



SOME NOTES ABOUT THE PROBLEM OF THE ICMS EVASION IN BRAZIL

WIELAND SILBERSCHNEIDER

ADVISER: Prof. ROBERT DUNN

**MINERVA PROGRAM
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ABBREVIATIONS

AE – Assessoria Econômica(Economic Adviser Office)

COTEPE – Comissão Técnica Permanente do Conselho Fazendário Nacional(Permanent Technical Commission of the National Fiscal Council)

DAPI – Documento de Apuração Mensal de ICMS(Monthly Report for Calculation of the ICMS)

DIEF – Diretoria de Informações Econômico-fiscais(Office of Fiscal and Economic Information)

IBGE – Instituto Brasileiro de Geografia e Estatística

ICMS – Imposto Sobre Circulação de Mercadorias e Serviços

IDB – Interamerican Development Bank

IGP-DI – Índice Geral de Preços-Disponibilidade Interna(General Price Index-Internal Availability)

IPI – Imposto sobre Produtos Industrializados(Tax on Industrialized Goods)

ISS – Imposto sobre Serviços de Qualquer Natureza(Tax on Services)

FJP – Fundação João Pinheiro(João Pinheiro's Foundation)

GDP – Gross Domestic Product

IRS – Internal Revenue Service

MF – Ministério da Fazenda(Ministry of Finance)

MG – Minas Gerais State

PNAFE – Programa Nacional de Apoio à Administração Fiscal para os Estados Brasileiros(National Program for Supporting the Fiscal Management for the Brazilian States)

SEF-MG – Secretaria do Estado da Fazenda de Minas Gerais(Finance Secretariat of Minas Gerais)

SRF – Secretaria da Receita Federal(Secretariat of Federal Revenues)

TCMP – Tax Compliance Management Program

SUMMARY

1. A BRIEF FRAMEWORK 5

2. GENERAL CONSIDERATIONS ABOUT BRAZILIAN TAX SYSTEM EFFICIENCY 10

3. TAX EVASION AND TAX AVOIDANCE 177

4. BRIEF NOTES ABOUT VAT: THE CASE OF BRAZILIAN’S VAT ICMS 266

5. AN APPROACH TO ANALYZE THE VAT-ICMS EVASION: THE STATE OF MINAS
GERAIS ICMS 32

6. ANNEX 39

BIBLIOGRAPHY..... 422

1. A BRIEF FRAMEWORK

This paper intend to produce some notes for further drafting a theoretical framework to define how to measure the ICMS evasion in Brazil, working, as an example, with the performance of State of Minas Gerais levying. It is not expected to be presented, at the end, a model to measure ICMS-evasion, nor a final evaluation of Minas Gerais' ICMS evasion, challenge beyond the possibilities of this article. The purpose is to gather consistent references to provoke a further reflection about the relevance of the issue and to support a following research. By the way, it will actually cope with the question if it is possible to objectively calculate(and in which way should it be) the amount of ICMS evasion in a determined period.

The issue of tax evasion itself is very relevant for the evaluation of the efficiency of a tax system and the governability performance of the public authorities. How much less taxpayers contribute according than what is expected by law, much more the government and the instituted tax system will be weak. In Brazil, at this moment, it carries a little bit of importance, due to the fiscal reform that the country is trying to run during the last ten years. By the other side, the ICMS(*Imposto sobre Circulação de Mercadorias e Serviços*) tax evasion is a special issue in this scenery, because, we could say, from the revenue point of vue, a future fiscal equilibrium depends on its performance. The value-added tax ICMS is the main tax in Brazil, under the constitutional competence of the brazilian states that has not been enough to finance the expenditures.

Actually, tax evasion has not been systematically faced in Brazil. Even the federal government or the state governments have pointed the problem without precising figures and normally linked to special political subjects, like the vindication of the bank secrecy in the case of federal sphere or in the electoral speeches. The matter of tax evasion has come to the public arena much more as a thrill than as a managerial issue to really be faced. Most times, the issue has been focused by the Federal Revenue(*Secretaria da Receita Federal-SRF*), the federal agency responsible for the management of the brazilian income tax among others, who presented in the nineties the conclusion of an internal report assuring that for each R\$ 100 tax paid another hundred one is evaded. The main SRF's concern is addressed to the law loopholes that allow the firms to avoid payments¹. Several state authorities for which the ICMS evasion has been in that same level have followed this kind of statement. Supported by this

¹ According to the Secretary of Federal Revenue, Everardo Maciel, "fiscal planning is, essentially, antidemocratic, because it establishes private advantages, an advantage for the taxpayer in relation to other or others, due to the weakness or to the fiscal loophole in the legislation and that is exactly the reason we have purposed(a new tax bill). There are some loopholes that reach specific situations that can be faced in the ordinary legislation and others of a very general character that need changes about its nature, type or specy in the National Tax Code (...) as a general anti-avoidance rule"(Federal, 1999).

statement and the state secretariats of finance, Federal Revenue has been defended the right to break bank secrecy in order to better fight tax evasion.

But, objectively, this secondary position of the tax evasion matter is, of course, related to the persistence of the high inflation rates, during around two decades. In fact, the 1988's Brazilian constitution had increased the government revenues from the beginning of nineties, but the inflationary devaluation reached toughly the fiscal levying. The assess of the old value-added-tax over merchandise and service circulation-ICMS was amplified to industrial services(basically energy and communications), leading the 1989's national annual ICMS levying of over then 40 billions reais(R\$) to jump to R\$ 46 billions in 90, what would be the biggest levying for the next 4 years(TABLE 1). Particularly the poorest states levying were benefited, reaching annual growth rates in the beginning of the nineties higher(18.4%) than the five richest Brazilian states(8,4%), as shown by TABLE 2. But, during the first half of the decade, the inflationary devaluation was responsible for decreasing the ICMS payments, which reached in 93 a level lesser then 88, with a negative average growth rate of -6.7%.

