, on the one hand, react to the law and, on the other hand, determine as voters the electoral results. In this section, we briefly review

the main contributions of the literature on tax evasion and on political cycle useful to the aims of this paper.

Since the pioneering studies of Kalecki (1971) and Nordhaus (1975), the influence of the political cycle on the economic variables has been thoroughly investigated and several scholars (e.g. Hibbs 1977, Alesina 1987, Rogoff 1990) showed the existence of a political cycle on some economic variables (GDP growth, inflation and unemployment rates, tax rates).

However, Rogoff (1990) noticed that tax evasion is not easily observable into the policy games. In partisan models Alesina (1987) argued that tax evasion can be considered a latent variable – relaxed enforcement of selected laws – that affects a specific type of mis-governance before and after the elections. Following Meltzer and Richard (1981), other scholars focused on the relationship between voters, income and redistribution and suggested that higher market income inequality engenders higher level of political support for redistributive policies, thus inducing tax rates increase. However, on the one hand, the empirical evidence on this issue is contrasting (e.g. Alesina and Rodrik 1994, Persson and Tabellini 1994, Perotti 1996) and, on the other hand, also these models do not explicitly take tax evasion into account.

Since the seminal contribution of Allingham and Sandmo (1972), the determinants of tax compliance and tax evasion have been broadly studied on both theoretical and empirical sides[2]. According to Allingham and Sandmo (1972) model, the rational taxpayer chooses the amount of the income to report and the quantity to evade when he/she fills the income tax file. The decision is affected by the probability to be detected by the tax authority in case of underreporting. If the tax authority discovers the hidden income, the taxpayer will pay a penalty. Following this approach, tax compliance depends on audit frequencies, on fine rates and on the size of tax rates. In the last two decades, some scholars have highlighted that the behaviours of taxpayers are also affected by social interactions (Erard e Feinstein 1994, Fortin et al. 2007, Wenzel 2002). In this context economic choices depend both on rationality and on other factors as the subjective perception of the phenomenon, the culture, the beliefs or the behaviours of other members of the community (Kirchler 2007). For instance, Feld and Frey (2007) argue that tax compliance is affected by a sort of "psychological tax contract" that citizens sign with the State on the basis of the fiscal exchange (public services versus taxes), the political procedures and the personal relationship between taxpayers and tax administrators.

Therefore, in bipartisan models, the political cycle could affect individual tax compliance when the coalitions differently affect the two aforementioned sets of determinants of tax evasion highlighted by the literature: i) audit frequency, penalty sizes, tax rates; ii) tax morale, social norms and the perceptions on the opportunities to evade incomes. However, despite of the broad literature focusing on tax compliance and evasion and on their determinants, to the best of our knowledge a very limited attention has been devoted to study the links between politicians' attitudes and tax compliance. Partial exceptions are Kim (2007), who provides a theoretical model that suggests that tax evasion is influenced by the government's intention to control the economy, Hibbs and Piculescu (2010), who argue that firms' incentives to evade taxes depend on statutory tax rates relative to firm specific, rationally calibrated thresholds of tax toleration that are

[2] For an exhaustive review of this literature, see Andreoni et al. (1998) and Schneider and Enste (2000).

decisively affected by quality of governance, and Skouras and Christodoulakis (2011), who show that a significant increase of tax evasion emerged in the period around the elections in Greece and interpret this evidence as "a type of mis-governance which arises from electoral cycles".

As for Italy, to the best of our knowledge, no studies have analyzed the link between the political cycle and the sizes of tax evasion and hidden economy through a robust econometric strategy. The only descriptive picture that suggests a link between the colour of the ruling coalition and the size of tax evasion is found in a contribution on the online economic magazine "La Voce" by Fiorillo and Gallegati (2008, updated to the most recent years by Gallegati in Livadiotti 2014). They consider the gap between the apparent tax burden (computed dividing total public revenues to the GDP, where the shadow economy size is included) and the real tax burden (computed excluding shadow economy from the GDP) as a proxy of tax evasion in the period 1982-2012 and point out that, according to this indicator, tax evasion rises during the centre-right Government, while it decreases when a centre-left coalition ruled and this evidence is particularly clear in the period 1996-2005 that we consider in this paper. Consistently, as an indirect sign of the link between political cycle and tax evasion, a descriptive report by LEF (2012) – without controlling for business cycles and other possible determinants – highlights that during the centre-left Governments a positive difference between the growth of the proceeds on which VAT is computed and the GDP emerged, while, on the contrary GDP growth rate exceeded VAT tax base growth when the centre-right coalition ruled.

Actually, the large majority of studies concerning Italy has inquired a different issue, i.e. has estimated the size of tax evasion. The most recent estimates show that the share of the legal hidden economy – a good proxy of the extent of tax evasion – was 11.5% of the GDP in 2011 (Istat 2014), while the size of tax evasion has been estimated through different data and using indirect or direct methods[3]. All studies point out that the share of underreported income is much higher among self-employed than among employees: Bernardi and Bernasconi (1996) found that employees and self-employed evasion rates are, respectively, 12.9% and 68.5%; Bernasconi and Marenzi (1997) highlighted that employees evade at most 4% of their earnings while the evasion rate among self-employed rises up to 53%; Fiorio and D'Amuri (2005) found that self-employed are characterized by much higher evasion rates than employees in all income deciles, and the evasion rate declines with deciles; Mantovani and Nienadowska (2007) showed that, on average, employees do not evade, while self-employed evade 51% of their earnings; Marino and Zizza (2008), comparing, by workers' categories, individual survey data on household income with the administrative evidence provided by the tax files, found that self-employed underreport 56,3% of their earnings, while, on average, employees correctly report labour incomes to the fiscal authorities.

[3] Indirect approaches are based on the comparison of macroeconomic aggregates (such as national accounts, electricity consumption, monetary variables; e.g. Bernardi and Bernasconi 1996, Bovi and Dell'Anno 2010), while direct methods are based on microdata, usually comparing data provided by household surveys and administrative data on tax records (e.g. Bernasconi and Marenzi 1997, Fiorio and D'Amuri 2005,). Usually, indirect methods overestimate tax evasion, while direct methods underestimate it (Pissarides and Weber 1989).

