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Household Tax Compliance in Albania

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Abstract

This paper applies a set of indicators of tax compliance to the household sector in Albania. These estimates are performed using available data for the years 1996 to 2003. Estimates of income declaration rates and of corresponding undeclared household income are computed using household final consumption data from national accounts and household survey data as well as detailed data on household taxation. Specific aspects such as remittances and the role of agriculture are explicitly taken into account and discussed. Our results show that household tax compliance in Albania is low by European standards. Although compliance overall has recovered from the collapse of 1997 and revenues have increased, the compliance rates for personal income tax and for social security contributions have significantly worsened in 2002 and 2003. This seems to be due to a disconnect between the formal goals set out as legislation and the revenue collection targets set by the relevant agencies.

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Household Tax Compliance in Albania*

Introduction

This paper deals with the measurement of tax compliance in the household sector in Albania. In particular, this working paper constitutes an attempt at estimating quantitatively the extent of fiscal non-compliance by households using a rather restricted data set. Our intellectual goal, beyond the practical results which we find for the Albanian case, is to show what can be done when data availability is limited, as is the case for some transition and developing countries. Ideally we would like to develop a measurement methodology which could be applied for most countries in the world in spite of typical data restrictions, but which would nonetheless yield reasonably accurate and informative results.

The literature on tax compliance may be seen has having followed three main strands. The first strand encompasses modelling approaches based mostly on the classical model presented in Allingham and Sandmo (1972) and extensions thereof. In a nutshell, the idea is to model the taxpayer as a risk-averse, expected net income-maximizing agent who has the possibility of under-reporting his income, but in doing so, would face (with a given probability) the prospect of being caught and fined (on top of having to pay the full tax liability).

The second strand of research is inspired mostly by behavioural theory and rejects the strictly classical approach of Allingham and Sandmo. Andreoni, Erard and Feinstein (1998) – providing a very thorough survey of the literature on tax compliance in general – identify three main moral and social factors that are relevant in this context: moral rules and sentiments; the taxpayer's perception of the fairness of the tax system and burden; and finally the degree of satisfaction that taxpayers have with respect to the public authorities, notably with respect to the provision of public goods and services and their distribution.

In the third strand of research the goal is to measure the extent of tax evasion and, in some cases, the corresponding size of uncollected state revenues. This is where our research fits in. Andreoni, Erard and Feinstein (1998) list five different approaches: audit data (from the tax authorities) which are in some cases matched with census data; survey data; tax amnesty data; data generated through laboratory experiments; and measurements of discrepancies found in economic statistics. The approach that we propose belongs to this

* The bulk of the research described in this paper was financed by and produced for the OECD as part of a study conducted by the OECD Investment Compact on the informal economy in Albania. It first appeared as an appendix to the Investment Compact's report, *The informal Economy in Albania: Analysis and Policy Inputs*, which was prepared for the Ministry of Economy of Albania and published by the OECD Investment Compact in December 2004. The views expressed in this working paper are solely those of its authors and do not necessarily reflect the views of the OECD or those of the Albanian authorities.

last category. In this category there is typically no econometric modelling involved at all. Instead, the idea is to calculate as precisely as possible the relevant tax bases and liabilities using national accounts data, census data and/or household budget survey data together with the official rates provided by taxation laws. We start by briefly reviewing some contributions in this category and then introduce our own approach.

Nam, Gebauer and Parsche (2003) compute estimates of the hypothetical dues in value added tax (VAT) in the European Union and yield VAT evasion ratios for selected EU member states for the years 1994 to 2001. Their approach is to compute the total theoretical VAT liability for each country using national accounts data. The basic formula they use is a weighted sum of consumption and investment made by the various institutional sectors (households, government, non-profit organizations, banks and insurance companies etc.). The weights are the various applicable VAT rates (full and reduced rates). The authors use national statistics from the member states to break down household final consumption into 32 types of goods and services and compute estimates of the average VAT rate for each of them. This enables them to come up with a relatively good estimate of the applicable rate for household final consumption, which they then use in their main formula to compute the total VAT liability on household final consumption. The authors also make corrections for the time lags between the creation of the tax liability and the actual payment of the tax dues, as well as corrections for the suspensions of liabilities and other types of tax waiving, due e.g. to bankruptcies. The authors use relatively simple assumptions to tackle these two issues, using a rolling 10% shift on revenues for the time lag issue, and a 1% downward correction of the theoretical revenues for the issue of bankruptcies. All in all the work done by Nam, Gebauer and Parsche (2003) is of high quality, with careful attention to detail. In our view, however, one missing element is a sensitivity analysis which would help the reader to interpret the results.

Perhaps the closest we have found in the existing literature to what we present in this paper in terms of scope can be found in Madzarevic-Sujster (2002), who estimates tax evasion in Croatia over the period 1994-2000 separately for each main type of tax, including personal income tax, social security contributions, corporate tax, excise taxes, sales tax and VAT. Madzarevic-Sujster uses national accounts aggregates and estimates of the non-observed economy to construct estimates of the respective tax bases for each tax. She then computes the theoretical liabilities and obtains the revenue shortfall by subtracting the actual revenues. She furthermore makes use of a certain number of scenarios, in effect a set of assumptions about tax evasion behaviour by type of firm, in order to yield her estimates. For excise taxation she focuses on the case of tobacco.

Our own approach can be summarized as follows: using national accounts aggregates as our starting point, we construct estimates of the relevant tax bases for personal income tax, compulsory employee social security contributions, VAT and excise tax. For each of these

main types of tax in turn, we compute estimates of compliance rates for each available year, based on the taxation laws and regulations and tax revenue data. Contrary to Madzarevic-Sujster (2002) we provide overall estimates for excise tax compliance, rather than only for tobacco products – but we do not provide estimates for corporate taxation. We also conduct sensitivity analyses every time in order to present our results as ranges rather than just point estimates as is the case in Nam, Gebauer and Parsche (2003). However, in fairness to the latter, we do not analyse VAT compliance as thoroughly as they do. Finally, we aggregate our findings to provide an overall estimate of the total undeclared household income for each available year. This allows us to compare Albania to other countries in Southeast Europe for which we have relevant findings dating back to earlier research.