In the inflationary period, it wasn't possible trying to impose any tougher control over taxpayer's behavior. The average prices were monthly devaluated almost 20 per cent, turning unpracticable to the fiscal authorities following up firm's accounting, mainly up the brazilian's value added tax ICMS, which is paid according monthly

TABLE 1
ICMS LEVYING
BRAZIL AND THE 5 BIGGEST STATES
1989-98

R\$ 1000(1)

YEAR	THE FIVE BIGGEST (2)		RJ	MG	RGS	PR	OTHER	BRAZIL
	SUBTOTAL	SP					STATES	
1989	31.098.232	17.473.016	3.904.938	3.827.735	3.411.786	2.480.758	11.152.141	42.250.373
1990	33.697.209	18.793.809	4.368.074	4.293.202	3.650.931	2.591.193	13.201.851	46.899.060
1991	31.702.177	16.904.128	4.561.720	4.378.921	3.386.868	2.470.540	12.577.333	44.279.510
1992	29.355.877	15.534.605	4.239.684	4.137.846	3.190.823	2.252.918	11.296.906	40.652.783
1993	27.430.276	14.660.030	3.815.287	3.752.690	3.144.891	2.067.380	10.637.680	38.067.956
1994	33.333.673	17.626.931	4.488.077	4.746.335	3.881.025	2.591.306	13.768.268	47.101.941
1995	41.701.139	22.751.809	5.659.904	5.792.844	4.394.234	3.102.349	17.448.377	59.149.516
1996	43.734.416	24.169.377	5.889.343	5.978.379	4.523.077	3.174.238	17.917.439	61.651.855
1997	43.098.824	24.581.499	5.474.675	5.885.423	4.189.228	2.967.999	19.155.070	62.253.894
1998	42.720.503	23.646.883	6.455.022	5.466.086	4.190.784	2.961.728	18.373.040	61.093.543

SOURCE: Basic Data - Finance Ministry/COTEPE/ICMS - AET

(1) Price Deflator: IGP/DI - Bse: Jun/98 = 100

(2) SP: São Paulo; MG: Minas Gerais; RGS: Rio Grande do Sul; PR: Paraná

statements. Under this framework, the main fiscal managerial target used to be the payments schedule, in order to diminishing the flow between the fiscal generator moment and the payment moment and so trying to preserve the levying value.

With the monetary stabilization promoted by the Real Plan(*Plano Real*) in july-94, suddenly the tributary revenues recovered the 90's level. The national ICMS

levying registered an increase of 25.3%, certainly due to the end of the monthly average inflationary corrosion of 20% as well as to the relative increase of the economic activities. Under this new scenery, the fiscal bases have become fixed, permitting the public authorities to priority face the management of the levying their principal fiscal issue.

In fact, the brazilian tax structure has become the critical point of the fiscal agenda. With high interest rates and facing the real profile of public expenditures, that achieved their true relative platform without the monetary facilities provoked by the old monthly devaluation, the efficiency of the national tax system, enrolling the tax

TABLE 2
ANNUAL REAL GROWTH RATE OF ICMS LEVYING
BRAZIL AND THE 5 BIGGEST STATES
1989-98

(%)

YEAR	THE FIVE BIGGEST						OTHER STATES	BRAZIL
	SUBTOTAL	SP	RJ	MG	RGS	PR		
1990	8,4	7,6	11,9	12,2	7,0	4,5	18,4	11,0
1991	(5,9)	(10,1)	4,4	2,0	(7,2)	(4,7)	(4,7)	(5,6)
1992	(7,4)	(8,1)	(7,1)	(5,5)	(5,8)	(8,8)	(10,2)	(8,2)
1993	(6,6)	(5,6)	(10,0)	(9,3)	(1,4)	(8,7)	(5,8)	(6,4)
1994	21,5	20,2	17,6	26,5	23,4	26,0	29,4	23,7
1995	25,1	29,1	26,1	22,0	13,2	19,7	26,7	25,6
1996	4,9	6,2	4,1	3,2	2,9	2,3	8,7	(5,9)
1997	(1,5)	1,7	(7,0)	(1,6)	(7,4)	(6,5)	1,3	(0,6)
1998	(0,9)	(3,8)	17,9	(7,1)	0,0	(0,7)	(4,1)	(1,9)
AVER AGE	3,6	3,4	5,7	4,0	2,3	2,0	5,7	4,2

SOURCE: Basic Data - Finance Ministry/COTEPE/ICMS - AET

system equity and its handicap to produce the enough revenues to balance the public accounts, has turned to the principal agenda of all the public authorities as the needed step to the management of the fiscal deficit and the challenge to reach stable development rates.

For the Brazilian states, the so-called '*exoneration*' of the ICMS became at that time its main tax reform agenda. In the end of 1996, the National Congress approved the Complementary Law 87 (called Kandir Law, in reference to Antônio Kandir, the so-in-charge Finance Minister), dispensing the ICMS burden over exports and allowing the use of several operations- until then non-credit one like electric energy purchase for non-main industrial or commercial activities- for the calculation of the final

added value. Despite some federal compensation, the states lost revenue, over all Paraná, Pará and Minas Gerais, typical export states².

The changes in the ICMS were the principal episode toward a real tax reform. Indeed, the states lost revenue, what lead them more difficulties to face their own deficit, but the ICMS 'exoneration' really created a new brazilian value added tax. Until then, besides the fact that the ICMS assessment was an over cost to the brazilian exports, also internally, there was double taxation, because it wasn't liable to the firms to avail the paid credit of several important commercial operations. That was modified by Kandir's Law according an annual schedule, which hasn't yet finished.

Over and above the formulation of a tax reform purpose, the fiscal authorities have also concerned about improving the performance of the managerial tax apparatus, during that period. Leading by the Finance Ministry, since 1996, all brazilian state secretariats of finance have jointed a modernization program of fiscal management financed by the IDB intituled PNAFE(*Programa Nacional de Apoio à Administração Fiscal para os Estados Brasileiros*)³. The main characteristic of the program resides in promoting the institutional invigoration of the fiscal bureaucracy driven to the "improvement of the legal, operational and technological mechanisms of the management; integration and invigoration of the financial management, audit and internal control", as well as to the "effective and integral controls of the tributary execution, contemplating more effective instruments addressed to the activation and integration of the public organs involved in the collection of the tributary debt"(MF, 1999).