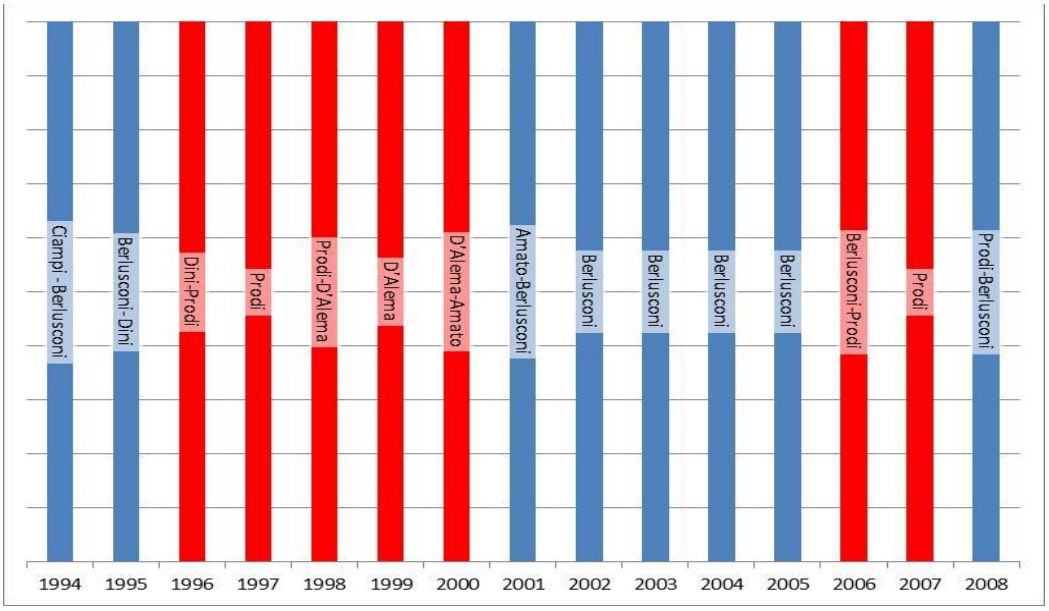
3. Political cycle and anti-evasion measures in Italy

In this section we first describe the characteristics of the political cycle in Italy in the period 1996-2005 and the main measures implemented in those years that could affect reported incomes, in order to assess whether the supposed different attitudes in contrasting tax evasion by the two coalitions emerged.

During the so-called "first Republic" – lasted since 1946 up to 1994, when the new majority vote system was introduced instead of the previous pure proportional system, favouring the creation of two contrasting coalitions – Italy has been always governed by multi-parties coalitions led by the Centre Christian Democratic party (*Democrazia Cristiana*). Therefore, a political cycle did not emerge at all. Afterwards, the centre-right wing coalition (continuously led by Silvio Berlusconi) became in charge of the Government in March 1994, but its Government was replaced at the beginning of 1995 by a "technical cabinet" (led by the former Ministry of Economy Lamberto Dini, who appointed no politicians as Ministries) supported by both some left and centre-right parties, whose main aim was the implementation of a structural pension reform.

Then, two coalitions – centre-right (blue label) and centre-left (red label) in figure 1 – have been alternatively in charge of the Government in Italy since the beginning of 1996 to the end of 2011, when the Berlusconi government was replaced by a technician cabinet led by Mario Monti, supported by a *grosse coalition* that included both centre-right and centre-left coalitions. However, only in the decade 1996-2005 the ruling coalition was able to rule for the whole period of office of the legislature (five years). Therefore, an effective bipartisan political cycle emerged in Italy in such decade only, when the Centre-Left coalition ruled for 5 years[4], then followed for 5 years by the Centre-Right coalition[5].

Fig. 1: Government coalitions in Italy from 1994 to 2008 (red: centre-left; blue: centre-right)



[4] However, during the centre-left ruling the prime Minister changed twice, because Romano Prodi was replaced by Massimo D'Alema at the end of 1998 and D'Alema was then replaced by Giuliano Amato at spring 2000.

[5] The second Centre-Left Prodi Cabinet – based on a very heterogeneous coalition – was on charge for less than 2 years (May 2006 up to January 2008) and the new elections were won again by the Centre-Right coalition.

Looking at studies analysing voters behaviours (e.g. Caciagli and Corbetta 2002, Mastropaolo 2009), the centre-left coalition gained most of its preferences in 1996 among voters who considered as priorities the fight against tax evasion and public corruption, the defence of welfare state and public services, the environment protection, the participation at the EMU. On the other hand, in 2001 the centre-right coalition took votes especially from those who considered as priorities lowering taxes, increasing labour market flexibility and fighting against illegal immigration. Observing voters behaviours according to their job categories, in both elections the centre-right obtained a relatively higher electoral support among the self-employed (entrepreneurs, professionals, dealers, craftsmen). Diamanti and Lello (2005) point out that "… the zone where the centre-right coalition has its highest levels of support in the North contains a large number of self-employed workers …" and around 63 and 68% of craftsmen and dealers voted for the centre-right coalitions at the 2001 and 2006 elections, respectively (INES 2001 and 2006).

Moreover, in public debates, also during the electoral campaigns, different claims about the acceptability of tax evasion between centre-right and centre-left coalitions clearly emerged in Italy. On the one hand, the centre-left coalitions argued that fighting against tax evasion would have been a national priority and appointed as ministry of Finance Vincenzo Visco, an economist who has devoted his activity to introduce anti tax evasion measures. On the other hand, Silvio Berlusconi, the leader of the centre-right coalition since 1994, has repeatedly stated that to evade taxes when tax burdens exceeds 50% is a sort of a sort of legal citizens self-defence. Consistently with those different attitudes towards contrasting evasion, measures differently oriented – both in terms of new measures and different enforcement effort by the tax administration and control authorities – were implemented by the two coalitions when they ruled (see Table 1).

In particular, two measures are consistent with the idea of a different attitude of the two coalitions towards tax avoidance and evasion and towards easing the chances of self-employed to underreport their income. The centre-left Government phased in the Audit scheme (*Studi di settore*), aimed at contrasting tax evasion defining the plausible proceed that firms or self-employed, with certain detailed characteristics, should earn in a year and asking those not achieving that proceed to justify the discrepancy to the fiscal authority[6]. Conversely, the centre-right coalition decriminalized the "Forgery in balance sheet", thus advantaging fraud and corporate crimes, and introduced two tax amnesties[7] in 2002 and 2003 (during the centre-left government periods only a tax contribution amnesty following the structural 1995 pension reform was introduced). Actually, also the change of pension contribution rates could affect gross reported incomes. Since 1996 employees pay a 33% contribution rate, while self-employed enrolled to the National Social Security Institute (INPS, i.e. craftsmen and dealers)[8] pay a lower

[6] For details see Arachi and Santoro (2007).

