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The Effects of Flat Tax on Inequality and Informal Employment: The Case of Albania

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The effects of Flat Tax on Inequality and Informal Employment: the case of Albania

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Abstract[3]

In this study we perform the first econometric attempt to estimate the trade-off between equity and efficiency of tax systems counting for the tax evasion option in a developing country such as Albania. Using the Albanian Living Srandard Measurement Survey (2005, 2008) we estimate a micro-econometric model of labour supply and incorporate the option of participation in regular and irregular labour markets. Swapping the tax rules of 2005 with 2008, we find that the flat tax has not contributed in the reduction of labour informality but rather the increases in regular wages have played an important role in convincing the individuals to move to regular market. Furthermore, we find that controls and audits are more efficient than fines in inducing people to switch from the informal to formal labour market. A similar effect is achieved also when "honest" individuals are endowed with a universal benefit. In distributional terms, calculations of Gini inequality index and Sen's welfare index demonstrate that the only scenario that would improve welfare index is a progressive tax rule as before 2007. Finally, these results suggest that a kind of progressivity should be reinserted to the taxation system without affecting the attractiveness of the simplicity exercised by the flat tax.

[3] This paper is prepared in the framework of WIIW-GDN 2009 project. We appreciate GDN financial support and thank the WIIW staff for valuable comments in the Prague workshop. We also thank Steinar Strom and Ugo Colombino for helping us with the model estimation and construction.

1. Background information and literature review

The literature on transition economies and the relationship between income inequality and size of informal economy has demonstrated that there exists a positive causality between these two. The experience of 16 transition economies proved that a raising share of output produced in the informal economy leads to a decline of tax revenues and a weaker welfare system and consequently to an increase of income inequality, which from its side could lead to more informal activities as social solidarity falls short, Rosser (2000). Similar conclusions were drawn also from the study of Pirttilä (1999) which argued that the high level of inequality and the weak public support increase the incentives for tax evasion.

The research in high-income countries has shown that labour income taxes might stimulate activities in the informal labour market and consequently generate undeclared income and evaded taxes, Smith(2001). In addition, the theory of tax evasion sustains that the individuals supply labour to the informal labour market either because regulations constrain their labour supply or because they are unemployed, Sandmo (2004). The research in low-income countries, has shown that tax evasion in transition economies is quite a widespread phenomenon and its implications to the growth and efficiency of the fiscal system are serious, Schneider(2010). However, in low-income countries and transition economies the informal employment could be a forced choice driven by the limited access to formal employment, social exclusion and labour market segmentation. The study of Cichocki (2009) on informal employment in transition economies, raising the questions whether this decision was a matter of choice, found that the employment in the informal labour market was more prevalent among low-income earners compared to their counterparts.

The intervention of the governments to reduce the informal employment especially through changes in the tax regime has demonstrated that the change in the tax and social welfare system will have a significant effect especially among low-income earners. Fortin et al(1994). However, in transition economies the intervention of the governments to reduce tax evasion and increase the efficiency of the tax regime are limited to a certain extent because of the high level of corruption and its positive relationship with tax evasion.

Schneider (2007, 2009) showed that low-income countries suffer from a high level of shadow economy and corruption, which complements each other.

In the context of Albania the phenomenon of informal economy is sizeable, crucial and somewhat uncertain. In one side it contributes to provide many individuals, in some way, with employment alternatives and poverty alleviation possibilities while on the other side, a large informal sector implies unfair competition for registered businesses and low tax revenues (IMF, 2003). Schneider (2010) shows that the average size of the shadow economy of Albania increased from 34.7% official GDP in 1999 to and increased to 38% in 2006 which is an increase of more than 3 percentage points over these six years. In addition, Schneider et al (2009) show that in low-income countries, including Albania, the shadow economy activities and corruption reinforce each other meaning that there exists a positive relationship between these two. The realization of additional income through underground activities is reached via corruption of public officials that get seduced by the benefits received from permitting the exercise of such activities. [4]

The example of Albania, having a size of informal economy, which at macro level ranges from 33-60% of GDP (Muco, 2004), along with the application of one of the lowest flat taxes, only at 10 %, provides an interesting experimental laboratory of analyzing the implications of the tax system on inequality and informal labour market. Other studies as well, argue that the shadow economy absorbs a good share of GDP, OECD (2005). In particular, the informal production in small enterprises is 40% larger than the formal one while enterprises underreport more than 30% of their employees.[5] At micro level, the underpay of wages along with non-contribution to social security system is a widespread and socially acceptable phenomenon both by employees and employers. The fuzzy labor market and, weak support of the welfare system induce employers and employees to choose illicit solutions. Thus, such choices are not motivated by the purpose of getting higher profits through undocumented activities, remaining in the business and bring more consumable income at home at the end of the day, OECD (2005). The conclusion of the OECD study was that under these conditions, the passivity of the government in undertaking fiscal reforms and actions of fighting tax evasion, would result to a continuous

[4] See in the Annex Figure.1 and Figure.2 on the GDP growth and share of shadow economy on GDP between 1999 and 2006.
[5] OECD (2005) The Informal Economy in Albania Analysis and policy recommendations. December 2004

decline of tax revenues, less investments, less formal employment, less social security contributions and lower social benefits.

Consequently, the reaction of the Albanian government by introducing a low tax regime of 10 percent rate was first making Albania more attractive to foreign investors, by radically reducing the fiscal burden on business income tax, and secondly increasing incentives to regular employment, income declaration and social security contributions because of a sharp reduction on personal income tax burden. Under the new tax regime implemented since July 2007 the personal income is taxed at a rate of 10% while income under 10000 leke is tax exempted.[6] The application of a low flat tax is supposed to encourage the legalization of the informal employment, simplification of the tax collection and creation of a friendlier investment climate. Its implementations have important effects both for the employers and employees hence is worthy experimenting how flat tax could contribute to reduce the irregular employment and consequently increase tax revenues for the government in Albania. Holzner (2008) predicted that the flat tax will not achieve the expected desirable effects. In contrary its impact is anticipated by a decrease of tax revenues and an increase of income inequality in Albania.

Therefore, the purpose of this research is to study the individual labour supply in Albania by applying a micro-simulation model, which allows counting for both, formal and informal employment. One hypothesis concerning the tax regimes is that progressive taxation is designed to collect a greater proportion of income from the rich relative to the poor, reducing in this way the inequality of disposable income relative to taxable income. Governments, which introduce flat taxes and reduce the progressivity of tax rates may induce especially low income earners to reduce taxable income by either working less in the formal labor market or declaring less earning income. The informal employment in transition countries, considered as a safety net in the short run, in the long run has strong consequences with respect to the poverty risk due to the non-participation and non-contribution to the social security system. For our purpose of research, we focused on the implications of a flat tax regime to inequality and individuals decision to undertake irregular activities in the labour market. Motivated by the arguments above, the hypotheses that this research tried to answer are:

[6] Agenda Istitute in Albania provides a comprehensive policy brief concerning the flat tax in Albania. The Craggy Flat-Tax Reform- Agenda Institute Policy Brief-nr 4. http://www.agendainstitute.org/img/foto/agenda_policy%20brief_nr.4_en.pdf

- Does the application of a low flat tax constitute an appropriate tax regime, which contributes to the reduction of inequality?
- Does the application of a low flat tax in the transition countries, with high level of informal economy, provide incentives to increase the formal sector and regular employment?
- Which fiscal policies may be efficient in reducing labour informality?