The PNAFE has become an important effort to improved the secretariats of finance management, producing exchanges of successful experiences among the brazilian states⁴, but the tax evasion has not turned itself into a central concern, although the whole program has been driven to improve the tax compliance. The program's target is directed to implement managerial actions able to improve relations like *Levying Strenghtness, Compliance Level, Statement through electronic sending, Data*

TABLE 3 INDEX TO EVALUATE THE EFFICIENCY OF

² The Federal Government estimated the state losses in order to compensate them according a mechanism called revenue-insurance attached to the GDP increase.

³ "On December 11, 1996, the Interamerican Bank of Development-BID approved a loan of US \$500 millions to Brazil, in support to the fiscal modernization of the Federal District and the brazilian states. Such contribution of external resources composes a global budget of R\$ 1 billion, exclusively, for investments driven to the instrumentation of the tributary and financial management of the state's secretariats of finance or taxation."Ministry of Finance,

⁴ In a report of the IDB intituled "Brasil: Cartera de Ejecución al 9 de marzo de 2000", the program is evaluated as "unsatisfactory" and the its general target is analysed as "problable" to be achieved in a scale with "very problable". The same report shows that it was expent only US\$ 143 millions of US\$ 500 millions approved, what is very few for a program that the end is forecasted to the year 2000.

**SECRETARIAT OF FINANCES- BRAZIL
INTERAMERICAN BANK OF DEVELOPMENT-BID**

CODE	EVALUATION CONCEPT	INDEX
1	Management cost (Secretariat of Finance)	Total Expenditure(current and of capital) except the expenditures with wages of retired personal or pensionists/Current revenues
2	Tributary Burden	Tributary Levying/State GDP
3	Levying Strenghtness	Number of taxpayers who levy 50% of ICMS/Number of active taxpayers registered in the 31st december of the past year
4	Compliance Level	Number of taxpayers who present statements/Number of active taxpayers registered in the 31st december of the past year
5	Statement through electronic sending	Number of statements sent in disket or e-mail/Number of total received statements by any form
6	Data Levying Validation	Own Tributary Revenues validate through the bank system and electronic transmission to the State Treasury/Own Tributary Revenues
7	Covering of the collection actions	Quantity of actions of collection of conquered debits (excluding those in judicial execution)/total quantity of conquered debits at 31st December of the previous year
8	Recovery of debts for collection actions	Value of the paid tributary debts during the year/Total value of the existent tributary debts
9	Magnitude of the unpaid tributary debts	Total value of the debts tributary slopes/Own Tributary Revenues
10	Magnitude of the share payments	Value of the granted facilities/Own Tributary Revenues
11	Contentious and Administrative Process	Amount of the values in administrative contentious process/Own Tributary Revenues
12	Judicial execution	Amount of the values in judicial execution/Own Tributary Revenues
13	Reach of the training activities	Number of trained civil servants/Total number of civil servants

SOURCE: FEBRES(1988), 35.

Levying Validation etc, as described in TABLE 3. The main target of the program has been bettering the efficiency of managing the secretariats, by increasing its internal powerful to reach their own goals in the Tributary Management and Financial Management, involving expenditures in consultation, human resources improvement, data systems, support equipments and buildings. According to the program's philosophy, the efficiency is seen as the efforts to optimize the institutional resources of the secretariats of finance toward their general mission of levying taxes⁵.

⁵ "La eficiencia de una administración está determinada principalmente por su capacidad interna de operación. Una entidad tributaria será *eficiente* cuando el costo administrativo por dólar recaudado sea mínimo (sin perder de vista que este parámetro puede eventualmente escapar al control de la administración). Este concepto no debe confundirse con la eficacia de una administración tributaria, la cual no se relaciona con el costo de recaudación sino con su capacidad para controlar el

2. GENERAL CONSIDERATIONS ABOUT BRAZILIAN TAX SYSTEM EFFICIENCY

The nowadays-brazilian public debate about tax reform and tax management merge in the same issue: the efficiency of brazilian's tax system from a two-side-coin, a structural side and a dynamical one. From a structural sight, the efficiency's core of a tax system lies on the evaluation of its currency capacity to provide the necessary revenues to face the public expenditures sustained by principles of equity, as by saying, the lowest social effort⁶. Actually, there are several approaches to evaluate how the tax structure is able to promote "equal tax treatment of equals"(horizontal equity) and establish "an acceptable pattern of tax payments among people deemed to be unequal"(vertical equity), seeking to analyze whether "taxes should be apportioned among people in relation to the benefits they receive from publicly provide goods and services"(Aronson, 1985:305-306) or, in another hand, assuming that public expenditure is political determined, whether tax system is facing the personal fiscal capacity to pay.

The brazilian debate has faced this issue through the evaluation of the tax burden and the tax progressivity engendered by the structure of the tributary system. Traditionally, the brazilian tax burden is pointed as the worst among occidental countries, although "the pure and simple comparison of tax burdens of different countries is an exercise of a precarious analytical meaning" due to "the several differences among the tax systems and, mainly, among the societies on which the tributes happen"(Afonso, 1998:8). Nevertheless, the figures show that, despite the total tax burden grown up from the sixties when it was 17.41% of the GDP, with 28.9%, it still remains very below the developed countries(TABLE 4), which detain total tax burdens from around 30% like USA (29.7%), Australia (32.9%) and Portugal (30.0%) until above 45% like France (45.3%), Austria(47.4%) and Denmark (52.4%). A more accurate approach, excluding the social security burden, reveals that brazilian tax burden (22.3%) stays still in the same level of USA (22.8%), Japan (21.0%), Singapore (20.3%) and Portugal (21.8%). In fact, among Latin America countries, Brazil's tax burden is clearly

incumplimiento."(COTEPE,1998:18)

⁶ "To make an overall judgment as to whether or not a tax system is functioning satisfactorily requires an analysis of its ability to raise revenue and a appraisal of equity, efficiency and administrative characteristics. (...) Each factor looked at individually is a necessary but not sufficient condition for a tax system to be judged good"(Aronson, 1985:304). In another hand, we may consider, in a sociological approach, that the efficiency of the tax structure can be pointed as a matter of governability, meanwhile the dynamic evaluation of the tax system can be defined as a governance matter, both sides of the same coin: the government performance.