Before we proceed, we should make a brief comment concerning the interpretation of the results, and how they relate to other estimates, notably estimates of the size of the shadow or underground economy. Essentially we make the working assumption that national accounts data in Albania are reasonably exhaustive. The Albanian statistical agency (INSTAT) produces estimates of the non-observed economy[1] (NOE), that is, estimates of gross value added not captured by the basic data available at INSTAT from reporting firms, and includes these in its published national accounts, notably in the figure they publish for GDP. To the extent that these corrections to national accounts aggregates may be smaller than the true level of economic activity should imply, our tax compliance estimates will in fact be too optimistic, as the true tax bases would then be larger than what we estimate them to be. This is an additional reason (beyond white noise type measurement error and rounding errors due to our other assumptions) for the sensitivity analysis we provide. We come back to this issue later in the paper. In terms of interpretation, our results relate to tax compliance. Whether non-compliance happens in a part of the economy which is, so to speak, in full view of the statistical agency, or whether it relates to a part of the economy which was initially non-observed by the statistical agency is not relevant in this paper.

Personal income tax and social security contribution modelling

In this section we present our chosen methodology and assumptions for estimating compliance rates for compulsory social security and personal income taxation.

In order to calculate the theoretical tax base for personal income tax (PIT) and compulsory employee social security contributions (SSC) we would in principle need to know the true level of gross wages paid out, as well as other elements of the PIT base such as gains from games of chance, dividends and other incomes. We do not have such data, so we construct an estimate of net total household income (NTHI). We start off from official, published

[1] For a thorough discussion on the issue of the non-observed economy, including official definitions and measurement strategies, see OECD (2002a). For a survey of national practices, interested readers may consult UNECE (2003).

household final consumption (HHFC), from which we remove imputed rent (IR), which is included in HHFC according to SNA norms, but which is not part of our concept of income. We must then add household construction outlays for new dwellings, which are not part of HHFC but of gross fixed capital formation (GFCF). We estimate these outlays by using 30% of the gross output of the construction industry due to the households (HHCO). This is the average share in the United Kingdom. For lack of more relevant (Albanian) data we assume that it can be seen as a lower-bound estimate for Albania. We also add savings under the assumption of a constant savings rate of 5% of NTHI.

$$\begin{aligned} NTHI &= HHFC - IR + HHCO + S \\ &= HHFC - IR + HHCO + 0.05 \cdot NTHI = \frac{1}{0.95}(HHFC - IR + HHCO) \end{aligned} \tag{1}$$

We then take away from NTHI estimates of incomes which are exempt from PIT and SSC, namely household sector agricultural value added, which we proxy by using agricultural gross value added (AGVA), social benefits (SB) and remittances (REM). Finally, to switch from net after-PIT to gross pre-PIT income, we add paid personal income tax (PPIT) and paid social security contributions (PSSC). This gives us the social security contribution tax base SSCB:

$$SSCB = NTHI - AGVA - SB - REM + PPIT + PSSC \tag{2}$$

In principle we should treat certain specific types of incomes separately (notably gains from games of chance and dividends from owned shares, both of which are subject to a flat rate of income tax) but we do not have the relevant data at our disposal. We make the assumption that these are small amounts compared to PITB and SSCB, so that the small error made can be dealt with by the sensitivity analysis which we conduct later on.

For the personal income tax base PITB, we just need to subtract the theoretical social security contribution liability SSCL:

$$PITB = SSCB - SSCL \tag{3}$$

The social security contribution liability SSCL must now be computed. The relevant Albanian regulations define a low bound and a high bound in terms of gross wage, and a single rate. Wages below the low bound are treated as if they were equal to the low bound while wages above the high bound are treated as if they were equal to the high bound.[2] The contribution liability is then calculated as the fixed rate (11.7% for 1998-2001, 11.2% thereafter) multiplied by the transformed gross wage. The main consequence of this

[2] The lower bound was 6040 Albanian lek for 1998-2001, 9043 for 2002 and 10343 for 2003, while the upper bound was 18120 Albanian lek for 1998-2001, 47015 for 2002 and 51715 for 2003.

system is that the effective theoretical rate is at first constant and then regressive as incomes increase, and of course the total liability depends strongly on the distribution of gross wages relative to the low and high bounds.

To arrive at a correct estimate of the total social security liability it is therefore necessary to have the distribution of gross wages. This is not available to us, but thanks to data from the Living Standard Measurement Survey of 2002 (LSMS 2002) we do have at our disposal a distribution of take-home (net and after-PIT) income as declared by heads of households (so-called 'most knowledgeable persons'). In the LSMS 2002 survey households could report any level of take-home income, which resulted in there being 440 distinct reported income levels. The extremes of the distribution were surprising, the two lowest reported levels being zero and 1 and the two highest being 9,999,997 and 9,999,998 Albanian lek per month. It immediately occurred to us that the surveyors and/or the data handlers may have wanted to encode qualitative information using such unrealistic values. This was subsequently confirmed.

We assume that each 'most knowledgeable person' declares to the LSMS 2002 interviewers the net income which he/she would get based on his/her true gross income if he/she had paid the full PIT liability. This is a working assumption in order to find a relatively simple way of converting the declared take-home incomes (supposed to be after-PIT incomes) to pre-PIT incomes. Concretely what we have done is to use the 2002 PIT schedule in order to reverse-compute pre-PIT incomes from take-home incomes. This then gives us our assumed true pre-PIT income distribution for 2002. Our second assumption is then that this distribution is true in relative terms for each year. Our third assumption is that this distribution holds true (in relative terms) for the whole population of income earners in Albania, rather than just for 'most knowledgeable persons' in households.

We then use our estimates of the SSC tax bases for each year in turn. We constrain the weighted sum of the income distribution (weighted by the number of 'most knowledgeable persons' reporting each income level) to be equal to the SSC base for each year in turn. This implies a corrective ratio which is applied equally to each income level, so that we end up, for each year, with an assumed gross income (pre-PIT and pre-SSC) for each year. This ensures that the distributions thus constructed sum up to the estimated tax bases while retaining the same relative structure as our assumed true pre-PIT income distribution for 2002.

For each year in turn we then compute the corresponding theoretical SSC liabilities for each income level. The total (national) SSC liabilities are then computed using a weighted sum of the liabilities for each individual level. The weighting scheme is the same as previously, i.e. using the number of 'most knowledgeable persons' reporting each income level. Having now SSCL for each year, we are able to compute the PIT base for each year using (3).

For each year in turn the income distribution is then made to fit the PIT tax base. For each converted income level we can compute the corresponding PIT liability. The total PIT liability is then computed as the weighted sum of each level-specific liability, analogously to what we described above for the computation of the SSC liability.

Finally we compute the compliance rates for PIT and SSC for each year as being the ratio between actually paid PIT and SSC and the total PIT and SSC liabilities computed as described above.