[7] A contrasting debate concerns the effects of tax amnesty on tax compliance (Hasseldine 1998, Andreoni 1991). On the one hand, it could exert a positive effect on short-term and long-term revenues by those individuals that would like to re-join the tax system but are constrained by the fines. On the other hand, tax amnesty could provide incentives for honest taxpayers to start evading taxes because they anticipate future new amnesties.

[8] Professionals (e.g. lawyers, architects) enroll to the private pension fund managed by their professional order.

rate (around 19-20% in the observed period), that has however been slightly increased in the period 1996-2005[9].

Table 1: Main measures introduced in Italy from 1994 to 2006

Year	*Government*	*Main Acts of Parliament*
1996	Technical Cabinet, then CL	Tax contribution amnesty (DL.295/1996); +0.30% of contribution rate for dealers (L.662/1996)
1997	CL	+0.8% contribution rate for dealers and craftsmen (L.449/1997)
1998	CL	Audit scheme (Studi di Settore; L.427/1993 phased in 1998)
1999	CL	
2000	CL	
2001	CL then CR	+0.09% yearly increase of contribution rate for dealers up to 2006 (L.448/2001)
2002	CR	Tax amnesty (L.289/2002); "Forgery in balance sheet" (d.lgs.11/4/02 n.61)
2003	CR	Tax amnesty (L.350/2003)
2004	CR	
2005	CR	

4. Data

We use a longitudinal dataset on individual working histories, called AD-SILC, recently built merging the IT-SILC 2005 survey sample (i.e. the Italian version of EU-SILC 2005, carried out by Istat) with the administrative records on individual working histories since their entry in the labour market, that are collected in the administrative files managed by the Italian National Social Security Institute (INPS). AD-SILC is the first panel available for Italy that allows to observe individual working histories since their entry in the labour market up to 2009 and collects from administrative sources on a yearly base detailed information on individual reported gross earnings (i.e. net earnings plus personal income taxes and contributions paid by the worker)[10], working statuses and characteristics (e.g. region of work, type of contractual arrangement, education).

[9] Note that, since 1990, differently from employees, craftsmen and dealers are obliged to pay a lump sum contribution when annual earnings are lower than a specific amount. In other terms, pension contributions are based on a minimum income that is due also when total earnings computed for tax purposes are below a specific threshold

[10] Administrative data are much less plagued by measurement errors than survey data. By their nature, administrative archives are not balanced – because individuals are followed for a different number of years since the moment they start to work – and not plagued by attrition: if someone disappears from the archives it means that he/she has stopped to work or has gone to work abroad.

Differently from the other datasets previously based on INPS data that only follows private employees and some groups of self-employed since a given year (1985), AD-SILC allows to identify the individual working histories since the beginning of the career and also includes information about working careers of public employees and professionals. However, due to some limits in the earnings records for professionals and public employees in the '90s, the analysis of this paper will be carried out comparing only individuals enrolled to INPS, in particular comparing private employees to self-employed (craftsmen and dealers), that are precisely distinguished in the administrative archives according to the specific pension funds where workers pay their contributions. Note that in this paper we do not include the increasing share of "parasubordinate" workers (who pay their contributions to pension funds different from employees and self-employed), which are often bogus self-employed, formally acting through a not subordinate contractual arrangement but usually working as employees.

The administrative sources allow to exactly reconstructing for each individual the time of entry in the labour market, actual experience (i.e. the effective number of worked weeks since the entry in the labour market) and reported annual gross earnings[11]. For private employees gross earnings include only employees contribution rate (currently 9%), while craftsmen' and dealers' gross earnings include the total contribution rate paid by them (increased up to 19-20% in the observed period). Furthermore, AD-SILC allows to include further individual controls, as the Region where the individual works, gender, education, age, and, as said, the actual labour market experience.

Table 2: Sample size

Observations	**Values**	**%**
Private Employees	100,026	78.4
Craftsmen	14,192	11.1
Dealers	13,297	10.4
Total	*127,515*	*100.0*
Not moving across occupations	**Values**	**%**
Private Employees	94,897	80.8
Craftsmen	11,734	10.0
Dealers	10,765	9.2
Total	*117,396*	*100.0*
Individuals (no movers)	**Values**	**%**
Private Employees	14,095	81.7
Craftsmen	1,561	9.0
Dealers	1,607	9.3
Total (no movers)	*17,263*	*100.0*
Total	*18,521*	

Source: elaborations on AD-SILC data

[11] For reducing the impact of outliers we dropped, in each year, the top 1% and those earning less than 1,000 Euros (at 2010 prices). We include in the gross earnings maternity and sickness allowances and the benefits received in case of reduced working hours as *Cassa Integrazione*.

In this paper we focus on a sample of 127,515 observations concerning 18,521 individuals followed in the decade 1996-2005 and working as private employees, craftsmen of dealers (Table 2). Moreover, in order to avoid possible endogenous choice to move between employment and self-employed during the two political phases, in our baseline estimates we do not consider those individuals moving from self-employment to private employment (or *vice versa*) in the period 1996-2005. Due to these restrictions, the final sample used in our main estimates is composed by 17,263 workers and 117,396 observations. More in detail, looking at individuals, the share of private employees is equal to 81.7% while 18.3% of the workers are self-employed (9.0% craftsmen and 9.3% dealers).

The main characteristics of the individuals included in our sub-sample, are shown in table 3, where it emerges that private employees are younger than self-employed, while, on average in the period 1996-2005, their gross annual earnings (17,682 Euros, in constant 2010 prices) are higher than those of craftsmen (16,011 Euros) and dealers (15,997 Euros). The highest shares of both private employees and self-employed work in the North of Italy and there is a majority of males in our sample, especially among the craftsmen.