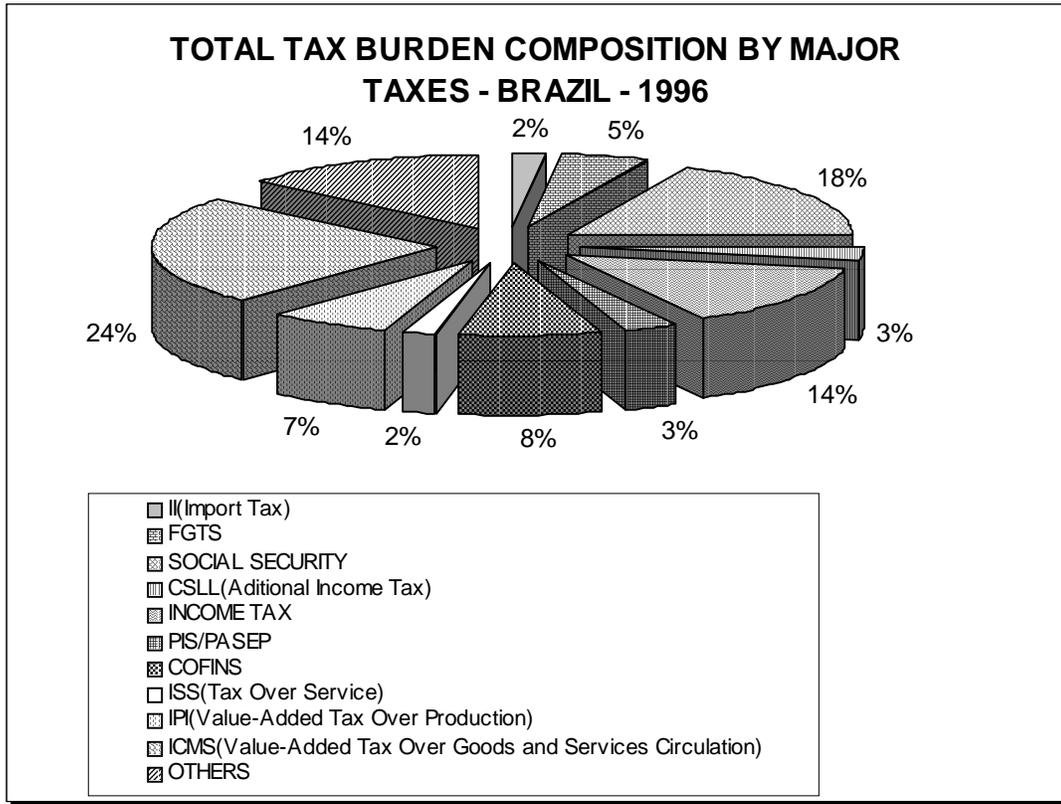
TABLE 4
TAX BURDEN COMPOSITION OF CHOSEN COUNTRIES

In (%) of GDP

COUNTRY	YEAR	TOTAL TAX BURDEN	SOCIAL SECURITY	TAX BURDEN EXCLUDED SOCIAL SECURITY	PROPER- TY TAX	INCOME TAX	GOODS AND SERVICES	INTERNA- TIONAL TRADE	FEES AND FINES	OTHERS
. BRAZIL	1996	28,9	6,6	22,3	1,0	5,2	13,4	0,5	0,1	2,0
COUNTRIES OVER US\$ 15,000/Inhab										
. NORWAY	1992	43,8	10,2	33,6	1,3	13,4	15,1	0,2	3,1	0,3
. DENMARK	1994	52,4	1,7	50,7	1,9	27,6	16,9	0,2	3,2	0,9
. SWEDEN	1993	50,3	14,1	36,2	1,7	19,9	12,5	0,3	0,9	0,9
. USA	1993	29,7	6,9	22,8	3,3	12,4	4,7	0,3	2,1	
. FRANCE	1992	45,3	17,9	27,3	0,8	7	11,7	0,2	2,8	4,9
. JAPAN	1989	21,0		21,0	2,7	14,8	2,7	0,2	0,1	0,6
. AUSTRIA	1993	47,4	14,1	33,3	1,1	11,8	12,2	0,5	5	2,8
. HOLLAND	1994	50,1	19,5	30,6	1,9	12,6	11,1	0,6	2,7	1,7
. CANADA	1989	36,5	4,6	31,9	3,2	16,6	9,4	1,1	1,6	0,1
. SINGAPORE	1993	20,3		20,3	1,7	7,6	4,5	0,5	3,6	2,4
. GERMANY	1991	44,2	15,6	28,6	0,9	2,4	12,1	0,3	2,9	0,0
. UNITED KINGDOM	1992	36,7	5,9	30,8	2,8	12,7	12,1	0,3	1,5	1,5
. AUSTRALIA	1994	32,9		32,9	3,0	14,8	8,0	0,8	3,9	2,5
. ITALY	1989	38,7	11,0	27,6	0,5	13,7	11,0	0,0	0,7	1,7
LATIN AMERICA										
. ARGENTINA	1990	15,3	4,5	10,8	1,2	1,6	2,3	1,5	0,2	4,0
. CHILE	1994	19,9	1,4	18,5		4,3	10,2	2,0	1,4	0,7
. COSTA RICA	1994	22,4	7,4	15,0	0,1	2,7	8,0	3,6	0,4	0,1
. VENEZUELA	1994	15,6	0,9	14,7	1,3	7,3	4,1	1,4	0,2	0,3
. PANAMA	1993	22,2	6,7	15,6	0,4	5,1	3,7	4,1	1,8	0,5
. PERU	1994	14,3	1,6	12,7	0,1	2,3	7,4	1,5	0,8	0,6
. MEXICO	1987	18,3	1,1	16,5	0,0	4,1	11,1	0,9	0,4	0,0
. BOLIVIA	1993	13,3	1,1	12,2	1,4	0,9	6,9	1,0	0,8	1,0
OTHERS										
. SPAIN	1992	36,2	12,2	24,1	1,8	11,6	9,1	0,2	0,8	0,4
. ISRAEL	1993	40,1	2,7	37,4	2,3	15,1	14,4	0,4	0,9	1,5
. SOUTH COREA	1994	1,79	1,5	16,4	0,5	6,1	6,5	1,1	2,2	1,2
. PORTUGAL	1990	30,0	8,2	21,8	0,1	7,7	11,3	0,7	0,4	1,0
. HUNGARY	1990	49,5	15,5	34,0	0,0	13,2	16,7	3,1	2,1	0,1
. SOUTH AFRICA	1994	27,9	0,4	27,5	2,1	13,4	9,0	0,3	1,1	0,6
. POLAND	1988	46,7	7,9	38,8	1,6	14,8	13,1	2,3	2,1	4,9
. INDIA	1992	17,2		17,2	0,1	2,5	9,5	3,4	1,0	0,5