Answering to these questions has important policy implications, since understanding better the mechanism of individual behavior in labor market will help to remove disincentives related to tax evasion as well as to design a tax system that lessen inequality. Hence, this study contributes with new empirical evidence that enriches the understanding of the flat tax system efficiency and the causality between inequality and tax evasion.

The paper is organized as following: section two presents the main hypothesis of introducing a flat tax in Albania, section three presents the main methodology and data used in the analysis; section four presents the specifications and simulations of alternative options aiming to reduce tax evasion; section five presents the main estimation results and the main findings from the simulations and the last section presents the conclusions and the respective policy implications.

2. The experiment of flat tax in transition economies and the case of Albania

The interlink between labor supply decisions and taxation systems and the way of how to bring down the informal economy are quite debated in the literature. **Choosing between progressive and flat tax systems** is a crucial issue and the consequences of the respective tax regimes have to be examined in details counting for participation and hours of work both in the formal and informal labor market.[7] The focus at these segments of the labor market, is motivated by the fact that efficiency of reforms in the tax system depend on the response of honest labor suppliers as well as evaders, their behavior in relation to tax evasion especially of the last ones.

[7] The extensive margin implies the change of participation in the labour market, regular and irregular one, while intensive margin implies changes in hours of work.

The implementation of relatively low tax regimes is also related to the issue of whether it taxes more at the top or at the bottom of income distribution. To avoid large negative effects on the intensive margin (hours of work), the increase of tax rates at the top of the distribution is often not recommended. On the other side, to avoid large negative effects on the extensive margin (participation decision) it is suggested not to increase taxes at the bottom of the distribution. The overall effect of switching from progressive to flat taxes could result to lower marginal tax rates for the high-income deciles and increased average tax rates for the low-income deciles. Thus, inducing low-income earners to increase their participation in the formal labor market and to switch from informal to formal one is a challenge for the tax system. Moreover, the accomplishment of a reform should be put forward in combination to other reforms such as welfare reforms aiming to reduce the inequality and increase the utility of the individual[8].

In most of the transition countries flat tax is the main fiscal instrument introduced with the purpose of simplifying the tax system, increasing the compliance and reducing tax evasion. The implementation of a flat tax system in transition economies of Central - Eastern European countries has produced diverse results. For example in Russia the application in 2001 of a flat tax at 13 percent on personal income, replacing the progressive tax rates of 20 and 30 percent was followed by a significant real growth in tax revenues. But as the study of Gorodnichenko (2008) shows in spite of a positive relationship between lower tax rates and lower tax evasion, the adoption of a flat tax was not the main cause of increase in the tax revenues. Furthermore, Schneider (2010) provide figures of an increase of informal economy in Russia between 2001 and 2006 from 46.0 to 46.4 percent.

Brook, and Leibfritz (2005) studied the effect of flat tax adopted in Slovakia in 2003 at a rate of 19 percent, both on capital and labour income. They demonstrated a significant and positive effect on economic performance of the country. The uniform and simplified taxation negatively affected tax evasion and the reduction in personal income tax resulted to an increase of compliance and stimulated a shift from the informal to the formal labour market. However, in spite of the reform in the fiscal system complemented with reforms in the welfare system, the overall effect was an increase of income inequality relative to the previous system. While the low and very high-income earners were better off in the new

[8] Increased utility of the evader goes parallel to the decreased utility of the honest. Thus when aggregating profits and losses should the profit be equally qualified with the profits from other activities? There are no clear-cut answers and economic policies at this respect, while evading tax is an option and may produce efficiency gains to the economy (Sandmo 2004). Albeit this is partially true, by intuition, this reasoning fits better to economies in transition, which find the tax evasion as a transitional remedy.

system compared to the previous one, the middle-income earners were negatively affected by the new tax regime.

With reference to the Albanian case, the purpose of the reform introduced in July 2007 was to implement a similar tax regime, as the one in Macedonia and Bulgaria, at a rate of 10 percent. The application of the flat tax replaces various brackets of tax rates into a single level one and in case of individuals is implemented on personal income while in case of businesses is exercised on the business income. The flat tax implied a reduction of two taxes at the same level: the earning business tax and personal income tax. The profit business tax reduced from 20 to 10 % while the implementation of personal income tax at 10% rate on diverse personal income was supposed to have an effect on all income deciles.

The supporters of this new tax system argued that it would bring many benefits by encouraging foreign direct investment, increasing the economic activity that stimulates reporting of income which consequently leads to the reduction of tax evasion and informal economy. Other arguments pro the implementation of the flat tax are that it guarantees equality through the implementation of the same taxation level, reduces the chances for tax fraud, the increase in tax revenues and removal of disincentives to formal employment are very likely. However, opponents of such reform argue that this system reward businesses, high income earners and punish the poor. The arguments against the flat tax system are that by removing progressive taxation it encourages inequality for those who generate higher level of earnings and income, thus to a certain extent it eliminates the redistribution of income from the rich to the poor. With the abolition of a progressive tax system, lower and medium income earners may be charged a higher income tax and consequently have a lower level of disposal income and in contrast high income earners benefit from the reduction of income tax and end up with a higher level of disposal income.

Moreover, the negative effect may be accentuated especially in those countries characterized by high unemployment rates where underpaid employment dominates due to the surplus of labor supply and shortage of labor demand. In complex, the exercise of a flat tax system may elevate social inequalities by lightening the fiscal burden for businesses rather than individuals. This issue is of vital concern as the augmentation of inequality could induce low and medium income earners to evade and not declare their employment status rather than paying higher income taxes. As it was found from the study of Rosser (2000 there exist a significant two-way relationship between the size of informal economy and income inequality. Furthermore Blomquist (2003, 2006) has shown that the adoption of

a flat tax system, which shifts more of the total tax burden onto low-income earners, may increase the evasion by this group of taxpayers.

3. Data Description

In this study we use two waves of the Albanian Living Standard Measurement Survey (ALSMS), organized in 2005 and 2008 by the World Bank, which contain information about individuals and their households in different areas of Albania; information on variables such as hours of work, earnings and consumption level, social security contributions entitlements, information about social and demographic characteristics, such as gender, age, education, marital status, number of children, family composition, etc. Concerning the definition of informal economy several versions have been introduced which largely reflect the activity exercised in the informal sector. However, in our context the informal activity is considered the individual participation in informal labour market while tax evasion behavior and undeclared work to the tax authorities is captured through the ineligibility to the social security benefits. Thus the social-health insurance and personal income tax evasion is captured through the lack of access to the social security system while the individual supplies certain hours of work in the informal labour market.

In this study, the criterion used to define the informal employment is based on the LSMS question addressed to individuals: are you entitled to social security benefits schemes?[9] A positive answer implies that those individuals are regular workers. To our knowledge, this is the only variable in the LSMS that can be considered as a proxy for the informal employment. We exclude from the sample individuals working in the agriculture sector and the self-employed on the grounds that the majority of them are involved in the irregular labour market.

The Table 1 shows the demographic and economic characteristics of the sample both for regular and irregular workers in 2005 and 2008. The statistics indicate that while 48% of the sample was not entitled to social security benefits in 2005, in 2008 this share reduced to 43%. Individuals holding a university degree evade less and this is in line with most of the empirical papers studying tax evasion issue. Also women tend to work less than men in the irregular market. If we consider the occupational sectors, there is an inverse shift

[9] The criteria on labour status including undeclared work and its consequences such as lack of social benefits, sub-minimum wages and poor working conditions has been used by Harding and Jenkins (1989), Renooy (1990) and the International Labor Office to characterize informal sector.

of irregular workers from construction sector to manufacturing sector and this may be explained by the expansion of the latter during the period 2005-2008 (or contraction of the former). The last part of the descriptive Table 1 (related to monetary variables) shows the loss incurred by the government in terms of taxes and social security contributions by the informal employment phenomenon (or irregularity) which exceeds also the revenues collected from the regular workers in 2005. Despite their higher devotion in working hours, irregular workers earn less in average than the regular counterparts and what is more important there is an increase in the wage rate for regular workers and a decrease for irregular workers from 2005 to 2008.