In order to compute (1) and (2) we use officially published data on household final consumption (HHFC) available for the period 1996-2000 from the Albanian Institute of Statistics (INSTAT). For the period 2001-2003 we use data from the United Nations Statistics Division (UNSTATS). We use data on gross construction output (used for calculating HHCO) and agricultural gross value added (AGVA) from INSTAT. We therefore assume that they are correctly measured. We furthermore assume that AGVA is fully generated in the household sector, so that it exactly matches the exempted sum of profits and wages that households make/earn in the agricultural sector. From LSMS 2002 data we obtain an estimate of the share of imputed rent (IR) in HHFC. We assume that this share is correct in the LSMS 2002 data and that it holds for all years. For remittances we use balance of payments data provided by the Bank of Albania on private transfers from abroad. We use data on state transfers (ST) to the households (including state expenditures for social insurance, unemployment insurance and social assistance) provided by INSTAT and the International Monetary Fund (IMF) (the original source being the Ministry of Finance in both cases). From the same source we get data on state revenue from PIT and SSC. Information on Albanian tax law was gathered from the relevant ministry, the IMF and the International Bureau of Fiscal Documentation (IBFD).

The results for social security compliance are as follows:

Table 1

Social security liabilities and compliance rates

Year	SSC Base	Total SSC Liability	As a share of SSC base	SSC Revenue	Compliance Rate
2003	358443	29956	8.4%	7648	26%
2002	320974	26963	8.4%	6586	24%
2001	246971	14781	6.0%	5737	39%
2000	181913	13432	7.4%	5112	38%
1999	206363	14017	6.8%	4628	33%
1998	182507	13449	7.4%	4035	30%

All monetary amounts are expressed in millions of Albanian lek at current prices.

What is remarkable about the results above is the inverted-U-shape of the compliance rate across time. Without any further analysis, one could (wrongly) conclude that the efficiency of the contribution collection process had been on a positive growth path until 2001, and that then, for some reason, this process would have started to be adversely affected. In reality the answer lies in the combination of an almost linear positive trend in revenues with abrupt changes to the regulations on social security, whereby the lower and upper bounds described earlier were increased significantly in two successive jumps in 2002 and in 2003. The decisive change came when it was decided that the upper bound would be set at five times the level of the lower bound, rather than three times the level of the lower bound as had previously been the case. This change provoked a jump in the SSC liability from around 14 billion lek for 1998-2001 to about double that for 2002 and 2003. But as we can see, the increase in revenues was only gradual and fell far short of doubling. In light of these results we strongly suspect that there is a disconnect between individual liabilities and the contribution collection process. One explanation could be that the staff responsible for collecting contributions react only weakly to changes in the regulations, and instead set revenue targets according to different criteria, e.g. that they should collect x% more than the previous year in nominal terms, rather than try to improve on the compliance rate. As an indication, one can look at the per cent increases in nominal revenues for each year compared to the previous year. This yields, from 1999 to 2003, the following values: +15%, +10%, +12%, +15% and +16%. These figures are of a similar order of magnitude to nominal GDP growth over the same years, so much so that in fact social security contributions revenues as a share of GDP are very stable over the whole period, while the liabilities are not.

Table 2

Social security revenues

Year	Total SSC Liability	SSC Revenue	GDP	Liability / GDP	Revenue / GDP
2003	29956	7648	744585	4.02%	1.03%
2002	26963	6586	677684	3.98%	0.97%
2001	14781	5737	610426	2.42%	0.94%
2000	13432	5112	551281	2.44%	0.93%
1999	14017	4628	488610	2.87%	0.95%
1998	13449	4035	425356	3.16%	0.95%

All monetary amounts are expressed in millions of Albanian lek at current prices.

One could therefore speculate that the target of the social security administration is to reach a level of revenues equal to a given share of GDP. As a complementary hint, one may look at the standard deviation of the liability / GDP and revenue / GDP series.

The results for personal income tax are the following:

Table 3

Personal income tax liabilities and compliance rates

Year	PIT tax base	PIT Liability	As a share of PIT base	PIT Revenue	Compliance Rate
2003	328487	24868	7.6%	6414	26%
2002	294011	20467	7.0%	6149	30%
2001	232190	13396	5.8%	6300	47%
2000	168481	10965	6.5%	4590	42%
1999	192345	14479	7.5%	3110	21%
1998	169058	11428	6.8%	1167	10%

All monetary amounts are expressed in millions of Albanian lek at current prices.

One again notices an inverted-U-shape of the compliance rate over time. What happened is that revenues stagnated at approximately the same nominal level over the period 2001-2003, while the total liability jumped significantly between 2001 and 2002. However, contrary to what is the case with social security, the rates and income band limits did not change between 2001 and 2002. The driving force here is simply the quite strong increase in the (nominal) PIT tax base. As the PIT structure is (of course) progressive, this has a more than proportional effect on the total nominal liability.

As we can see from our results, the compliance rate peaked at 47% in 2001 thanks to a large jump in revenues (+37% compared to 2000) while the increase in the liability was slightly smaller (+22% compared to 2000). We are however sceptical about the data for 2000. One sees that the PIT tax base in 2000 was (apparently) lower in 2000 than in 1999 and of about the same level as that of 1998. This is hard to believe as there was significant nominal GDP growth throughout the period. We return to this issue at the end of this section.

Coming back to the results for the compliance rate, we seem to have a similar situation as with social security, i.e. that there may be PIT revenue targets that are set somewhere within the administration in nominal terms, rather than there being targets in terms of compliance rates. However, the situation with PIT is clearly much worse than with SSC. Here the nominal revenue levels have essentially not changed over a period of three years, which is surprising given the relatively strong growth in the tax base. In fact the revenue level is so static over 2001-2003 that one cannot help but question whether it has been correctly measured. On the other hand one could imagine that a target of around 6 billion lek was set (for whatever reason) and that, for some other reason, this target was not revised upward for two years. This again is pure speculation, but in any case the issue of target setting within the tax administration should be investigated further.

We now turn to the problematic data for the year 2000. The reason for our problem is that we deduct remittances from HHFC in our estimate of both tax bases and that remittances

were much higher in 2000 than in 1999. It is not unlikely that the true impact of remittances is not correctly reflected either in our own assumptions (e.g. on the savings rate, which we fixed at 5% for each year) or in the national accounts data, or both. It is of course possible in principle that an increase in remittances may discourage residents of Albania to work (i.e. by increasing their reservation wage), but on the other hand this is difficult to square with the fact that GDP increased in 2000. Apart from the issue of savings, we would need to gather more data and more information on two main issues: the first is the actual level of remittances, and whether changes in measurement methodology may explain the rather strong fluctuations that we have seen in the data. The other possibility concerns the national accounts themselves, and the way in which HHFC (again) is measured. If a reasonably steady share of remittances goes into consumption then HHFC should have been substantially larger than reported in 2000. If one assumes that GDP was quite accurately estimated, we would then have to look at the reliability of trade statistics, which would provide the necessary balancing item (due to higher imports) which would account for a higher HHFC while holding GDP constant. Given the information available to us, the evidence suggests that HHFC may have been underestimated specifically in 2000 compared to the other years.