Table. 3: Sample characteristics

	Private Employees	**Craftsmen**	**Dealers**	**Total**
Mean				
Gross annual earnings	17,682	16,011	15,997	17,320
Age	36.6	41.4	41.2	37.6
Distribution by gender				
Males	61.2%	76.9%	59.6%	62.8%
Females	38.8%	23.1%	40.4%	37.2%
Distribution by education				
At most lower secondary	47.0%	62.2%	43.0%	48.3%
At most upper secondary	45.9%	34.6%	51.2%	45.2%
Tertiary	7.1%	3.2%	5.8%	6.5%
Distribution by working area				
North	56.9%	55.7%	51.4%	56.2%
Centre	24.0%	26.0%	23.1%	24.1%
South	19.2%	18.3%	25.5%	19.7%

Source: elaborations on AD-SILC data

5. Empirical strategy

In this section we illustrate the econometric models used in this paper, in order to answer two research questions: i) did relative reported earnings between self-employed and employees change when the ruling coalition changed?; ii) was the size of the estimated coefficient constant along the distribution? In this paper we follow a differences-in-differences (DID) strategy, also applying the quantile fixed effect methodology proposed by Canay (2011) as to answer to the second question.

As remarked in section 2, all studies about Italy point out that the underreported income by self-employed is much larger than that by employees. Indeed, self-employed have much more flexibility in reporting incomes because they directly pay taxes, while employees' labour income taxes are directly paid by the employer. The different scope for underreporting income between the two types of workers through tax avoidance and evasion is crucial in our approach, because we assume that the change of the ruling coalition – the shock – differently hits the two groups of workers.

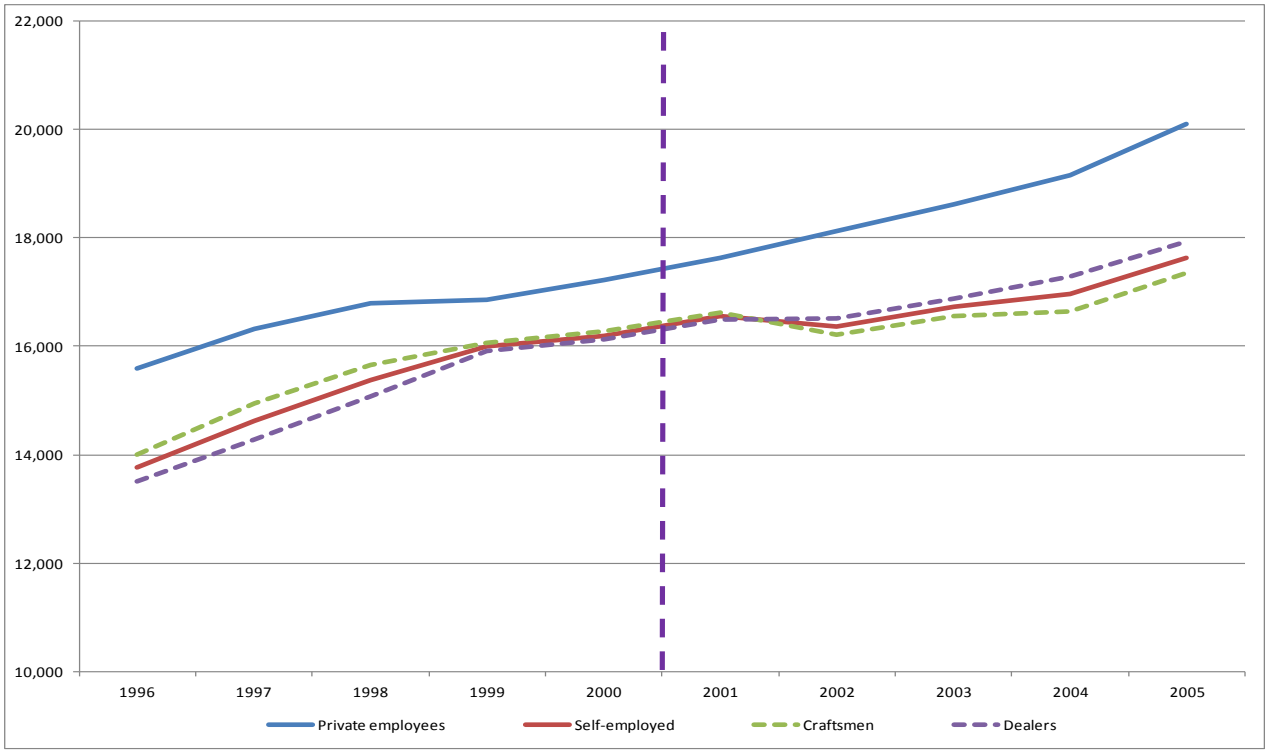
Therefore, we make us of the DID method to estimate the change of self-employed tax evasion according to the political cycle and inquire whether individual annual reported gross earnings changed when the ruling coalition changed, using individual longitudinal data and controlling for individual fixed effects, time varying characteristics (i.e. age, age square, effective labour market experience and its square, dummies for regions of work), plus business cycle proxies (the annual GDP growth rate and the regional unemployment rate) and time trends (considered through time dummies and also interacting, in a further specification of the estimated model, year dummies with dummies for self-employed or private employees, thus considering specific workers' types time trends).

DID approach, indeed, consists of identifying a specific event (a shock) – in our case the change of the ruling coalition occurred at the beginning of 2001 – as to compare the difference in outcomes before and after the shock between the treatment group (i.e. the self-employed, those that could modify their fiscal behaviour according to the ruling coalition) and the control group (i.e. the private employees, whose attitude to pay taxes cannot be directly affected by the political cycle). DID methodology requires two assumptions to be verified: first, individuals should have to be grouped by an exogenous variable, so overcoming the endogeneity issues; second, the trend of the outcome variable for the control and treatment groups should have been the same in absence of the shock (the so-called common trend hypothesis).

As to satisfy the first assumption, we carry out our main estimates only considering the sub-sample of those never moving between employment and self-employment in the 1996-2005 period. The second assumption is difficult to be tested. However, looking at the trend of mean self-employed and private employees annual gross earnings (in nominal prices; Figure 2), a similar trend before the 2001 shock emerges, thus plausibly verifying the common trend hypothesis.