Table 1: Summary Statistics

	2005		**2008**	
	Regular worker	**Irregular worker**	**Regular worker**	**Irregular worker**
Observations	1548	1460	1500	1171
Evasion Probability	48,54%		43,88%	
Male	57,04%	77,67%	57,00%	75,92%
Age	41,56	39,71	42,27	40,69
Education				
Primary	16,60%	42,05%	21,46%	47,56%
Secondary	53,48%	50,00%	47,73%	45,60%
University	29,78%	7,74%	30,66%	6,49%
Occupation				
Construction	14,21%	32,81%	10,47%	18,19%
Manufacture	11,82%	11,30%	15,60%	22,03%
Trade+hotelling	3,42%	27,74%	5,40%	31,60%
Transport+Services	9,37%	13,29%	14,87%	17,51%
HS + Public + Health	61,18%	14,86%	53,66%	10,67%
Monetary Variables				
Wage rate	149	142	200	138
Gross Income	28043	25771	34847	25600
Taxes	1020	1261	3101	2713
SIC	3140	3409	3902	3593
Working hours	43,77	48,94	43,19	48,66

Note: Monetary variables are expressed in Albanian currency, Lek, and given on a monthly basis. In case of irregular workers taxes and sic mean evaded taxex and social insurance contributions.

4. The model specification

The basic model is the one developed by Strøm et. al (2004) and Shima (2006), a labor supply model that focuses on the labour responses, both at participation and hours of work decision, in the formal and informal market, counting for the option of tax evasion. [10]

[10] Shima (2006) - "Labor supply model along the intensive and extensive margin, regular and irregular labor markets". Mimeo

Different studies have emphasized diversities between labor supply responses on the extensive margin (participation) and intensive margin (hours worked) (Heckman, 1993). The literature consistently suggests that, for the low-income earners, the response at extensive margin is probably more important than the response at the intensive margin. However, a crucial drawback of these studies is that they ignore the attractiveness that the irregular labor market may inspire to individuals especially when the implicit tax rate, at the low end of the earnings distribution, is very large. Consequently, in contrast to these studies this research brings an innovative approach where the inclusion of informal employment, both at intensive and extensive margin, makes the difference and we can build a more realistic scenario of informality in the labour market.

Our methodology consists in solving the problem of utility maximization including the option of tax evasion. [11] Individuals consider after tax income as a good and hours offered in the labor market as a bad. Differently from other studies that maximize the utility function considering only the disposal income and leisure, we distinguish between income received by the formal and informal employment.

We assume that an individual chooses simultaneously to work in the formal or informal labour market and the number of hours supplied under the principle of utility maximization. His decision is taken based on a range of variables such as wages, tax rates, norms and the opportunity to engage in informal employment. The opportunity to work in the informal labour market may depend on the working sector, e.g. it is considered easier to work irregularly in the construction sector rather than in the public sector. We model the individuals' decision in two stages:

1) At stage 1, he chooses to be honest or evader. Here, the choice is determined in a way that if the expected consumer surplus of being an evader exceeds the consumer surplus of being honest by a certain threshold, then he chooses to evade. This threshold depends on the individual tax morale and the opportunities to evade. The higher is the individual tax morale and the fewer are the opportunities he faces for tax evasion, higher is this threshold.
2) At stage 2, he chooses the optimal labour supply and how many hours of work to supply in each market. The variables that help to explain his labour supply

[11] Option of tax evasion will be considered as the option of regular hours of work not declared to the tax authorities including also the option of non-participation in the tax and social security system.

choice are merely his net income, working sector and personal characteristics such as age, education and marital status.

It seems reasonable to us to believe that norms and opportunities to evade do not affect the individuals' choice on how many hours to work in formal or informal market. Thus, we will assume that tax morale, norms and opportunities to evade effect the decision in the first stage but not in the second one. However in case of Albania, individuals do not consider the informal employment as an illegal activity. Instead it is his tax morale and the loss in future social security benefits that may affect his choice of working in the formal or informal labour market. Therefore from here on, we will not define an individual as honest or evader but rather as regular (R) and irregular (IR) worker.

The individuals' preferences to be a regular or irregular worker and supply a certain hours of work are not fully observed by us. There is a random component in individual behavior and we will derive the probability of each decision under a certain assumption made on the distribution of the random component. If we assume that the random errors are extreme value distributed, following Ben-Akiva and Lerman (1979) we can derive a closed form solution for the excepted value of the maximum utility, for both choices, that of being a formal or informal worker.

Strøm et. al (2004) and Shima (2006) follow Alingham and Sandmo (1972) approach to allow the individuals to choose under uncertainty. But their method is based on the fact that tax evasion is a risky activity and there is a probability of detection for those who evade which consequently are penalized for the act of tax evasion. Studies have shown that in Albania the probability to get detected and penalized in case of tax evasion is extremely low (see OECD report, 2004).[12] In a scenario of unreported labour income and detection by the tax authorities is only the employer who is warned and punished. Therefore, in this specification we deviate from the approach of Shima (2006) and use a simplified model.

We start from stage two to explain the econometric model and more specifically the choice of optimal labour supply made by the individual in formal and informal market.

Stage 2.a. : Labour supply of a regular worker

[12] OECD (2005) "The informal economy in Albania: analysis and policy recommendations".

An individual after having chosen to work in the formal market has to choose the number of working hours that maximize his expected utility. Let D_{iR} be his net income after paying taxes on personal income and let h_{iR} be the annual working hours. We denote w_{iR} the hourly wage rate for registered work and G_{iR} is gross wage income given as $G_{iR} = w_R h_{iR}$. The variable I refers to other income and is considered as exogenous and C(.) is a tax function of wage income and non-wage income. The individuals' net income is given as following:

(1) $$D_{iR} = G_{iR} + I - C(R_{iR}, I); i = 1, 2, \ldots, n$$

Let U_{iR} be the utility of the individual working h_{iR} in the formal market and let Z be a vector of socio-demographic characteristics. The random error ε_{iR} is assumed to be extreme value i.i.d with zero mean and constant variance. Then we have that:

(2) $$U_{iR} = u(D_{iR}, h_{iR}, Z) + \varepsilon_{iR}; i = 1, 2, ..., n$$

where u(.) is the deterministic part of the utility function and ε_{iR} is the random part.