SOURCE: IMF(1995) apud Afonso, 1998:11.

GRAPHIC 1



SOURCE: Afonso, 1998:7.

above, as the figures of Argentina (15.3%), Chile (19.9%) and Mexico (18.3%) show, but the less complexity of their economies shall first be considered to final comparisons.

Even in front of those figures, many entrepreneurs and politicians have frequently insisted against them, arguing that the lower size of Brazilian GDP turns the burden heavier. Certainly, this is an unsustainable statement, albeit the feeling about the weight of tax burden should not be disqualified⁷. Actually, the Brazilian tax burden composition shows that the bigger part of the burden lies on "taxes over production and goods and services circulation, which, in the total, reach a levying of around 14% of the GDP, or 60% of the total of the taxes (excluded social security contribution)" (Afonso, 1998:9). This tax structure has tougher consequences over the economic behavior, generating this *weighty-burden sensation*, because the firms shall deal day-by-day fitting, specially its tax registers, payments and flow cash to the monthly tributary exigencies. Putting together these fiscal payments with the social security one, the

⁷ As the tax burden is not an absolute concept, some authors consider that the tax capacity of a society could be measured as well as a production function, involving variables like the income distribution, the participation of Industrial GDP, the size of population, the share of urban population, among others. In a paper of specialists from IPEA and BNDES, we find that the tax effort in Brazil is 80.15%, meanwhile in countries like USA (53.68%), United Kingdom (72.53%), Spain (75.28%) and Peru (44.19%) is lower (Afonso, 1998:16).

burden due in monthly bases linked to the cash flow management improves to 69.2%, while in the developed countries this average rate reaches 44%, meanwhile only France(65.3%), Holland(61.1%) and Germany(62.7%) are around the brazilian position.

In this framework, the ICMS runs an important role. According to the GRAPHIC 1, it represents 24% of the total burden. With the social security contribution, the percentage gets to 42%, amplifying the feeling of how inadequate is the tax structure and the behavior of non-compliance as we will analyzed in the next section.

Indeed, the great participation of the ICMS together with the IPI(31%) in the total burden affects directly the progressivity of the tributary structure. It is well known that the indirect taxes like ICMS and IPI, which depends on the consumption level, generally are heavier to householders and firms with low income, who are less able to save part of their income⁸. As the TABLE 5 shows, despite of the same nominal tax rate(20.0%), under indirect taxes, the lowest income level of householders pays bigger real tax rates(20.0%) than highest ones(5.0%), because the consumption of the last householder is proportionally lower than the first one.

This reality is true to the brazilian VAT – ICMS. Certainly, the prior Table simulates the effects over the consumers, who are actually the taxpayers. As in Brazil, we have a large number of workers receiving less than five minimums salaries(around

**TABLE 5
SIMULATION OF THE IMPACT OF AN INDIRECT TAX OVER THE
INCOME**

HOUSEHOLDER	INCOME (\$)	CONSUMPTION (\$)	NOMINAL TAX RATE	DUE TAX (\$)	REAL TAX RATE (%)
1	200	200	20%	40	20,0
2	500	300	20%	60	12,0
3	1000	400	20%	80	8,0
4	2000	500	20%	100	5,0

less than US\$ 400), a level close to minimum needed to survive, the real average tax rate should be undoubtedly higher than for others wage levels.

For the enterprises, the situation is similar in its nowadays management, because they have to pay the tax amount in the origin, monthly, eventhough they repress this value to the final price of the good or service, which will really be paid by the final consumer, who, indeed, is the true taxpayer. But this tax payment that the firms do by law before the final consumption works for them in the same way as for the

⁸ "Since consumption is thought to take a smaller fraction of one's income the greater one's income, the conclusion is that the VAT, levied at a flat rate on consumption outlays, would take a larger fraction of the income of the poor than of the rich.(...) concerned with its alleged regressivity (...) a frequent suggestion is to exclude from the VAT various classes of output such as food, clothing, shelter and health care"(Ture, 1979:38).

householders, because they must find income to comply the levy. That is why the management of the ICMS is sensible to the movements of the financial market⁹.

The impact of the amount of ICMS due over the total firm's income will specially depend on the nature of the economic activity and tax law defined by law. Firms with high consumption proportionally to their sales, what means, generally, that their economic activity is work intensive, tend to pay more tax, because, in thesis, they will aggregate more value to final product. The due amount is also dependable on the relation between the purchase credits and the amount of credits generate by the sales, since it is a cascade tax which only assess the additional aggregate value. Thus, if a firm consumes inputs, that are lower value-added taxed and sells in a bigger value added rate's assessment, it will tend to owe more tax. So the final result of the relationship between the due tax, the original income and the amount of consumption among different economic groups of taxpayers will not ever follow the same pattern. However, the logic of more consumption proportionally to low-income firms is worth for general analyses. For a selected group of taxpayers(TABLE 6), it is possible to observe that taxpayers around the same nominal tax rate pay a lower real tax rate although their income is crescent, as the Group 1, 2 and 3 show, living a situation of regressivity. Nevertheless, economic branches like the service of electric energy(Group 4), that almost does not make any prior purchase to produce the final service, have another behavior.