Looking at mean annual earnings, a widening gap between private employees and both types of self-employed emerges since 2001, thus providing a descriptive evidence of the reduction of relative reported labour incomes of self-employed when the centre-right coalition ruled. The aim of this paper is testing whether this reduction persists when individual characteristics and time trends are taken into account, in order to identify a pure effect due to the Government change. Controlling for time varying characteristics and detailed time trends, the effect can be interpreted as a pure effect of the Government change on self-employed propensity to underreport income. In other terms, if the effect is negative a lower propensity to report income, then a higher propensity to evade, emerges, while the opposite holds if the estimated effect is positive.

Figure 2: Trend of mean gross yearly earnings (nominal prices) 1996-2005



Source: elaborations on AD-SILC data

The estimates of the variation of self-employed incomes due to the government turn-out could be plagued by omitted variable bias, due to the missed consideration of the business cycle. To this end in our estimates we include annual real GDP growth rates and regional unemployment rates and two types of time trends: i) a common trend (expressed through the year dummies), that allows to control for general trends jointly affecting both employees and self-employed; ii) specific time trends for self-employed and employees (got interacting year dummies and the worker's category), in order to control for specific time trends affecting a single category, e.g. the effect of the economic cycle on a single category, as the introduction of the Euro in 2002 that mostly advantaged the price makers, as craftsmen and dealers.

As already noted, coalition changes could affect self-employed "propensity" to correctly report labour incomes (i.e. their tax compliance) through two channels: i) affecting, through actual measures, the standard determinants of tax evasion identified by Allingham and Sandmo (1972), i.e. audit frequency, penalty sizes, tax rates, or introducing measures easing tax avoidance; ii) affecting the tax morale (Kirchler 2007), influencing individual expectations and social norms about the tax system and the individual perceptions on the opportunities to underreport incomes to fiscal authorities; for instance, policy makers statements minimizing the negative values associated to tax evasion or the introduction of repeated tax amnesty could reduce tax morale. Therefore, controlling for a common trend does not allow to distinguish between the two aforementioned channels, while controlling for specific time trends could allow to depurate the estimates from the impact of specific policy measures on a single category (e.g. measures advantaging self-employed only, affecting the chances to avoid taxes or the convenience to evade taxes), thus allowing to better disentangle the "tax morale" impact of the government turn-out on

self-employed reported incomes, i.e. the effect of a more general perception and political support not-against tax evasion.

Therefore, carrying out individual fixed effects panel estimates, we compute the treatment effect comparing the treated units before and after the political turn out (i.e. distinguishing the two five-year periods 1996-2000 and 2001-2006):

$$(1) \qquad \ln w_{it} = \alpha + \beta treat_{it} + \delta after_{it} + \gamma treat_{it} * after_{it} + \mu C_{it} + \vartheta year_t + \phi P_t + \varepsilon_{it}$$

$$(1') \qquad \ln w_{it} = \alpha + \beta treat_{it} + \delta after_{it} + \gamma treat_{it} * after_{it} + \mu C_{it} + \vartheta year_t + \phi P_t + \rho year_t * treat_{it} + \varepsilon_{it}$$

where *i* and *t* are respectively the individual and the year (from 1996 to 2005), the dependent variable is the log of annual reported gross labour incomes, the treatment group (*treat*) is a dummy variable equal to 1 for self-employed, 0 for private employees, "*after*" is a dummy variable equal to 1 if the observation is in the period after the shock (i.e. in the period 2001-2005) and the coefficient γ of the interaction term *treat*after* is our key coefficient, as it expresses the change in self-employment earnings when the centre-right coalitions went to rule. Therefore, the coefficient *γ* measures the effect of the political cycle (i.e. the shock) on the reported earnings of the treated group. C_{it} is a set of individual time varying controls, P_t is a vector of macro variables proxying business cycle (real GDP growth and regional unemployment rate) and "*year*" is the time dummy (also interacted with workers' categories in our saturated preferred model 1'). The estimates are run both pooling together the two self-employed groups and distinguishing craftsmen and dealers (in that case we have two different categories of treated individuals, whose incomes are compared to those of employees).

The second part of our analysis aims at verifying if the reaction of taxpayers to the Government turnout changed along the distribution. This investigation is carried out using the methodology proposed by Canay (2011) for the estimation of quantile regressions for panel data. The standard model of quantile regression, introduced by Koenker and Bassett (1978), does not take into account the unobserved fixed effects, while the model proposed by Canay (2011), assuming that the unobserved fixed effect are location shift variables, allows us to depurate estimates from the unobserved individual heterogeneity that can bias the cross-sectional estimates.

The Canay approach is based on two steps: i) in the first step a panel fixed effect estimate is run as to identify the individual fixed effect; ii) in the second step a standard quantile regression is run on a new dependent variable got subtracting the individual fixed effect estimated in the first step from the dependent variable (in our case log of earnings). Note that the Canay (2011) two-step estimator is consistent and asymptotically normal when both the observed individual and the time period go to infinity[12].

[12] For technical details of the estimation procedure and its assumption see Canay (2011).

6. Results

We start carrying out pooled OLS, random and fixed effects estimates on the full sample (i.e. also considering individual moving across workers' categories in the 10 years period), including the common trend only (i.e. year dummies are not interacted with workers' categorise). Independently on the estimated model, the estimated coefficients confirm the descriptive results shown in section 4: self-employed earnings (and dealers and craftsmen earnings when the two categories are distinguished) significantly reduced in the five-year period 2001-2005, i.e. when the Centre-Right coalition led by Silvio Berlusconi ruled. The size of the decrease of self-employed reported incomes enlarges when panel estimates are carried out and it is very similar in fixed effect and random effect models (Table 4)[13]: on average, self-employed earnings reduced by 7.0-7.4% when fixed or random effects estimates are carried out and the decrease is higher for craftsmen than for dealers.