Sensitivity analysis for PIT and SSC compliance rates estimation

As we have seen, several key variables, notably HHFC, may not be measured quite as precisely as we would wish. Valid concerns regarding some of our assumptions may also exist. For these reasons we move beyond the presentation of point estimates and provide results from a sensitivity analysis. We do not have at our disposal data samples that would make a classical stochastic approach feasible, so rather than making artificial assumptions about distributional properties, we opt for a deterministic approach whereby we run our method using lower- and upper-bound values for the main inputs, which are the tax bases. The lower bounds are set at 85% of the central values and the upper bounds are set at 115% of the central values. We present our results as lower-bound – upper-bound ranges.

For PIT we find the following:

Table 4

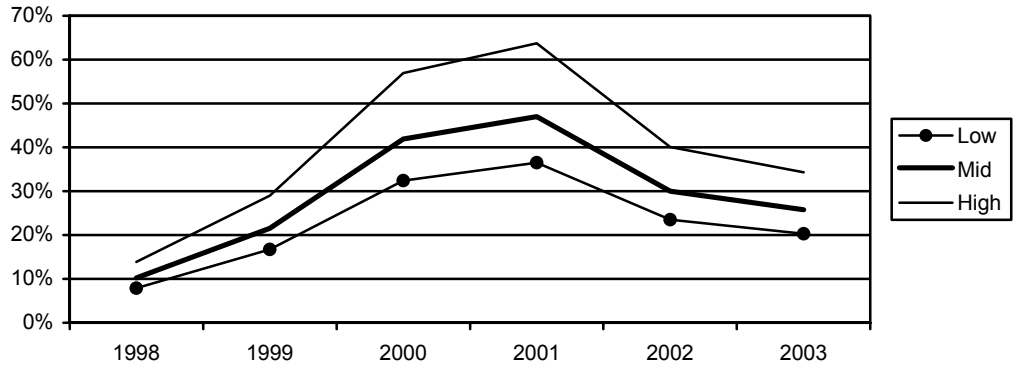
Personal income tax compliance – results of the sensitivity analysis

Year	Low-bound compliance rate	High-bound compliance rate
2003	20.3%	34.3%
2002	23.5%	40.1%
2001	36.5%	63.7%
2000	32.4%	59.6%
1999	16.7%	29.0%
1998	7.9%	13.9%

As we can see, the results are in fact quite sensitive if compliance is high. This can best be seen graphically, as below. Our conclusion is that additional investigations would be needed to assess the quality of the input data. This would make possible a narrowing of the range used for the sensitivity analysis and thus yield a narrower range for the compliance rate.

Figure 1

Personal income tax compliance range



For SSC we find the following:

Table 5

Social security contributions compliance rates – results of the sensitivity analysis

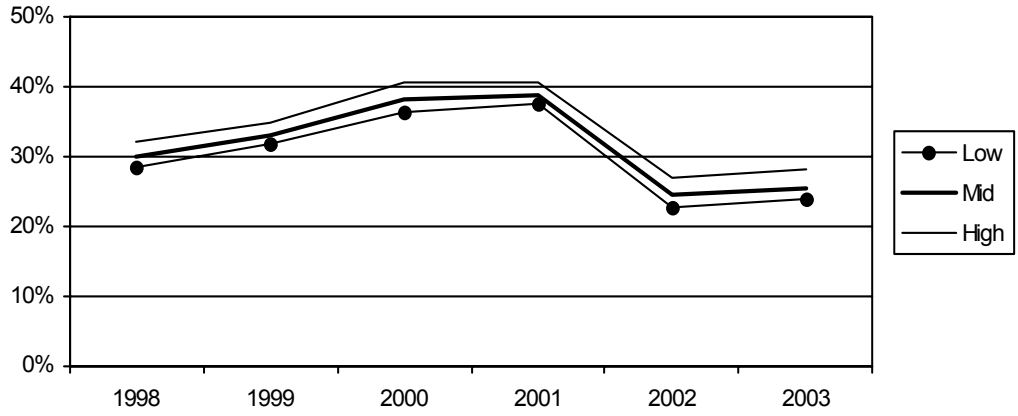
Year	Low-bound compliance rate	High-bound compliance rate
2003	23.8%	28.1%
2002	22.7%	26.9%
2001	37.5%	40.7%
2000	36.3%	40.6%
1999	31.7%	35.0%
1998	28.6%	32.0%

As previously stated, the results for social security are much less sensitive to measurement errors in the input data. This is mainly due to the rates structure, as social security works on a single rate. This is very clear from Figure 2 below.

The main analysis developed previously concerning the central estimate for the SSC compliance rate remains valid. In this case the sensitivity analysis does not provide any source of additional concern.

Figure 2

Social security contributions compliance range



Excise tax and VAT modelling

In this section we present our chosen modelling framework and assumptions for estimating compliance rates for VAT and excise taxation.

Our data inputs are the following: from household budget survey data (Living Standard Measurement Survey – LSMS 2002) we have declared values of purchased goods by type of good (items under the food and non-alcoholic beverages heading, alcohol, cigarettes, fuel as well as other non-food items). We assume that the shares for each type of purchased good in household final consumption (HHFC) derived from aggregating the LSMS 2002 data hold true for all years. Thus for each year we have at our disposal estimates of the declared amounts spent by households on goods that are not subject to excise taxation (DNEG) as well as on goods that are subject to excise taxation (DEG). Concretely, DNEG was calculated as a sum of HHFC and HHCO less DEG, household consumption of imputed rents, health services and non-purchased goods. Using the nominal excise tax rates given by the relevant legislation and computing a weighted average based on the declared shares of each type of excised good (fuel, cigarettes, alcohol, coffee, soft drinks and mineral water) we estimate an average statutory excise tax rate (γ). We also have at our disposal the tax revenues for each year for excise taxes (PEX) and for VAT (PVAT).