From a dynamical sight, the analysis about tax system's efficiency shifts to the evaluation of its levying performance, to its managerial face, that involves the analyses of the positive performance of the collection vis-a-vis the expenses, the exigencies of administration and compliance and the dimension of the tax *avoision*, to use a neologism made by the merge of avoidance and evasion. Paradoxically, even the biggest problem of brazilian fiscal crisis being a great deficit and insufficient funds, the discussion about the efficiency of the tributary system to levy the sufficient revenues even to face the expenditures or considering its own potential performance has been treated in a second level. Probably, we can point as a though reason for this behavior, from the side of the expenditures, the concern about the size of the payments of interests to the internal debt more than about the size of the revenues to cover the expenses and, from the side of levying itself, the concern about the equity effects on the taxpayers and its consequences to the economic development more than about the real economic performance of the instituted taxes. In his direction, many tributary specialists have argued that nobody really knows what the several proposals of tax reform mean in terms of more or less levying, although many of them and also politicians have been

⁹ From Mr. Yoshiro Nakano, Finance Secretary of the State of São Paulo: "The ICMS is a tax that depends fundamentally on the activity level of the interest rate. With the arising of the interest rate, immediately the revenue drops, it increases the non-payment, the taxpayers declare but they don't collect. The State starts to supply working capital for the companies. Soon after, it comes the sales fall"(CNI, 1998:73).

defended the reduction of tax burden, without evaluating its consequences over the collection.

The exigencies of administration and compliance can be considered as well from the taxpayer's side as from the governmental point of view. In the Brazilian tax

TABLE 6
THE IMPACT OF THE ICMS OVER THE INCOME OF THE SELECTED GROUPS OF TAXPAYERS
MINAS GERAIS – BRAZIL
1999

GROUP	TAXPAYER	INCOME (US\$) (1)	CONSUMPTION (US\$) (2)	NOMINAL TAX RATE (%) (3)	DUE TAX (US\$)	REAL TAX RATE (%)
1	Textile	1.682.204.147	751.454.791	3,78	28.436.317	1,69
	Electric, Electronic and Communication Materials	2.070.047.982	794.091.077	3,51	27.848.261	1,35
	Extraction of Minerals	3.936.082.554	570.887.943	3,32	18.932.519	0,48
2	Rubber	98.047.729	37.192.983	5,40	2.006.812	2,05
	Furniture	312.709.335	182.423.023	5,56	10.137.597	3,24
	Primary Activities	609.519.173	87.344.549	5,13	4.480.039	0,74
	Mechanics	1.328.730.073	460.580.528	5,49	25.302.130	1,90
3	Tobacco Industry	634.025.793	241.648.644	31,44	75.978.855	11,98
	Chemistry	5.719.098.395	1.130.260.701	29,99	38.965.221	5,93
4	Electric Energy, Channeled Gas and Others Urban Services	2.388.569.185	85.628.116	588,39	503.826.056	21,09

SOURCE: DAPI/SEF-MG(Monthly Statement of Taxpayer to Defined the due Tax)

(1) Total Sales

(2) It was considered the amount of taxed purchase

(3) This is not the rate defined by law, but the effective rate calculated according to the Due Tax and the Total Taxed Sales

reform debate, the biggest entrepreneurs' criticism drives to the number of existent taxes, which reaches more than 50 tributes, and demands a very complex bureaucracy to deal with them, always presenting the ICMS as the worst example¹⁰. Indeed, in the case of the ICMS, it is legitimate to argue that we shall add more 27 taxes, because its

¹⁰ Statement of the Secretary-executive of Finance Ministry, Mr. Pedro Parente, at that moment Minister in charge: "We have the ICMS, about which I spoke already, with an extensive legislation, exemptions and complicated calculations, where each State has its own system, and in that situation, even the non intentional defraudment it is inevitable. For whole those reasons, our current tax system stimulates the informality and the defraudment. The great number of taxes drives the taxpayers to take a risk to not levy them and, there, it is very difficult, and even almost impossible, to distinguish those that make it intentionally, of those that, although they wanted, they don't get to do the appropriate withdrawal" (CNI, 1998:13).

legislation (and it also worths for the ISS and the cities) will vary from state to state, if the firm trades abroad the state borders.

Really, the ICMS has a very extensive regulamentation. Besides the ICMS' law, there are the ICMS' decree, that explains the law, and several resolutions, which stablish specific behavior about rates, calculation bases, administrative exemptions, regional agreements etc. In Minas Gerais State, for instance, the ICMS' rule has more than 800 articles and in the last years it has been enacted, in average, three new resolutions per week. Of course, this is not only a problem of larger costs, but also a managerial challenge, because it is necessary to structure a staff capable to work with efficiency and simultaneity with an enormous group of legal details along the country.

The reality of numerous taxes and complex regulamentation that affects the firms translates itself to the public authorities as a matter of challenges to enforce the tax compliance through structuring an efficient data system to furnish the information able to permit following the taxpayer economic behavior and maintaining the correspondent staff to manager it. Although this is a concern for the all the levels of the brazilian tax system, once again the management of the ICMS appears as the main bottle's neck¹¹. In fact, the value-added taxes are more complex than the taxes over the consumption, because they assess many stages of the whole trade process considering many different rates. Besides, the official efforts to assure the legal compliance tend to be higher, due to the mechanism of paid tax compensation that works in any of those stages. The firms are supposed to maintain share registers of each purchase or sale, on account of each legal requirement, what will be further discussed. On its turn, each economic branch is single in terms of input-output composition, whose consequence it is the inexistence of a pattern profile of the credit assessment. Of course, to reach a good following of the taxpayer's behavior, this will demand of the public fiscal authority the correspondent knowledge about the production and commercialization process of every economic branch, in order to assure the correct payments. The brazilian states use to have a very similar economic classification to manager the ICMS, which never has less than eight hundred lower economic branches, that gives a good dimension of the complexity of the administration and compliance of the ICMS.

The last dimension to be considered of the dynamical efficiency of the tax system is the size of the tax resistance, even as evasion or avoidance. This issue, which involves variables of governability and governance of the tax system, will be detailed in the next section.