Let S_R denote the excepted value of the maximum utility function. As demonstrated by Ben-Akiva and Lehrman (1979) the expected value of utility can be given as following:

(3) $$S_R = E(\max_{i=1,2,..,n} U_{iR}) = \mu_2 \ln \sum_{k=1}^{n} \exp(\frac{u_{kR}}{\mu_2})$$

Where μ_2 is a constant reflecting the unobserved heterogeneity in labour supply preferences meaning that larger are the values more uncertain are the preferences. As a result the conditional probability of choosing h_{iR} under the choice of being a regular worker, is given as:

(4) $$P(h_{iR} \mid R) = P(U_{iR} = \max_{k=1,2,..,n} U_{kR})$$

Under the assumption of the random error as extreme value i.i.d, the optimal choice probability is a multinomial logit and given as:

(5) $$P(h_{iR} \mid R) = \frac{\exp(u_{iR} / \mu_2)}{\sum_{k=1}^{n} \exp(u_{kR} / \mu_2)}; i = 1, 2, ..., n$$

Stage 2.b. : Labour supply of an irregular worker

In contrast to an individual working as a regular worker, an individual working in the informal labour market doesn't pay taxes on the labour income. An irregular worker chooses to simultaneously to work in the informal labour market and not report its participation or the actual hours of work offered in the labour market. Thus under the assumption of expected utility maximization the net income of an irregular worker are defined as following:

(6) $$D_{iIR} = R_{iIR} + I; i = 1, 2, ..., n$$

The conditional probability of working h_{iI} unregistered hours conditional on being an irregular worker, is given by:

(7) $$P(h_{iIR} \mid IR) = \frac{\exp(u_{iIR} / \mu_2)}{\sum_{k=1}^{n} \exp(u_{kIR} / \mu_2)}; i = 1, 2, ..., n$$

Stage 1: choosing between being regular and irregular worker

The decision made by an individual to be irregular or regular worker depends on the expected values of maximized utilities of the respective choices. Let denote P(R) the probability of choosing the formal labour market. The probability of choosing to work in the informal labour market is then 1- P(R). Following Ben-Akiva (1973), the probability of choosing the optimal alternative can be given in terms of expected consumer surpluses as:

(8) $$P(R) = \frac{\exp(S_R / \mu_1)}{\exp(S_R / \mu_1) + \exp(S_{IR} / \mu_1)}$$

where μ_1 is a positive constant which reflects the unobserved heterogeneity of preferences in stage one and μ_2 reflects the unobserved heterogeneity of preferences in stage two.

Tax morale and tax evasion opportunities

While in high income and developed countries unreported labour income is considered as an illegal and punishable action, in countries as Albania, even though this action is considered as illegal, still the legislation and tax authorities almost have no punishing instruments against it.[13] Therefore, it is more realistic to consider tax evasion from the "tax morale" viewpoint in this paper. Strøm et. al (2004) and Shima (2006) give importance to social norms believing that the propensity of being evader increases with the amplification of this phenomenon in the population. They assume that the probability of choosing to work in the informal labour market depends on the individual's perception concerning the social acceptability of tax evasion. Instead we believe that as long as tax evasion is mostly acceptable in the Albanian society, it's the tax morale that may affect the individual decision to be irregular worker. In this contest, we define tax morale as individual's awareness and willingness to be regular worker or to pay labour taxes under the belief of being a factor in the society development (Cummings et al. 2004).

Torgler (2003) defines tax morale as the intrinsic motivation to pay taxes or the willingness to pay taxes. He says that "contrary to tax evasion, tax morale does not measure individuals behaviour, but individuals attitude. It can be seen as the moral obligation to pay taxes and the belief in contributing to the society by paying taxes." However, the "harmful" attitude of individuals towards tax payment in transition countries has historic grounds. During the communism, the most important taxes were the taxes on profit and individuals were not aware of taxes or had no perception regarding the tax burden, Torgler (2003).

In this spirit, we proxy the tax morale by a set of variables such as: the individual's trust in local and central government, individual concern for his health and individual concern for his job.

[13] The legislation foresees the employer punishment in those occasions of unregistered employees to the social security system. ("Drejtoria e Përgjithshme e Tatimeve - Legjislacioni tatimor 2008 –Udhëzim Nr. 24 datë 02.09.2008"Për procedurat tatimore në Republikën e Shqipërisë")

In addition there might be differences in opportunities of working in the informal labour market and depending of the working sector as there are jobs that the individuals can fully work irregularly and others that such option is almost null. For example working in the construction sector compared to the public sector is considered as accommodating to the option of working irregularly while in the public sector there is no room for such option. The same holds for retail sector. It is easier for women to find a job in the retail sector which is one of the sectors where the irregularity prevails as summary statistics has shown.

Lastly, household characteristics can push individuals to accept irregular jobs. For example, higher number of children means more responsibilities within the household and tighter liquidity constrains and this makes the individuals more resilient to irregular market. Also, migration may affect the decision to accept or not an irregular work. If the household receive remittances from other household members (migrants), they may be more resilient to work irregularly. To take into consideration the opportunity set of working regularly/irregularly we include four dummy variables which refer to working sectors. We introduce also three variables to capture the effect of tax morale on the probability of being irregular worker. We weight the expected utility values of choosing the irregular work by a density function of the variables standing for evasion opportunities and tax morale $g(Z)$ and get :

(9) $$P(R) = \frac{\exp(S_R / \mu_1)}{\exp(S_R / \mu_1) + g * Z(\exp(S_{IR} / \mu_1)}$$

which can be written as:

(10) $$P(R) = \frac{\left[\sum_{k=1}^{n} \exp(u_{kR} / \mu_2)\right]^{\frac{\mu_2}{\mu_1}}}{\left[\sum_{k=1}^{n} \exp(u_{kR} / \mu_2)\right]^{\frac{\mu_2}{\mu_1}} + g(Z)\left[\sum_{k=1}^{n} \exp(u_{kIR} / \mu_2)\right]^{\frac{\mu_2}{\mu_1}}}$$

When $\frac{\mu_2}{\mu_1} = 1$ the nested multinomial logit model equals the multinomial logit or:

(11) $$P(h_{iR}, R) = \frac{\exp(u_{kR} / \mu_2)}{\exp(u_{kR} / \mu_2) + g(Z)\exp(u_{kIR} / \mu_2)}$$

and

(12) $$P(h_{iIR}, IR) = \frac{g(Z)\exp(u_{kIR} / \mu_2)}{\exp(u_{kR} / \mu_2) + g(Z)\exp(u_{kIR} / \mu_2)}$$

The likelihood function

Let n_{IR} and n_R be the group of individuals who have answered no and yes to the question of whether they are entitled for social security benefits in the current work. The likelihood function (the joint a priori probability) then is given as

(13) $$L = \prod_{j \in n_R} P_j(h_{iR}, R) \prod_{j \in n_{IR}} P_j(h_{iIR}, IR)$$

The unconditional probabilities $P(h_{iR}, R)$ and $P(h_{iIR}, IR)$ are given by:

$$P_j(h_{iR}, R) = P_j(h_{iR} \mid R) P_j(R)$$

(14) *and*

$$P_j(h_{iIR}, IR) = P_j(h_{iIR} \mid IR) P_j(IR)$$

The maximization of the likelihood function yields the estimates of the utility function parameters

The utility function specification

The deterministic part of the utility functions is assumed to be a Box Cox transformation of net income and leisure as follows: [14]

(15)

$$u(D,h,Z;b)=\alpha_0\frac{(D/10000)^{\lambda}-1}{\lambda}+(\beta_0+\beta_1X_1+\beta_1X_2)\alpha_0\frac{(T-h)^{\gamma}-1}{\gamma}$$

Where

- D is net income
- $(T-h)$ refers to the leisure time
- X_1 refers to age
- X_2 refers to age squared
- X_3 is a dummy equal 1 if the observation is taken from the wave 2008 and 0 from the wave 2005
- X_4 refers to gender
- X_5 refers to number of children

Our model specification is a discrete choice between the alternative to evade or participate in the regular labour market. Thus we want to estimate a model where the choice probability has a binary outcome taking value one if the individual chooses to participate in the formal labour market and value zero in case of participation in the informal labour market,. One subject related to such specification is that the participation to the informal labour market could result to variables that are truncated and consequently do not follow a normal distribution. Thus, the choice probability, can be characterized by a sample that is truncated and variables such as disposal income or hour of work of regular versus irregular participants in the labour market can be positively skewed (or skewed right). As we see from Table 2 (Appendix 1), labour income are positively skewed together with hours.