Table 4: Estimated coefficient *γ* of the interaction between the self-employed dummy and the post-shock dummy[1]

	Pooled OLS	*Fixed effect*	*Random effect*
Self-emp.*post shock	-0.0410	-0.0741	-0.0699
S.E.	*0.0074*	*0.0073*	*0.0071*
P value	*0.0000*	*0.0000*	*0.0000*
Craftsman.*post shock	-0.0462	-0.0788	-0.0743
S.E.	*0.0092*	*0.0092*	*0.0091*
P value	*0.0000*	*0.0000*	*0.0000*
Dealer*post shock	-0.0365	-0.0686	-0.0650
S.E.	*0.0102*	*0.0102*	*0.0099*
P value	*0.0004*	*0.0000*	*0.0000*
Number of obs.	125,944	125,944	125,944

[1]Control variables are: dummies for workers' categories, age, age squared, experience, gender, education, region of work, regional unemployment rate, real GDP growth rate and time dummies. Source: elaborations on AD-SILC data

According to the results of a Hausman test[14] we prefer to rely on the fixed effect model only and we carry out several robustness checks (Table 5). In the second column we take into account only the subsample of individuals not moving across the different working categories in the 10 years period (thus the estimate cannot be plagued by endogeneity due to individual self-selection in private employment or self-employment) and the results confirm that, on average, self-employed earnings significantly reduced by 6.9% compared to employees ones. The same effect is confirmed when considering a balanced sub-sample (only individuals present in the sample for the whole observation period; column 3), even if the size of the effect slightly decreases. In the last

[13] Detailed results of the regressions presented in section 6 are available upon request.

[14] The choice between random and fixed effect is carried out computing a Hausman test (T=200.04; *p-value*=0.000) that suggests to reject null hypothesis and to use fixed effect model.

column, we run the model, excluding from the analysis the election years 1996 and 2001 and, interestingly, when the election years are not considered the effect become still clearer.

Table 5: Estimated coefficient *γ*. Fixed effect model on the subsample of those not moving across working categories in the observed period[1]

	No movers - baseline	*Balanced sub-sample*[2]	*No election years*[3]
Self-emp.*post shock	-0.0686	-0.0557	-0.0838
S.E.	*0.0075*	*0.0079*	*0.0083*
P value	*0.0000*	*0.0000*	*0.0000*
Craftsman.*post shock	-0.0741	-0.0603	-0.0943
S.E.	*0.0096*	*0.0102*	*0.0106*
P value	*0.0000*	*0.0000*	*0.0000*
Dealer*post shock	-0.0613	-0.0498	-0.0706
S.E.	*0.0104*	*0.0111*	*0.0116*
P value	*0.0000*	*0.0000*	*0.0000*
Number of obs.	115,955	64,760	92,931

[1] Control variables are: dummies for workers' categories, age, age squared, experience, gender, education, region of work, regional unemployment rate, real GDP growth rate and time dummies. [2] Only individuals that do not move across working categories and are present in the panel as private employees, craftsmen or dealers for the whole observation period are taken into account. [3] The two election years (1996 and 2001) are not taken into account.
Source: elaborations on AD-SILC data

Finally, in order to control for additional sources of heterogeneity between private employees and self-employed, we run our favourite "full model", when the interaction dummies between workers' categories and year dummies and region of work and time dummies are included (Table 6). Actually, controlling for workers categories time trends, we aim at depurating our estimates from both time trends differently affecting self-employed and employees (e.g. the Euro introduction, mainly favoured price makers) and from specific measures affecting the chances to evade and avoid taxes introduced by the two coalitions. Therefore, the "full model", controlling trough specific time dummies for possible specific pro-evasion measures introduced by the ruling coalition, allows to identify the effect of the political cycle on self-employed reported incomes that is due to a self-employed perception of the anti-evasion propensity of the ruling coalition.

When including in the estimates specific time trends for self-employed and private employees, the size of the "political cycle effect" *γ* enlarges and the estimated decrease of self-employed reported incomes in the period 2001-2006 – that, as said, can be interpreted as the pure effect of the ruling coalition on the attitudes towards correctly reporting incomes – amounts to 12.6% in the baseline "full model". This result is confirmed when the interactions between time dummies and the region of work are not included among the regression, when only individuals working for the whole period are considered and when the two election years are not taken into account (column 3, 4 and 5, respectively).

Table 6: Estimated coefficient *γ*. Specific trends models[1]. Fixed effects models on the subsample of those not moving across working categories in the observed period[2]

	Full model	*Without regional trends*[3]	*Balanced sub-sample*[4]	*No election years*[5]
Self-emp.*post shock	-0.1260	-0.1255	-0.1085	-0.1389
S.E.	*0.0143*	*0.0143*	*0.0147*	*0.0138*
P value	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Craftsman.*post shock	-0.1146	-0.1153	-0.1091	-0.0836
S.E.	*0.0183*	*0.0183*	*0.0189*	*0.0138*
P value	*0.0000*	*0.0000*	*0.0000*	*0.0000*
Dealer*post shock	-0.1381	-0.1358	-0.0545	-0.0334
S.E.	*0.0198*	*0.0197*	*0.0171*	*0.0160*
P value	*0.0000*	*0.0000*	*0.0015*	*0.0373*
Number of obs.	115,955	115,955	64,760	92,931

[1] Interaction dummies between time dummies and workers' categories and time dummies and region of work are included in all models. [2] Control variables are: dummies for workers' categories, age, age squared, experience, gender, education, region of work, regional unemployment rate, real GDP growth rate and time dummies. [3] Interaction dummies between time dummies and region of work are not included among covariates. [4] Only individuals that do not move across working categories and are present in the panel as private employees, craftsmen or dealers for the whole observation period are taken into account. [5] The two election years (1996 and 2001) are not taken into account.
Source: elaborations on AD-SILC data