11 Of course, the efficiency of the Judiciary Branch is necessary to assure the contentious to not get bigger. This is a very important issue when we talk about enforcement level of the tax system, which will not be analyzed here. Just to point, the active debt in almost every brazilian states has achieved an expressive amount at the middle of the nineties due to the incapacity of the Judiciary answer.

3. TAX EVASION AND TAX AVOIDANCE

Taxation represents the sacrifice people make of their own earnings for common well being. For an enterprise, this process can be described as an effort the owners due to offer part of its revenues, since the constitution of the firm and its transactions in direction to receive social benefits, that, in some way, it is expected to improve or better support their activities (TABLE 7). This process runs through a social cycle that we can name *fiscal action*. The fiscal action shows how the social act of giving a contribution to governments is closely linked to some clue policies. Considering the social life as a social contract, those policies mean the basic consensus¹² that support the social belief that make people give their private contributions, since, in a social stable degree, they agree the social goals the money is for are reasonable, the contributions will be managed profitable to promote profitable public actions, which, in its turn, will lead to better the quality of life or even the economic system¹³. Those can be synthesized in four general policies, that are shortly described as the following ensemble of principles and targets:

- a) Tributary Policy: consensus about the criteria to define the amount to be paid and the conditions of the payments;
- b) Fiscal Policy: consensus about the economic criteria and targets to manager the inputs and outputs of the state;
- c) Public Expenditure Policy: consensus about the destination and management of the public revenues;
- d) Economic and Social Development Policy: consensus about the economic and social targets to be run with the public expenditures.

This process also includes a teleological dimension. In the way to accomplish the intended targets of the consent fiscal action as a whole, the society shall follow legal proceedings since the constitution of their enterprises to exploit an economic activity, passing through the trade of commodities until the extinction of the tributary credit generated by the dimension of its trade activity, that is really the contribution to the levying amount. Along those proceedings, which is within the core of the flow above (*Inspection Activity*), the contributors will be submitted to the enforcement for furnishing informations to assure they are complying their duties-by-law. Besides, they

12 The social acquaintanceship is produced by individuals incited by social self interests, that, in their fight to satisfy their tangible and intangible needs, meet in the public arena to define the better targets to be accomplish as well the better means to implement them. Those individual reach the consensus about what shall be done in a complex social process of negotiation, where the discourse and its formal registers (like laws, written agreements and formalized institutions) are the preferential environment to present the arguments to try to convince each other. In the case of fiscal action, three general groups of interest can be pointed: the Government, The Public Administration and the Society. The challenge is to produce a general accord about the amount of private contributions to public goals (as well the nature of these goals). To more details, see the work of Jurgen Habermas, specially, HABERMAS, Jurgen – The Theory of Social Action.

13 "The sense of justice in taxation can be outraged by issues of collective concern, such as the constitution of the government demanding the tax, the size of the public revenue required, or the purpose to which the revenue is apparently put." (Cowell, 1990)

will be obey to permit the public authorities to inspect their trades as well as to provide the demanded information about its economic activities.

But the payment of taxes is a sacrifice: they are compulsory. "Taxes are not voluntary contributions to the public sector" (Aronson, 1985: 303), and people can not agree with part of the several mentioned consensus, evaluating the tax system as unfair even by the amount they have by law to pay or according to the benefits they are supposed to receive or still because they do not give assent to the degree of economic and social development their contributions have been implicated¹⁴. Thus, an eventual resistance to establish taxation will mean an active criticism against the social-economic or political order or stills against the government itself. In other words, the non-payment of the due tax implies being tacitly or explicitly against the instituted order. Certainly, the common sense tends to consider this behavior as a legitimate self-defense even a democratic option. But even the taxpayer who plans to conceal any amount of tax¹⁵, with the justification of trying to save money for possible legitimate private goals without- let us say, a non-conscious political bullet meaning, he will be actually cheating the state and the government.

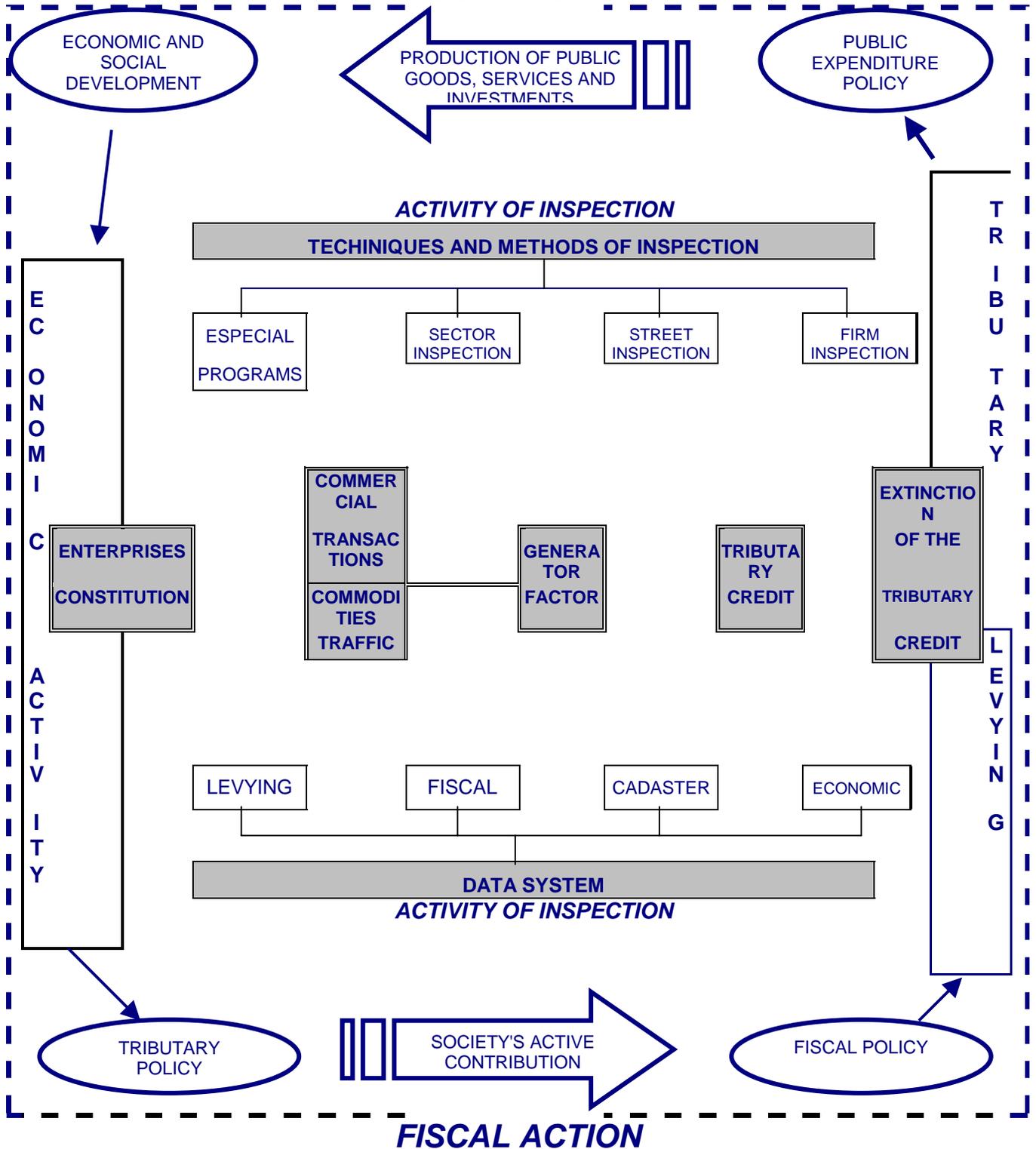
In a general way, the resistance to pay the tax amount established by law is denominated tax evasion. However, the fact, that socially it is legitimate trying to get better within an institutional order or even protect himself, has left to differentiate tax evasion of tax avoidance. Avoidance is defined as "every attempt by legal means to prevent or reduce tax liability which would otherwise be incurred, by taking advantage of some provision or lack of provision in the law" generating "the existence of alternatives, one of which would result in less tax than other" (Webley, 1991: 2), meanwhile evasion signifies the acts of illegal commission or omission of reporting to the authorities the true earnings and, consequently, of not paying the correct tax amount due by law.