In most of the cases the assumption of normal distribution are the basic assumptions in a maximization problem. The Box-Cox transformation of the variables is a functional specification, which allows converting the variables to follow approximately a normal

[14] In cases when the transformation parameter, λ or γ, equal to 0 we attain the logarithmic transformation of the data.

distribution. Thus λ and γ are the exponent coefficients for income and leisure. If they are less than one, then the quasi-concavity condition of the utility function is satisfied. The utility function takes a linear form if these parameters approach one and a log-linear form if they approach zero. The Box-Cox modelling of the utility function as well as the inclusion of the weighting of the utility function with an exponential function (g(.)) does not allow to use friendly software commands. Therefore, we made use of Maximum Likelihood Programming tools to estimate the model.

The choice set is composed of five alternatives respectively for being a irregular and regular worker by specifying the interval of hours of work and sample randomly within this interval which has a length of 16 hours and a maximum of 80 weekly hours. The first alternative refers to 1-16 and so on until the last alternative 64-80. The actual observed hours will be rounded to the closest discrete value. The basic idea can be appropriately modified when one observes directly annual hours or weeks worked. Then, for each individual remained in Albania we compute the net income by using the taxation rule applied as of 2007 for those who have paid taxes.

The opportunity and tax morale density is assumed to be an exponential function as follows:

(16)

$$g(Z) = \exp(g_0 + g_1 Z_1 + g_2 Z_2 + g_3 Z_3 + g_4 Z_4 + g_5 Z_5 + g_6 Z_6 + g_7 Z_7 + g_8 Z_8 + g_9 Z_9 + g_{10} Z_{10})$$

Where

- Z_1, equals 1 if the individual works in the construction sector or zero otherwise,
- Z_2 equals 1 if the individual works in the manufacturing sector or zero otherwise,
- Z_3 equals 1 if the individual works in the trade, restaurants and hostelling sector or zero otherwise,
- Z_4 equals 1 if the individual works in the transport and service sector or zero otherwise,
- Z_5 refer to the log of remittances received
- Z_6 refer to number of children years times multiplied by gender dummy

- Z_7 refers to number of children from 0 to 5 years times multiplied by gender dummy
- Z_8 is a categorical variable capturing individual's trust in local government. It takes values from 1 (complete trust) to 5 (not trust at all).[15]
- Z_9 is a categorical variable capturing individual's trust in central government. It takes values from 1 (complete trust) to 5 (not trust at all).
- Z_{10} dummy living in Tirana
- Z_{11} refers to gender dummy
- Z_{12} dummy if the observation is taken from the wave 2008.

5. Estimation results and model prediction

Table 2 shows that individuals have a strong preference for leisure and income. The estimated coefficients of the exponential terms are smaller than 1 satisfying in this way the quasi-concavity condition. The model yields good predictions in terms of labour supply and disposal income. In addition, age and number of children do not affect the preference for leisure. The positive and significant coefficient related to gender implies that women prefer to work less than men. Lastly, there is a higher preference for leisure in 2008 compared to 2005 or other way said individuals of our sample have worked less in 2008 than in 2005.

Table 2: Estimation results

Variables		*Coef.*	*Std. Err.*	*t-value*	
Utility function					
Income constant	alfa	2,772	0,142	19,55	***
Income exponent	gamma	-0,250	0,015	-16,85	***
Leisure constant	$beta_0$	10,090	1,816	5,56	***
Leisure*coage	$beta_1$	-0,149	0,085	-1,75	
Leisure*coage^2	$beta_2$	0,002	0,001	1,47	
Leisure*2008	$beta_3$	1,116	0,352	3,17	***
Leisure*gender	$beta_4$	3,379	0,505	6,69	***
Leisure*cogender*nch	$beta_5$	0,201	0,116	1,73	
Leisure exponent	delta	-0,498	0,070	-7,16	***
Opportunity density					

[15] The use of variable "trust in government" in the analysis is justified by the findings of Wintrobe(2001) which argues that the distrust of the individuals toward the government makes individuals more inclined to not pay taxes. Moreover if the individuals perceive that the tax evasion is a phenomenon accepted in the society they will also tend to apply the same behavior as those who evade.

constant	g_0	-1,636	0,152	-10,77	***
construction	g_1	1,872	0,092	20,37	***
manufacture	g_2	1,492	0,094	15,95	***
trade+hoteling	g_3	3,275	0,114	28,61	***
transport+services	g_4	1,502	0,097	15,43	***
log(remitance)	g_5	0,012	0,009	1,39	
nch*gender	g_6	-0,051	0,065	-0,79	
nch_05*gender	g_7	0,032	0,029	1,1	
trust in local government	g_8	0,081	0,034	2,4	*
trust in central government	g_9	0,115	0,033	3,44	**
Tirana	g_{10}	-0,036	0,070	-0,51	
gender	g_{11}	-0,685	0,076	-9,02	***
year 2008	g_{12}	-0,444	0,083	-5,34	***
Log				-9372,5	
Observations				5514	

Looking at the evasion decision, Table 2 shows that occupational sectors such as construction, manufacturing, trade, hotelling, transport and services shadow more irregularity than the others (public sectors, financial sector, health sector etc.). This means that it is empirically important to distinguish between working sectors of the economy that host the option of tax evasion and the others. The amount of remittances received from relatives or family members doesn't seem important to induce people to get involved in irregular market. It is worthy to notice that the coefficient related to gender is significantly negative meaning that the participation, in the regular labor market with respect to the irregular one, is more widespread among men compared to women. These findings are in line with other studies which have shown that in Albania women compared to men tend to evade taxes less frequently and in case of occurrence the amount is lower, (Gerxhani 2004, 2006). Also, Gerxhani (2006) explains the gender difference apart personal characteristics differences by sector of employment mattered. In the Albanian case the gender segregation in the working sectors is such that most of men bread winners are allocated to the private sector and in their own businesses, while in contrary women are mostly positioned in the public sector. Working in the public sector and under a labor contract compared to those working in the private sector and without a labor contract, is less likely to evade personal income and insurance taxes. Thus the gender segregation as above provides more opportunities to evade taxes for man compared to women.

As regards the children, it appears that more children the women have more they evade while the opposite holds in case the children are younger than 5 years. The perceived

trust in the central government has a positive effect on the value of tax morale and a negative one on the evasion probability. Nevertheless, the trust in local government doesn't seem important for the evasion decision. Finally, people have evaded less in 2008 compared to 2005.

As the Table 2 shows, after having controlled for the occupational sector, education, family composition, the impact of migration, trust in government and what may be more important after having accounted for the simultaneous decision of labour supply and irregular work, there is a clear tendency to contribute less in the irregular market in 2008 compared to 2005. In the following section we try to explain the decrease incurred by irregular market in 2008 versus 2055 through changes in wage rates and tax progressivity. In this way we can understand whether it is the implementation of the flat tax that brings to informality reduction or other factors have helped it as well.

6. Predicted labour supply under the current tax system

Once we attain the estimation results, they can be used to calculate and predict the expected labor supply from the conditional probabilities of being regular or irregular worker combined with individual characteristics and actual rules of the tax system.