We construct a simple model of tax evasion based on the following assumptions:

– a share (1-ε) of goods purchased which should be subject to excise and VAT taxation evades both taxes simultaneously – thus ε is defined as the excise goods taxation compliance rate, which we further assume to be identical for all types of goods subject to excise tax

- a share (1-ν) of goods (or services) purchased which are not subject to excise taxation but which should be subject to VAT evades VAT taxation – thus ν is defined as the non-excised goods VAT compliance rate, which we further assume to be identical for all types of goods not subject to excise tax
- the declared shares for both types of goods (subject to excise tax and not subject to excise tax) found in the LSMS 2002 survey data are correct in paid value terms for all years
- the fact that we use the corresponding declared amounts DEG and DNEG which are based on taking the corresponding shares of officially published HHFC available for the period 1996-2003 from the Albanian Institute of Statistics (INSTAT) and UNSTATS implies that we assume officially published HHFC to be correct
- we assume that the tax revenue data (PEX and PVAT) as provided by the Albanian Ministry of Finance for each year are correctly measured

The mathematical formulation of the model following the assumptions above is therefore the following:

$$DEG = EG \cdot (1 + 0.2\varepsilon + 1.2\varepsilon\gamma) \quad (4)$$

$$DNEG = NEG \cdot (1 + 0.2\upsilon) \quad (5)$$

$$PEX = \varepsilon\gamma \cdot EG \quad (6)$$

$$PVAT = 0.2 \cdot [\upsilon \cdot NEG + \varepsilon \cdot EG(1 + \gamma)] \quad (7)$$

where EG and NEG are the net of tax values of theoretically excised and non-excised goods respectively. Equation (4) states that the declared value of purchased excised goods is equal to the net value of these goods plus excise tax applied to a share ε of the net value of these goods, as well as VAT of 20% applied to the after-excise-tax value of the same share. Equation (5) states that the declared value of non-excised goods is equal to the net value plus VAT of 20% on the net value of a share ν of the net total value.

Equations (6) and (7) simply match the model's revenue equations with the observed revenues.

At this stage we must include corrections to this model due to the VAT threshold of 8 million lek of turnover. Concretely, the law on VAT states that retailers netting less than 8 million lek a year in turnover are not subject to VAT. We have further been informed by OECD staff who discussed this issue with Albanian officials that this implies, in practice and in most cases, that the wholesalers or producers further upstream who distribute goods or services to these small retailers also 'skip' VAT, although they themselves may be above the 8 million lek threshold. This information leads us to the following working assumption: the share of the VAT tax base which corresponds to the share of small retailer turnover in total turnover (nationally) is exempt from VAT altogether. We were provided

with a lower-bound estimate of this volume by OECD staff of 7.9%. In a later section of this paper we conduct a sensitivity analysis. So what we do now is to incorporate this correction into a revised version of the model.

We substitute the 20% VAT rate with the following expression:

$$\tau = 0.2 \cdot (1 - \rho) \tag{8}$$

where τ is the 'truly applicable' VAT rate and ρ is the share of small retailer turnover in total turnover.

Our transformed model is now as follows:

$$DEG = EG \cdot [1 + \tau\varepsilon + (1 + \tau)\varepsilon\gamma] \tag{9}$$
$$DNEG = NEG \cdot (1 + \tau\upsilon) \tag{10}$$
$$PEX = \varepsilon\gamma \cdot EG \tag{11}$$
$$PVAT = \tau \cdot [\upsilon \cdot NEG + \varepsilon \cdot EG(1 + \gamma)] \tag{12}$$

As previously stated, DEG, DNEG, PEX, PVAT, τ and γ are known quantities, while the corresponding net values EG and NEG and the compliance rates ε and ν are the unknowns. The model we have constructed is therefore a classical equation system with four equations and four unknowns, which we solve as follows:

Using (11) to express epsilon and plugging it into (9), we obtain:

$$EG = DEG - \tau\frac{PEX}{\gamma} - (1 + \tau)PEX \tag{13}$$

Having EG enables us to compute ε :

$$\varepsilon = \frac{PEX}{\gamma \cdot EG} \tag{14}$$

Re-writing (12) and using (10) to substitute NEG, we get ν :

$$\upsilon = \frac{1}{\tau}\frac{PVAT - \tau\varepsilon EG(1 + \gamma)}{DNEG - (PVAT - \tau\varepsilon EG(1 + \gamma))} \tag{15}$$

Finally, NEG can be computed using (10) by re-writing it as:

$$NEG = \frac{DNEG}{1 + \tau\upsilon} \tag{16}$$

Before we turn to the results, we address in more detail the issue of our estimate of average statutory excise tax rate γ.

Data for the household consumption of fuels, cigarettes, alcohol, coffee, mineral water and fruit juice were taken either from existing LSMS 2002 aggregations provided to us by the OECD or were aggregated by us from the raw data. The last three items include food eaten outside of the home. The ratios were calculated as shares of total consumption including imputed rents and health expenditures.

Table 6

Consumption shares of main excised goods

Consumption shares (LSMS 2002)	% HHFC
Fuels	3.1%
Cigarettes	2.2%
Alcohol	1.0%
Coffee (+ in bar)	1.3%
Mineral water (+ in bar)	0.3%
Fruit juice (+ in bar)	0.3%
Total excised goods	8.0%

Total excised goods make up about 8% of HHFC. Fuels, cigarettes and alcohol alone constitute 6.3% of HHFC. This seems to be a rather low value compared to a neighbouring country like Macedonia, where these three items together represent more than 10% of total consumption in the 2002 household survey published in the Statistical Yearbook of Macedonia 2003. Though the survey methods are probably somewhat different, the discrepancy seems to be rather large.

With regard to excise taxes we had to rely on the tax law data from end of August 2002 provided in the IMF country report 03/64 and apply it to the period of 1996-2003. Unfortunately historical tax law data for those years were not available.

Table 7

Excise tax rates of main excised goods (2002)

Gasoline	90%
Cigarettes	43%
Beer	50%
Coffee	20%
Mineral water	5%
Soft drinks	5%

For fuels excise taxation we applied the rate that was related to gasoline of 90 octane and more and unleaded gasoline. In the case of cigarettes no *ad valorem* rate was provided. Here we used price and tax data from the World Health Organization (WHO) European Country Profiles on Tobacco Control 2003 in order to calculate an *ad valorem* rate.[3] For alcohol we applied the *ad valorem* rate meant for beer as the other excised alcohols (raki, wine, etc.) were again only excised in lek values per litre and for which we have no reliable average retail prices nor consumption shares within total alcohol consumption. The excise rates for coffee, mineral water and soft drinks were given in *ad valorem* rates.

On the issue of VAT-exempted retailers, we assumed a reduction of the VAT rate by 9.3%, which is based on the 7.9% lower-bound estimate provided by OECD staff. This value was determined by imposing 0.85x = 7.9.