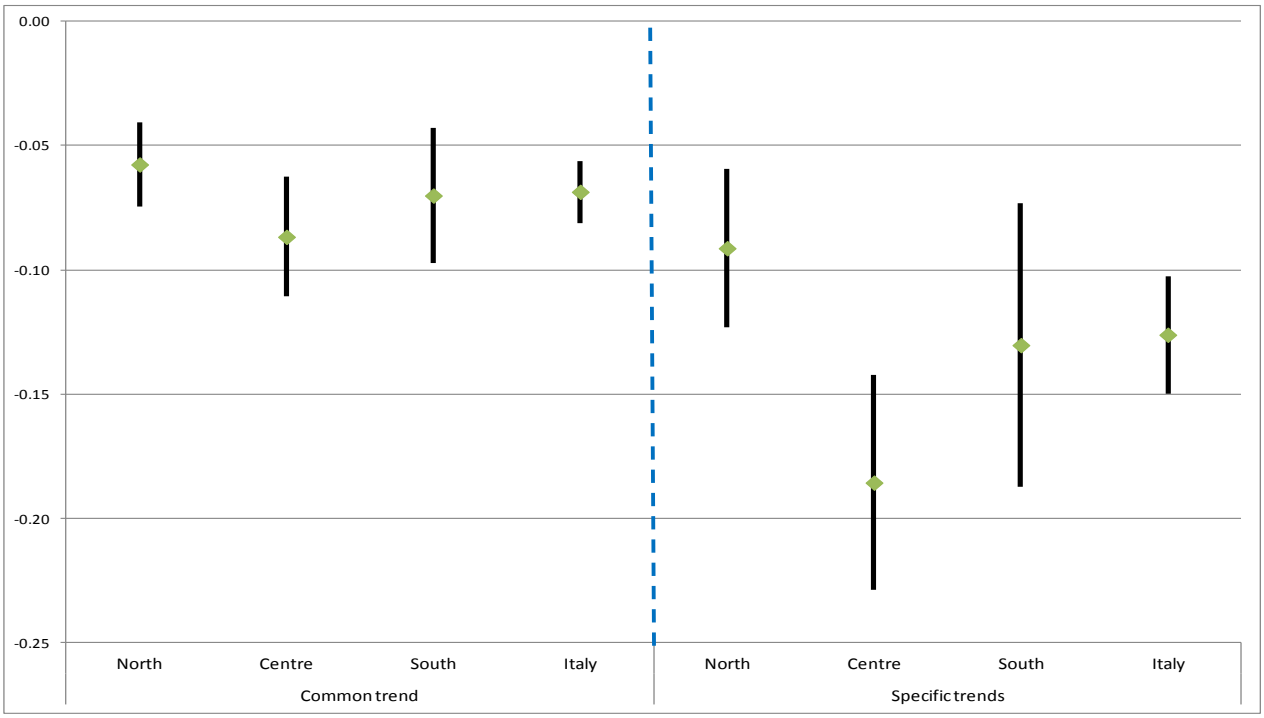
The increase of the size of coefficient *γ* when comparing results of models including common or specific trends is a very interesting (see Tables 5 and 6). It means that time trends favouring self-employed should have took place since 2001. The empirical evidence shows that in Italy the Euro adoption has advantaged price makers as the self-employed (Brandolini 2005), therefore the gap between self-employed and employees earnings should have narrowed rather than widened, as previously shown in Figure 2. Therefore, controlling for specific time trends allows one to depurate for this trend and to better disentangle the effect of politicians' claims towards evasion on the propensity of self-employed to correctly report their labour incomes.

Summarizing, interpreting this evidence as a proxy of an influence of the political cycle on the attitudes of self-employed to underreport their income, we can argue that moving from a centre-left to a centre-right ruling coalition significantly affected self-employed tax compliance in Italy through a "pure perception" channel, reducing their reported income by 12.6% and this holds for both craftsmen and dealers.

Distinguishing workers according to the geographical area when they work (North, Centre and South; Figure 3), a higher impact of the government turn-out on self-employed propensity to underreport their income emerges in the Centre, and this holds for both the common trend and

the specific trend models[15]. Finally, the "decreasing reported income" effect is greater for males than for females in both the model specifications, but the distances are low in the specific trend model (Figure 4). Note again that these estimates do not compare the total share of underreported income of the different categories, but they identify the marginal effect on underreporting due to the ruling coalition turnout.

Figure 3: Estimated coefficient *γ* by geographical area of work (90% interval of confidence)[1].

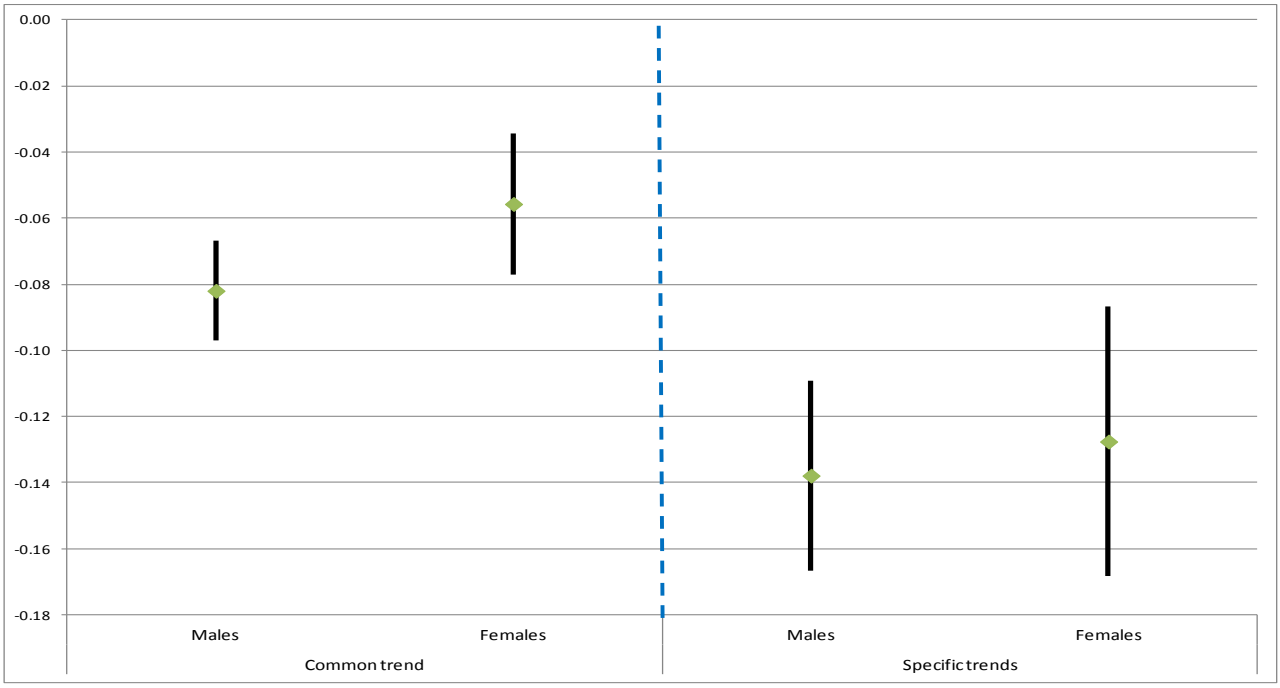


[1] Control variables in the "Common trend model" are: dummies for workers' categories, age, age squared, experience, gender, education, region of work, regional unemployment rate, real GDP growth rate and time dummies. In the "Specific trends model" interaction dummies between time dummies and workers' categories and time dummies and region of work are added. Individuals moving across working categories in the observed period are not take into account. Source: elaborations on AD-SILC data

As a final exercise we run quantile fixed effects estimates following the procedure of Canay (2011) explained in section 5 as to verify how the coefficients of the interaction terms between self-employed and the post shock dummy move along the distribution (Figure 5), i.e. measuring whether the marginal effect of the Government turnout on the propensity to underreport income changes according to individual quantiles. The estimates show that the coefficients are negative and significant in all deciles, but their size reduces along the distribution, especially up to the median.