Table 3: Model prediction as of current tax system

	2005			2008		
	Regular worker	**Irregular worker**	**All**	**Regular worker**	**Irregular worker**	**All**
P(IR)	0,359	0,620	0,486	0,325	0,582	0,438
P(R)	0,641	0,380	0,514	0,675	0,418	0,562
Hours	44,09	45,67	44,86	42,39	44,85	43,46
Disp	30614	25839	28292	31518	23600	28052
Tax revenues	10330	9438	9896	11210	6738	9252

The columns 3 and 6 of the Table 3 say that the model predicts very well the observed data (the predicted share of evaders is very close to the observed share of evaders for both 2005 and 2008 waves, 48% and 43%). Furthermore, the last row of the Table 3 refers to the tax revenues collected by the government and is calculated as the sum of direct taxes (taxes and social insurance contributions) and indirect taxes (VAT, 20% of net individual income). The summary statistics (Table 1) and the estimated results of conditional logit indicate a 10% reduction in labour informality from 48% to 43% during the period 2005-2008. These

years have been characterized by a decline in tax progressivity, an increase in the regular wages and a decrease in the irregular wages as well. Such changes may have rendered less attractive the option of working in the informal market. Also, the conditional logit shows that social norms and opportunities to work in the irregular sector affect the individual perception of labour informality. To single out the impact of the tax change from that of wage change we proceed as follows: 1) we simulate a tax regime swap to figure out the impact of tax change per se and 2) we calculate the participation elasticities with respect to a 10% increase in the wages to discern the impact of wages. The estimated parameters of the conditional logit are used to simulate the changes in tax regimes and wages as shown in the Appendix 3.

7. Separating tax change effect from wage change

Predicted elasticities

In overall, labour supply elasticties are high. More specifically, Table 4 shows that an increase by 10% in overall wage rates implies:

a. an increase (decrease) in the supply of regular (irregular) labour. This increase in regular labour supply is higher for irregular workers than regular workers while the decreases in irregular labour participation are higher among regular workers.
b. In addition, a 10% increase in only regular wage rates results in an increase of regular labour supply and a decrease of irregular market. On the other hand, an increase in irregular wage rates has an opposite effect. The participation elasticties with respect to increases in regular/irregular wages are significantly higher than those with respect to overall wages. Here we have to recall that there was an increase in regular wages and a decrease decrease in irregular wages during the period 2005-2008. Also this fact may partly explain the reduction in informality in 2008 (from 48% in 2005 to 43% in 2008).

Table 4: Mean value of elasticity of labour supply with respect to an increase

	2005	2008

		Regular worker	Irregular worker	All	Regular worker	Irregular worker	All
Overall wages							
	Hours	-0,08	-0,07	-0,07	-0,07	-0,07	-0,07
	P(IR)	-0,31	-0,20	-0,25	-0,30	-0,18	-0,25
	P(R)	0,17	0,33	0,24	0,14	0,26	0,19
Regular wages							
	Hours	-0,06	-0,03	-0,04	-0,05	-0,04	-0,05
	P(IR)	-2,44	-1,64	-2,05	-2,45	-1,80	-2,17
	P(R)	1,45	2,98	2,19	1,30	2,78	1,94
Irregular wages							
	Hours	-0,03	-0,05	-0,04	-0,02	-0,04	-0,03
	P(IR)	2,59	1,47	2,05	2,62	1,65	2,20
	P(R)	-1,29	-2,21	-1,74	-1,17	-2,17	-1,61

Simulation of Tax Regime Swap in 2005 and 2008

The expected labor supply response and level of tax evasion is investigated both at intensive (change in hours of work) and extensive margin (change in participation decision). Through this attempt it is possible to analyze the costs of transition, from progressive to flat tax, in terms of labor supply and tax evasion decision. The government has a specific net revenue target from taxes, keeping in mind that it faces also some losses through tax evasion. The constraint is that, the transition could be justified under the condition of a lower level of evaded taxes, a positive response of expected regular labor supply as well as a negative response of expected irregular labor supply.

Here we test the changes occurred in irregular and regular markets by swapping the tax regimes applied in the 2005 and 2008:

1) By replacing the former progressive regime (PT) with the latter flat tax one (FT) using the 2005 LSMS
2) By replacing the latter flat tax (FT) with the former progressive tax (PT) using the 2008 LSMS.

Table 5.1: Simulation of a policy swap in 2005 and 2008
percentage change from the current system

	Regular worker	Irregular worker	All	Regular worker	Irregular worker	All
P(IR)	8%	4%	5%	-9%	-4%	-6%
P(R)	-5%	-6%	-5%	4%	6%	5%
Hours	-1%	0%	-1%	0%	0%	0%
Disp	-2%	-1%	-1%	2%	1%	2%
Tax revenues	-12%	-27%	-19%	-6%	-2%	-4%

Table 5.2 Policy swap and probabilities of informal work by net income deciles

Net Income deciles	2005		2008	
	Current	Flat	Current	Progressive
1	52,56%	52,28%	52,78%	53,81%
2	46,99%	48,15%	51,68%	50,52%
3	45,41%	47,23%	47,46%	45,35%
4	46,10%	48,31%	46,20%	43,45%
5	46,07%	48,62%	46,25%	43,06%
6	45,65%	49,00%	42,02%	38,41%
7	47,99%	51,88%	38,74%	34,71%
8	50,71%	55,15%	40,55%	36,27%
9	51,71%	56,07%	36,75%	32,86%
10	53,10%	56,19%	35,28%	32,82%
Total	48,63%	51,29%	43,77%	41,13%

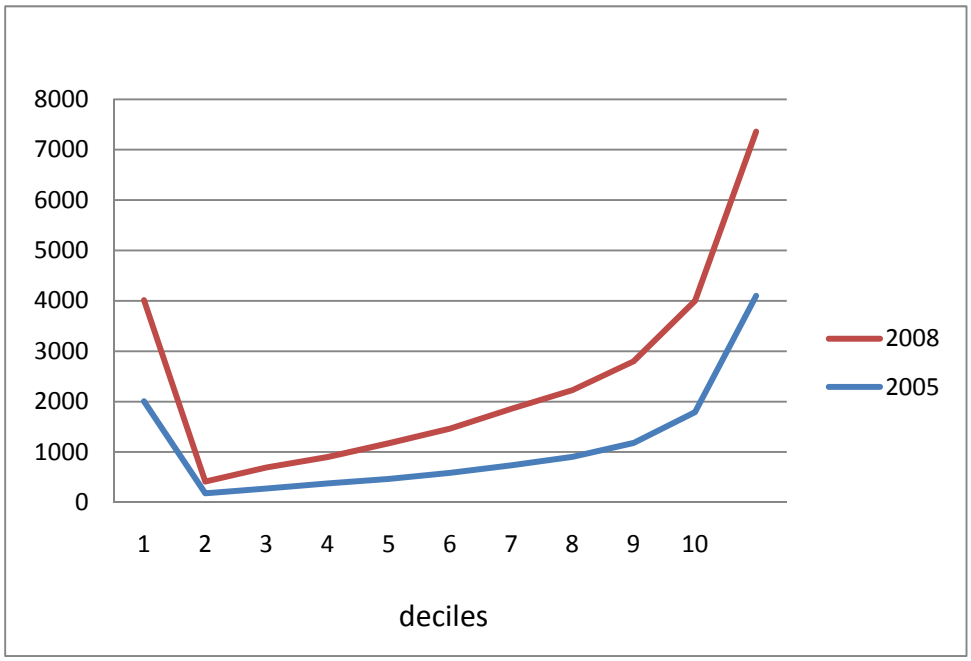
Table 5.1 shows that the tax regime swap results in:

1) A slight increase in the informal labour market participation among both regular and irregular workers when implementing the 2008 rule in the 2005 data. Concerning labour supply, the replacement of PT in 2005 by the FT and vice versa does not have any impact on the expected supply of working hours both for regular and irregular workers by less than one hour per week. However we have to consider that they previously used to work more than 40 hours per week.
2) If we confront the changes incurred due to the replacement of FT regime with PT regime in 2008 data with the respective changes when we replace the PT regime with FT regime in 2005 data, similar numbers appear but with an opposite sign. Nevertheless, both changes result in a drop of tax revenues and an insignificant increase in individual net income in case of wave 2005.