Using the available data, which cover the years 1996 to 2003, and the excise rate computed as described above, and using equations (13) to (16), we find the following point estimates for the compliance rates:

Table 8

Excise tax and VAT compliance rates

Year	ε	ν
2003	59.1%	56.3%
2002	45.7%	57.8%
2001	61.5%	59.9%
2000	74.7%	69.2%
1999	50.9%	55.6%
1998	33.2%	58.5%
1997	16.1%	38.6%
1996	48.1%	17.7%

The results for the excised goods compliance rate show a marked fall for 1997, a turbulent year for Albania[4], followed by a steady improvement up to and including 2000. Interestingly there is no such dip for the non-excised goods VAT compliance rate, although there is likewise an encouraging steady trend towards higher values up to 2000. The period from 2001 to 2003 shows a stabilization of the VAT compliance rate above 55%, while the excise compliance rate dipped again in 2002 and came back in 2003 to a level of around 60%. Unlike in the case of the social security contributions, these variations cannot be explained by changes in the law as we used the same rates for all the years. One

[3] The rate was calculated under the assumption of a retail price of 60 lek for the most popular and/or cheapest local brand and a 20% VAT and 15 lek excise tax.

[4] That year Albania experienced a significant breakdown in public order. This was essentially driven by popular anger due to the collapse of pyramidal saving schemes.

explanation (according to anecdotal evidence) might be that the taxation of excised goods can be seen as a residual target for Albanian tax collectors in case it has not been possible to fulfil their overall tax goal by the end of the year.

At this stage we must recall our discussion on HHFC for 2000. As stated in the section on personal income tax and social security contributions, it is possible that remittances are either improperly measured or that their impact is not correctly accounted for in the national accounts (or both). If HHFC is indeed underestimated for 2000, this would imply that the tax base is larger than what we thought, and therefore that the compliance rate (for 2000 at least) is lower than what we have found.

Sensitivity analysis for excise tax and VAT modelling

A sensitivity analysis for the excise tax and VAT modelling was conducted to see how the model reacts to rather large changes of input data. Starting from the central values (see Table 9) we assumed two extreme case scenarios where the consumption of excised goods increases (decreases) by 15% and simultaneously the excise tax rate increases (decreases) by 15% respectively. As a consequence, VAT goods consumption automatically decreases (increases). We do not change the VAT rate as it is given by law as 20%. However, we do change the VAT reduction rate for the VAT exempted retailers by a decrease (increase) of 15%. The resulting changes in total VAT compliance rates[5] are rather moderate as they are being outbalanced by relatively strong alterations of the excise compliance rate. In the low-bound case of the year 2000 estimated excise liability even drops below the actual excise revenues implying that Albanians have paid more than they should have, which is rather unlikely. This result may have several explanations, one of them being the possibility of an under-estimation of official household final consumption for 2000. This has also been discussed in the section dealing with the personal income tax and social security contributions modelling.

In Table 9 we present the results of the sensitivity results for the years 2001-2003. The results for the previous years are available in the appendix.

[5] Please note that VAT compliance rates as provided in this section are somewhat different from the rate v in the modelling section as the rates here correspond to an average rate including the VAT evasion on excised goods which was calculated with the excised goods compliance rate.

Table 9

Excise tax and VAT compliance – results of the sensitivity analysis for 2001 to 2003

CENTRAL VALUES		+15% excised shares & rates, -15% non-VAT HIGH BOUND		-15% excised shares & rates, +15% non-VAT LOW BOUND	
2003		**2003**		**2003**	
Total excise liability	20,751	Total excise liability	29,490	Total excise liability	13,402
Excise revenue	12,258	Excise revenue	12,258	Excise Revenue	12,258
Excise compliance rate	**59.1%**	**Excise compliance rate**	**41.6%**	**Excise Compliance Rate**	**91.5%**
Total VAT liability	89,338	Total VAT liability	92,320	Total VAT liability	86,652
VAT revenue	50,625	VAT revenue	50,625	VAT Revenue	50,625
VAT compliance rate	**56.7%**	**VAT compliance rate**	**54.8%**	**VAT Compliance Rate**	**58.4%**
2002		**2002**		**2002**	
Total excise liability	20,420	Total excise liability	28,562	Total excise liability	13,543
Excise revenue	9,324	Excise revenue	9,324	Excise revenue	9,324
Excise compliance rate	**45.7%**	**Excise compliance rate**	**32.6%**	**Excise compliance rate**	**68.8%**
Total VAT liability	81,967	Total VAT liability	84,727	Total VAT liability	79,479
VAT revenue	46,113	VAT revenue	46,113	VAT revenue	46,113
VAT compliance rate	**56.3%**	**VAT compliance rate**	**54.4%**	**VAT compliance rate**	**58.0%**
2001		**2001**		**2001**	
Total excise liability	15,511	Total excise liability	22,106	Total excise liability	9,968
Excise revenue	9,544	Excise revenue	9,544	Excise revenue	9,544
Excise compliance rate	**61.5%**	**Excise compliance rate**	**43.2%**	**Excise compliance rate**	**95.7%**
Total VAT liability	68,461	Total VAT liability	70,728	Total VAT liability	66,419
VAT revenue	41,148	VAT revenue	41,148	VAT revenue	41,148
VAT compliance rate	**60.1%**	**VAT compliance rate**	**58.2%**	**VAT compliance rate**	**62.0%**

Aggregate results and international comparison

In this section we use our findings for two purposes. We would like to know the net revenue shortfall that Albania has suffered due to non-compliance for each type of tax we have analysed, as well as the total loss. This is done in a direct, *ceteris paribus*, fashion, simply imposing 100% compliance rates by multiplying the tax bases by the average theoretical rates for each type of tax and each year in turn. The goal of these results is to give a feel for the dimensions of the problem. These figures should not be interpreted as something that could truly have happened, for two main reasons: first of all, 100% compliance never happens anywhere for obvious reasons, and second, there are (and would have been) knock-on effects of better compliance for one type of tax onto the revenues of other taxes as changes in the compliance rates also modify the tax bases (e.g. if one had 100% compliance on personal income tax, then this would reduce the tax base for consumption taxes).