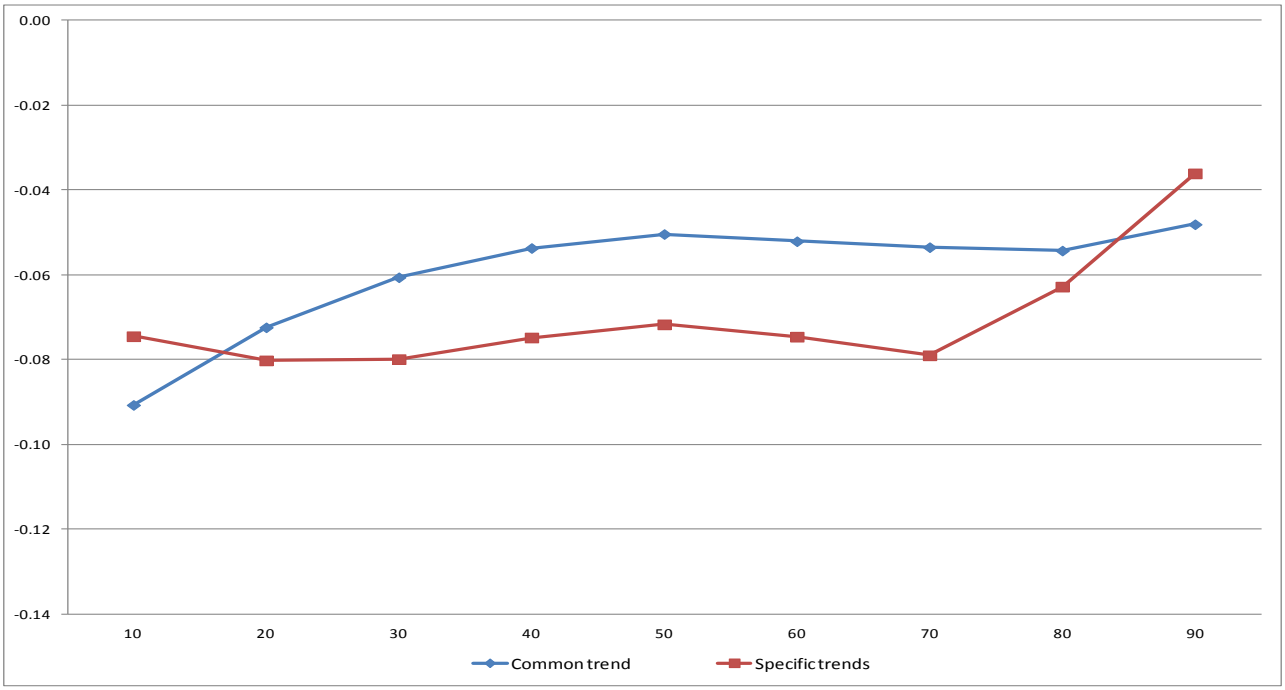
[15] As concerns the geographical areas, higher sizes of tax evasion and hidden economy are usually found in the South, but this evidence could depend on the underdeveloped productive structure of the Southern economy (more exposed to tax evasion due to its large share of small tertiary firms and agricultural activities), rather than on a lower tax morale and a higher attitude to evade of Southern citizens (Santoro 2010).

Figure 4: Estimated coefficient *γ* by gender (90% interval of confidence)[1].



[1] Control variables in the "Common trend model" are: dummies for workers' categories, age, age squared, experience, gender, education, region of work, regional unemployment rate, real GDP growth rate and time dummies. In the "Specific trends model" interaction dummies between time dummies and workers' categories and time dummies and region of work are added. Individuals moving across working categories in the observed period are not take into account. Source: elaborations on AD-SILC data

Figure 5: Estimated coefficients *γ* in quantile fixed effects models[1].



[1] Control variables in the "Common trend model" are: dummies for workers' categories, age, age squared, experience, gender, education, region of work, regional unemployment rate, real GDP growth rate and time dummies. In the "Specific trends model" interaction dummies between time dummies and workers' categories and time dummies and region of work are added. Individuals moving across working categories in the observed period are not take into account. Source: elaborations on AD-SILC data

7. Conclusions

Using a new panel dataset that allows to follow individuals along their entire working career, and following a difference-in-difference approach, where the employees are the control group and craftsmen and dealers (the typologies of self-employed tracked in our dataset) are the treatment group, in this paper we tested whether self-employed incomes significantly reduced, compared to private employees earnings, after the Government turn-out that occurred in Italy in 2001 when a centre-right coalition replaced a centre-left one. Indeed, we argued that, *ceteris paribus*, the political cycle could have affected self-employed attitudes towards correctly reporting their labour incomes, because the two coalitions that where alternatively in charge of the Government in Italy in the decade 1996-2005 showed different attitudes towards contrasting tax avoidance and evasion and towards self-employed, who are more interested at reducing the tax burden.

Consistently with our expectations, we find that (compared to employees) self-employed earnings significantly reduced during the centre-right wing government (2001-2005) and a significant decrease emerges in all deciles, even if it is a bit larger in bottom deciles and the size of the estimated effect enlarged when specific time trends for employees and self-employed are considered.

Therefore, interpreting this evidence as a proxy of an influence of the political cycle on the attitudes of self-employed to underreport their income, we can argue that moving from a centre-left Government to the centre-right Government led by Silvio Berlusconi significantly affected self-employed tax compliance and tax morale. Interestingly, running models controlling for time trends specific for the workers categories, the size of the effect enlarges and we can argue that the estimated effects, over than a consequences of the measures introduced by the different coalitions, are the result of a more general perception and political support not-against tax evasion of the two political coalitions.

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