To understand the reasons behind such an increase in informality when the flat tax is implemented in 2005 data, we look into the informality probabilities across income deciles

(Table 5.2). The informal labour participation will increase across all deciles and this is due to the fact that almost all the sample will be charged a higher income tax (as the Graph 1. also shows) and consequently have a lower level of disposal income. A lower level of net income is quite determinant for the utility of individuals and the estimated coefficients of the conditional logit strongly supports it. These results seem at odds with the claims supporting flat tax but it is not because the flat tax discussed in the literature presumes lower marginal tax rates at the top of distribution and higher marginal rates at the bottom. This is not the case for the flat tax applied in Albania. The flat tax of 10 % as it is penalises almost all the sample.

Graph 1. Collected Taxes by Income deciles



This result implies that the question of evasion is not related to the function of the tax rule, be it progressive or proportional (called flat) but to the marginal taxes it entails. Therefore, singling out the wage effect from the tax effect we find that while the flat tax has a negative effect on regular work compared to the previous one, the increase (decrease) in regular (irregular) nominal wages may have lead to a reduction of informality in Albania during the period 2005-2008.

Policy simulations

After applying a swap tax rule and understanding the reasons behind the reduction in labour informality (as summary statistics have shown) during the period 2005-2008, next we test different policies intended to weaken this phenomenon. OECD (2004) shows that the risk of being detected and fined for being employed in the informal labour market are relatively modest in Albania. The lack of auditing and enforcement policies remain crucial for the tax revenues the state is supposed to collect. However, policies related to audit rates and penalties need to be tested.

Summarizing, we simulate several fiscal policies such as:

- introduce detection probability and tax penalty rates of different magnitude in order to quantify the decrease in informality due to the enforcement
- introduce public goods access to those who work in the regular market and check its effect on the informality

These simulations are meant to investigate the functioning of the tax enforcement system and how individuals behave in front of it. One of the limitations of the dataset is that we have no information about the attitude of the individuals toward the phenomenon of tax evasion. What we know from previous studies is that the detection probabilities are low and the fines paid in case of detection are almost null. However, tax evasion is considered to be a risky activity, if detected it is penalized by a fine. This implies that in these simulations the penalty rate together with the detection probabilities are taken as exogenous. The literature widely argues that the level of tax evasion decreases as the penalty rate increases. As normal, higher penalty rates lead to more compliance and less regular incomes undeclared to the tax authorities. Independently from these conclusions the level of penalty rate is an issue of discussion. Playing fair with punishment is not always clear. The penalty rate should correspond to the level of evaded taxes. Following Allingham and Sandmo (1972) the penalty rate is proportional to the level of income evaded. Apart from the actual tax rate there is an additional rate of penalty as a sort of punishment. Sandmo (2004) arguments that the evaders consider the tax evasion as optimal when the perception of the penalty rate is below the regular tax rate.

From our model the penalty rate $\pi(R_{jE})$ pursue from an exogenous rate which we have taken in an arbitrary way. As long as the individuals and in our case respondents give overweight to the probability of not being detected it is interesting to analyze the individual

behavior in case of an exogenous penalty rate. In the formulation below $\pi(R_{jE})$ is going to be replaced by a penalty rate taking values in 25% and 50% of undeclared income, and a detection probability 25% and 50%.

$$D_{ij,E,D} = R_{iH} + R_{jE} + I - T(R_{iH} + R_{jE}, I) - \pi(R_{jE})$$

We start by a penalty rate of 25 percent and a detection probability of 25% (see Table 5). Comparing the response rates of the expected labor supply and tax level predictions, regular and irregular one, at intensive and extensive margin, attention-grabbing results are provided. We find that:

1) The probability of being regular (irregular) worker increases (decreases) with the increase of the penalty rate. indicating also that the probability of evading decreases.

2) This diminishing effect is stronger in the 2008 data than in 2005 data. This means that individuals are more responsive to law enforcement in 2008 than 2005.

3) In addition, if tax revenues collected by the government slightly decrese in 2005 compared to the current system, they increase in 2008 due to a switch of irregular workers to the regular labour market

Next, we experiment with values of penalties and detection probabilities reaching 50%. It appears that (Table 6 and 7) labour informality decreases more when the detection probabilities is at 50% and penalty rate at 25% than vice-versa implying that individuals' behaviour toward tax evasion is more affected by law enforcement (compliance and auditing) rather than warning but unimplemented high penalty rates. In other words, a hypothetical punishment is less effective than a warning for detected. Also, the former implies higher tax revenues to the state.

Table 5: Simulation of detection prob=penalty=0.25
- percentage change from the current system

Regular worker	Irregular worker	All	Regular worker	Irregular worker	All

P(IR)	-15%	-10%	-12%	-20%	-11%	-15%
P(R)	8%	17%	11%	10%	16%	12%
Hours	-1%	0%	-1%	0%	0%	0%
Disp	-7%	-8%	-7%	0%	-3%	-1%
Tax revenues	-1%	-10%	-5%	0%	9%	2%

Table 6: Simulation of detection prob=0.25 and penalty=0.5 - percentage change from the current system

	Regular worker	**Irregular worker**	**All**	**Regular worker**	**Irregular worker**	**All**
P(IR)	-28%	-20%	-23%	-29%	-18%	-23%
P(R)	16%	33%	22%	14%	25%	18%
Hours	-1%	0%	0%	0%	1%	0%
Disp	-8%	-12%	-10%	-2%	-6%	-3%
Tax revenues	4%	-2%	1%	3%	16%	7%

Table 7: Simulation of detection prob=0.5 and penalty=0.25 - percentage change from the current system

	Regular worker	**Irregular worker**	**All**	**Regular worker**	**Irregular worker**	**All**
P(IR)	-37%	-27%	-31%	-31%	-19%	-24%
P(R)	21%	45%	29%	15%	26%	18%
Hours	-1%	0%	-1%	0%	0%	0%
Disp	-10%	-14%	-12%	-2%	-6%	-4%
Tax revenues	6%	3%	5%	4%	17%	8%

Lastly, we don't limit our analysis to experiment different penalty and detection rates but we test also how individuals behave towards informality when they know that they will enjoy other incentives for participating in the formal economy. These incentives may take the form of a public good such as a better infrastructure (construction of a new highway, a kindergarten), or a more tangible good such as universal benefits (or child care services, care for elderly, in-work benefits etc). As Carbonell and Gerxhani (2008) show, the public aspect of tax morale (captured by the willingness of people to contribute to public goods) may affect positively the public tax morale of the individuals through their financial situation. In this spirit, the simulations results (Table 8) reveal a strong reduction in tax evasion which is comparable with the most optimistic scenarios with highest detection or penalty rates. Yet again, a stronger impact is reached in 2008 than in 2005.