Table 10

Estimated lost tax revenue due to tax evasion, by type of tax (1996 to 2003)

	1996	1997	1998	1999	2000	2001	2002	2003
Personal income tax loss, lek million	.	.	10,261	11,369	6,375	7,096	14,318	18,454
Personal income tax loss, % of GDP	.	.	2.4	2.3	1.2	1.2	2.1	2.5
HH social security contr. loss, lek million	.	.	9,415	9,389	8,320	9,044	20,377	22,308
HH social security contr. loss, % of GDP	.	.	2.2	1.9	1.5	1.5	3.0	3.0
Excise tax loss, lek million	5,348	11,310	9,887	6,705	3,104	5,967	11,096	8,493
Excise tax loss, % of GDP	1.7	3.4	2.3	1.4	0.6	1.0	1.6	1.1
VAT tax loss, lek million	33,213	28,899	23,684	24,354	16,493	27,313	35,854	38,713
VAT tax loss, % of GDP	10.5	8.7	5.6	5.0	3.0	4.5	5.3	5.2
Total tax loss, lek million	.	.	53,247	51,816	34,293	49,420	81,645	87,967
Total tax loss, %GDP	.	.	12.5	10.6	6.2	8.1	12.0	11.8

Source: Own calculations.

We now turn to our international comparison. A brief explanation of our previous work is necessary here for the reader to understand the nature of the results for the other countries. What we did in previous research covering countries in Central, Eastern and Southeast Europe was to construct an estimate of an all-encompassing household statutory tax rate. This statutory tax rate (SHTR) is designed in such a way as to match the total theoretical tax liability for the four types of taxes when applied to total household income. For each country we estimated total household income from household final consumption, in a similar fashion as to what is presented in equation (1) on page 4. SHTR was computed following similar assumptions as those made in this paper except that the treatment of personal income tax was somewhat simplified by taking an average of the rates of each bracket, rather than using an income distribution. Confronting the theoretical revenues to the actual ones gave us estimates of an overall household income declaration rate (lambda in Table 11 below) as well as an estimate of total undeclared household

income, which we expressed as a share of GDP for comparative purposes (SEIH in Table 11). Table 11 presents our results for five Southeast European countries (SEE-5) and eight Central and Eastern European countries (CEE-8) for 2001, with the results for Albania in a separate row. As an indication we present an equivalent measure for Albania based on the estimates found for this report. Albania's SHTR here is based on the theoretical tax revenues which we determined in the previous sections.

Table 11

Estimates of shadow economy contribution from households, 2001

	ß *Total household income as share of GDP*	**SHTR** *Statutory household tax rate*	**THTR/GDP** *Total household tax revenue as share of GDP*	**ß*Lambda** *Declared household income as share of GDP*	**Lambda** *Household income declaration rate*	**SEIH** *Undeclared household income as share of GDP*
Albania	**87%**	**21%**	**10%**	**49%**	**56%**	**38%**
SEE-5 average	**85%**	**40%**	**19%**	**49%**	**57%**	**36%**
Bulgaria	78%	38%	17%	44%	56%	34%
Croatia	75%	49%	28%	57%	76%	18%
Macedonia	88%	54%	26%	49%	55%	39%
Romania	81%	41%	14%	35%	43%	46%
Kosovo	104%	18%	10%	58%	56%	45%
CEE-8 average	**72%**	**44%**	**22%**	**50%**	**69%**	**22%**
Czech Republic	67%	39%	19%	48%	72%	18%
Estonia	77%	53%	32%	60%	78%	17%
Hungary	70%	45%	22%	49%	70%	21%
Latvia	74%	40%	19%	49%	66%	26%
Lithuania	75%	37%	19%	50%	67%	25%
Poland	78%	48%	22%	47%	60%	31%
Slovakia	65%	41%	18%	44%	67%	21%
Slovenia	72%	50%	27%	55%	76%	17%

Source: Own estimates.

A word of caution concerning this comparison is that our original work covering the countries of the region did not remove imputed rents from HHFC, whereas we did that for Albania in this report. Also, we had less detailed information on various tax deductions and exemptions (e.g. VAT thresholds) for the other countries. This correction would imply higher declaration rates and lower undeclared incomes for all the other countries. On the other hand we added in the case of Albania HHCO to HHFC. However, we stick to our general intuition that tax compliance is probably lower in Albania than in most transition countries and probably compares unfavourably even with other countries in Southeast Europe.

Finally we would like to present the shadow economy estimates due to household tax evasion in % of GDP for the complete Albanian time series of 1998-2003 (SEIH in Table 12 below). Average undeclared household income as a share of GDP stands at

about half of Albania's GDP. Again, the result for 2000 supports our concern about HHFC and remittances for that year. This would place Albania even below the average of Southeast European countries rather than at the top end of the distribution.

Table 12

Estimates of shadow economy contribution from households in Albania

	ß *Total household income as share of GDP*	**SHTR** *Statutory household tax rate*	**THTR/GDP** *Total household tax revenue as share of GDP*	**ß*Lambda** *Declared household income as share of GDP*	**Lambda** *Household income declaration rate*	**SEIH** *Undeclared household income as share of GDP*
Average	**88%**	**23%**	**10%**	**44%**	**50%**	**45%**
2003	92%	24%	10%	43%	47%	49%
2002	92%	24%	10%	42%	46%	50%
2001	87%	21%	10%	49%	56%	38%
2000	79%	21%	10%	49%	62%	30%
1999	85%	23%	9%	39%	46%	46%
1998	93%	23%	9%	39%	42%	54%

Source: Own estimates.

Conclusions

Our estimates of compliance rates for the various types of taxes and connected estimates such as our overall household income declaration rate show that tax compliance by households in Albania is, by European standards, very low. More disturbingly, compliance rates for personal income tax and for social security contributions appear to have significantly worsened over the past few years. If our suspicion about revenue targets within the tax administration is correct, then it could very well be that some relatively easy improvements could be achieved simply by setting higher targets. This should certainly be the case for personal income tax. The analysis raises questions about how the tax administration could achieve impressive rises in PIT revenues between 2000 and 2001, but no nominal change since then. Another, related, policy recommendation would be to try to reconcile theoretical liability levels with revenue targets. There is a case for arguing that economic agents may take the law and the tax administration more seriously, and so increase formal production, if they see that a change in rates or band limits is reflected in what the state truly expects them to pay. Also, it would be very useful to look at the probability, level and impact of penalties for partial or non-payment of tax liabilities in more detail. From a research point of view, we would therefore advocate some additional work specifically on the issue of incentives and penalties.

Concerning VAT, it is clear that the turnover threshold provides a loophole which might inadvertently encourage informal activity, as larger firms supplying small retailers as well as

small retailers with turnovers close to the threshold have strong incentives to evade. Also, from an analytical point of view, the existence of the threshold, as we have seen, makes it more difficult to correctly estimate theoretically expected VAT returns, and thus VAT compliance overall. One way forward would be to consider reducing the threshold, certainly bringing it closer to the levels seen in neighbouring countries. In conjunction with this the marginal rate of tax for companies operating just above the threshold should be modified so that the marginal rate is not greater than 100%, as is currently the case (in fact the figures provided in the main OECD report show that marginal tax rates just above the VAT threshold are significantly higher than this). In such a scenario we would certainly not expect VAT returns to go down, in fact an increase would be the likeliest outcome, while the monitoring of compliance would be made easier and more precise. We also believe that it would be a good, simple, clear signal to the new private sector in Albania, removing the distortionary and prohibitively high marginal tax rates. This, at least, is our initial feeling based on the findings detailed in this report. A detailed impact study for such a reform should of course be undertaken.