Table 8: Simulation of public good

- percentage change from the current system

	Regular worker	Irregular worker	All	Regular worker	Irregular worker	All
P(IR)	-17,83%	-13,61%	-15,21%	-23,90%	-15,75%	-19,15%
P(R)	10,00%	22,22%	14,39%	11,51%	21,96%	14,91%
Hours	-1,36%	-0,84%	-1,10%	-0,37%	-0,15%	-0,27%
Disp	-6,33%	-8,30%	-7,21%	0,20%	-2,77%	-0,89%
Tax revenues	-4,91%	-17,14%	-10,58%	-1,13%	6,89%	1,43%

6. Impact of the reforms on the inequality

Inequality measurement

In general the reforms in the tax system have different effects on different individuals. Therefore for comparison purposes and evaluation of the overall effect of the reform we sum the individual effects into a synthetic index. The index that serves to our purpose is the one proposed by Sen (1974, 1976), the so-called Sen's Social Welfare function. This index expresses social welfare as the product of an efficiency measure (i.e. average income) with an equality measure (1 – Gini coefficient). We denote the index as:

S(D) = Social Welfare (income-based) = Mean (D) * (1 - Gini (D))

Table 9: Inequality measures

	Mean Income	Gini	Welfare	Mean Income	Gini	Welfare
Current	28292	0,371	17790	28052	0,347	18323
SWAP	27898	0,375	17448	28599	0,344	18772
Penalty=Audit =0.25	26189	0,374	16383	27736	0,341	18290
Penalty=0.5 Audit=0.25	25446	0,375	15910	27171	0,340	17946
Penalty=0.25 Audit=0.5	24954	0,374	15625	27045	0,339	17889
Flat tax & Public Good	26253	0,373	16454	27802	0,340	18350

Table 9 shows the average income, Gini inequality index and the Sen welfare index for all simulation scenarios compared to the current tax regime. The first row of the Table says that the Gini inequality index based on individual net income is lower in 2008 than in 2005. Further more, we find that:

1) A swap of tax regime implies a lower inequality index when the progressive tax is implemented compared to the flat tax scenario. In addition to that, also the social welfare index is higher when we implement the former progressive tax rule.
2) Furthermore, the reform which brings to a better distribution in income terms is the one based on the provision of a public good for both years.
3) After the swap reforms, the public good reform yields the highest Sen's Welfare value measure while the other reforms underlying the penalty and detection policies perform worse than the baseline one.
4) The flat tax reform do not have a significant impact per se and this is in line with Narazani (2008).

To conclude, the Gini inequality index doesn't not exhibit a significant dynamics but seems rather unaffected by the implementation of these reforms.

7- Conclusions

One of the main concerns, noticeably debated in the literature is the linkage between labor supply decision and the central implications of different tax systems with the purpose of alleviating the trade off equity – efficiency. The implementation of non-linear tax systems versus flat tax systems is a crucial issue, which requires a special consideration.

This paper provides empirical evidence on labor supply decisions and the important implications as regards the evaluation of tax system reforms in the presence of a widespread phenomenon of labour informality. A discrete choice model is used to estimate a labour supply model which incorporates the labour informality option.

We find that the flat tax implemented since July 2007 has not contributed in the reduction of labour informality but rather the increases in regular wages have played an important role in convincing the individuals to move to regular market. The rationale behind this results is related to the higher marginal tax rates the flat tax implies for the

whole sample. The flat tax of 10% is certainly the lowest applied in the world but leads to higher average taxes than the previous one save the labour income remain unchanged.

Furthermore, we simulate different tax penalty rates and probability detection scenarios and find that controls and audits are more efficient than fines in inducing people to switch from the informal to formal labour market. A similar effect is achieved also when "honest" individuals are endowed with an universal benefit which made us conclude that "carrots" rather than "sticks" may be a better tool in combating labour informality in Albania.

In distributional terms, calculations of Gini inequality index and Sen's welfare index demonstrate that no significant changes occur for all the scenarios we simulated. The inequality index is higher in 2005 than in 2008 and this implies a higher social welfare too. However, the only scenario that would improve welfare index is a progressive tax rule as before 2007.

These results imply that a kind of progressivity should be back in the taxation rule without affecting the attractiveness of the simplicity a flat tax entails.

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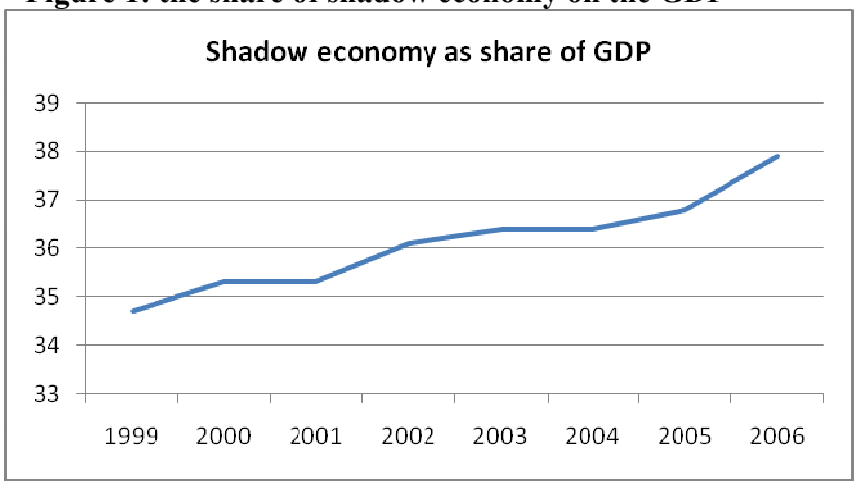
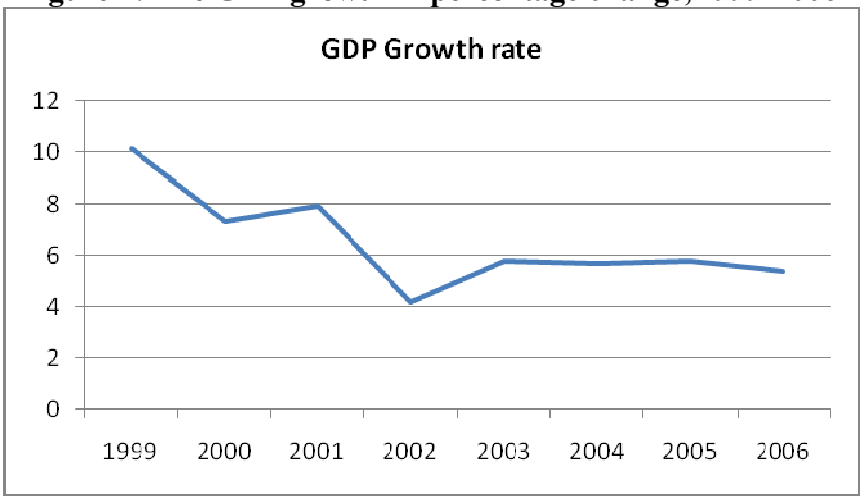
Figure 1: the share of shadow economy on the GDP



Source: Schneider (2010)

Figure 2: The GDP growth in percentage change, 1999-2006



Source: IMF Statistics(2010)

Appendix A

Table 1: Summary statistics of Income and Working hours

		Irregular	**Regular**
Income	Mean	235660.8	301695.5
	Std. Dev.	129215.7	152124.2
	Variance	1.67e+10	2.31e+10
	Skewness	0,79	1,46
	Kurtosis	3,05	4,99
Working Hours	Mean	48,66	43,70
	Std. Dev.	13,31	7,04
	Variance	177,17	49,60
	Skewness	-0,38	0,93
	Kurtosis	3,82	7,97