Turning now to excise tax, the estimates showed quite strong fluctuations over time, while the sensitivity analysis showed that the results are very sensitive to measurement errors in the input data. However, if we are to believe that the trend over time shown by our central estimates is correct, then the likelihood remains that, here again, revenue targets are being set in nominal terms, and perhaps just as a complement to other revenue targets and/or actual revenues. If this were the case, we would again advocate switching to (relatively ambitious) targets in terms of compliance rates, which should be increased each year and backed up by a steadily stronger enforcement mechanism. The incremental aspect to this proposal is essential as a significant change in enforcement may be counter-productive and perversely increase levels of informality.

Analysing tax compliance in the Albanian context is difficult due to the generally poor quality and reliability of the data. This is a classical problem found to some extent elsewhere in Southeast Europe as well as in certain other transition countries and in many developing countries. In particular, the main issue is the degree of exhaustiveness of national accounts aggregates, as these are used to calculate the tax bases. Though the measurement of the non-observed economy and the estimation of tax compliance are separate research activities, one would ideally like to make some combination of the two or, at the very least, have quite detailed information concerning the various imputations made by statistical agencies when they correct aggregates upwards due to subsequent estimates of the non-observed economy. However, we believe that this paper shows that it is possible to make reasonable estimates in spite of these limitations and that some interesting results do show up, notably with respect to the evolution of compliance over time. We are also of the view that similar analytical tools could be used for the measurement of tax non-compliance in other countries.

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Appendix

Table A1

Tax revenue by type of tax (1996 to 2003)

	1996	1997	1998	1999	2000	2001	2002	2003
Personal income tax revenue, lek million	.	.	1,167	3,110	4,590	6,300	6,149	6,414
Personal income tax revenue, % of GDP	.	.	0.3	0.6	0.8	1.0	0.9	0.9
HH social security contr. revenue, lek million	.	.	4,035	4,628	5,112	5,737	6,586	7,648
HH social security contr. revenue, % of GDP	.	.	0.9	0.9	0.9	0.9	1.0	1.0
Excise tax revenue, lek million	4,947	2,168	4,910	6,961	9,153	9,544	9,324	12,258
Excise tax revenue, % of GDP	1.6	0.7	1.2	1.4	1.7	1.6	1.4	1.6
VAT tax revenue, lek million	9,076	15,655	28,771	29,794	38,107	41,148	46,113	50,625
VAT tax revenue, % of GDP	2.9	4.7	6.8	6.1	6.9	6.7	6.8	6.8
Total tax revenue, lek million	.	.	38,883	44,493	56,962	62,729	68,172	76,945
Total tax revenue, %GDP	.	.	9.1	9.1	10.3	10.3	10.1	10.3

Source: Own calculations.

Table A2

Sensitivity analysis results for excise tax and VAT (1996 to 2000)

CENTRAL VALUES		+15% excised shares & rates, -15% non-VAT HIGH BOUND		-15% excised shares & rates, +15% non-VAT LOW BOUND	
2000		**2000**		**2000**	
Total excise liability	12,257	Total excise liability	17,738	Total excise liability	7,668
Excise revenue	9,153	Excise revenue	9,153	Excise revenue	9,153
Excise compliance rate	**74.7%**	**Excise compliance rate**	**51.6%**	**Excise compliance rate**	**119.4%**
Total VAT liability	54,600	Total VAT liability	56,449	Total VAT liability	52,941
VAT revenue	38,107	VAT revenue	38,107	VAT revenue	38,107
VAT compliance rate	**69.8%**	**VAT compliance rate**	**67.5%**	**VAT compliance rate**	**72.0%**
1999		**1999**		**1999**	
Total excise liability	13,666	Total excise liability	19,235	Total excise liability	8,970
Excise revenue	6,961	Excise revenue	6,961	Excise revenue	6,961
Excise compliance rate	**50.9%**	**Excise compliance rate**	**36.2%**	**Excise compliance rate**	**77.6%**
Total VAT liability	54,148	Total VAT liability	56,006	Total VAT liability	52,477
VAT revenue	29,794	VAT revenue	29,794	VAT revenue	29,794
VAT compliance rate	**55.0%**	**VAT compliance rate**	**53.2%**	**VAT compliance rate**	**56.8%**
1998		**1998**		**1998**	
Total excise liability	14,797	Total excise liability	20,389	Total excise liability	10,053
Excise revenue	4,910	Excise revenue	4,910	Excise revenue	4,910
Excise compliance rate	**33.2%**	**Excise compliance rate**	**24.1%**	**Excise compliance rate**	**48.8%**
Total VAT liability	52,455	Total VAT liability	54,291	Total VAT liability	50,802
VAT revenue	28,771	VAT revenue	28,771	VAT revenue	28,771
VAT compliance rate	**54.8%**	**VAT compliance rate**	**53.0%**	**VAT compliance rate**	**56.6%**
1997		**1997**		**1997**	
Total excise liability	13,478	Total excise liability	18,187	Total excise liability	9,457
Excise revenue	2,168	Excise revenue	2,168	Excise revenue	2,168
Excise compliance rate	**16.1%**	**Excise compliance rate**	**11.9%**	**Excise compliance rate**	**22.9%**
Total VAT liability	44,554	Total VAT liability	46,106	Total VAT liability	43,151
VAT revenue	15,655	VAT revenue	15,655	VAT revenue	15,655
VAT compliance rate	**35.1%**	**VAT compliance rate**	**34.0%**	**VAT compliance rate**	**36.3%**
1996		**1996**		**1996**	
Total excise liability	10,295	Total excise liability	14,441	Total excise liability	6,796
Excise Revenue	4,947	Excise revenue	4,947	Excise revenue	4,947
Excise Compliance Rate	**48.1%**	**Excise compliance rate**	**34.3%**	**Excise compliance rate**	**72.8%**
Total VAT liability	42,289	Total VAT liability	43,702	Total VAT liability	41,014
VAT Revenue	9,076	VAT revenue	9,076	VAT revenue	9,076
VAT Compliance Rate	**21.5%**	**VAT compliance rate**	**20.8%**	**VAT compliance rate**	**22.1%**

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