However, there is not always a clear distinction between what is legitimate to resistance to pay. In fact, the line around the economic activities that permit to usefully distinguish the concept of "evasion" from "tax avoidance" or even "tax planning" is a full ethic and moral judgement. The consideration of evasion as an outside-law decision and not avoidance is a distinction made by legal boundaries, a legalistic approach. In another hand, the belief that some forms of avoidance are just as wrong as evasion is a kind of a moralistic distinction. Otherwise, there are those who assume an agnostic position and understand that "evasion" and "avoidance" are merely two

¹⁴ "Such a situation will not only make the job of government difficult; it can even lead to rebellion" (Aronson, 1985: 303).

¹⁵ First, people may deliberately evade taxes for reasons other than personal gain- perhaps for reasons of political dissent. Second, even if we set aside these additional reasons, the blindingly obvious answer neglects any consideration of the true personal interest of the citizen, in the broadest sense. It is a mistake to assume automatically that public expenditures are of no value to him; if the level of these expenditures were unilaterally reduced, he might well be worse off" (Cowell, 1990).

TABLE 7
FLOW OF THE FISCAL ACTION
FISCAL ACTION



arbitrary segments of a continuum that stretches from innocent tax planning to outrageous fraud" (Cowell, 1990). Recently, due to the difficulties to establish the boundaries between these two concepts, it was created the concept of tax *avoidance*, a neologism that means the "tax minimisation with elements of both avoidance and evasion practised by the taxpayer who has difficulty in equating the legal with the moral and the illegal with the immoral" (Seldon, 1979: 4)¹⁶.

Those approaches are important for sociological and psychological interpretation of the resistance to pay taxes. They permit to search explanations for what move taxpayers to take their decisions about the amount to contribute¹⁷. A large of theories have been proposed, focusing on the relationship between individuals and authorities based on the evaluation of the possible risks and gains to evade taxes or the social dilemma between a cooperative behavior, a competitive or an individualistic one, among many analyses (TABLE 9). The challenge is apply their concepts over a good sample and to find reasonable conclusions that could help to better the tax structure.

For an economic analysis of the tax evasion, the intention which supports the taxpayer's decision is not the main point, although the "motive- which clearly has an important role in legal distinctions-also plays a part in the construction of models of economic behavior" (Cowell, 1990)¹⁸. Certainly, the perception of the individual whether he can be affected by the tax code and by the instruments of tax enforcement will influence his economic opportunities, eventually conducting him to conceal or misrepresent some of his activities, even though this behavior does not constitute evasion for him. The choices he will take facing the risk of evasion and the apparatus of control in regard to tax declaration, financial transactions or economic activity will be subjected to the threat of exposure and penalty, what will influence the economy as a whole. But the main goal of an economic approach shall be the measurement of the size of the tax evasion, in order to better evaluate its real impact over the trade or even over the public policies. The problem of measuring the tax evasion relies on the fact that we have to find a way to get the dimension of something *a priori* unknown. If some tax is evaded we shall assume that the correspondent economic activity was not reported or officially registered, albeit it has happened. For some authors¹⁹, this problem is closer to that of

16 The term *avoidance* is also presented as the action of "taking part in income-generating transactions that are difficult to confirm by tax authorities" (Aronson, 1985: 601).

17 "If it were discovered that large numbers of individuals did not consider tax evasion of small amounts a crime or, in fact, considered it a justifiable act, it might prove possible to assess their propensity to evade, taking into account their opportunity to do so, their perceived likelihood of detection by authorities, their income and what they considered to be a justifiable amount to evade and so on." (Lewis, 1982: 126)

18 The main goal of the economic approach about tax evasion is to establish its effects on the competition. According to Mr. Everardo Maciel, the manager in charge of the Federal Revenue Secretariat, in his statement to Brazilian Senate: "When someone doesn't pay taxes, he is not just uncomplying his fiscal duty; he is getting a competitive advantage over the others" (Federal, 1998)

19 See Cowell, 1990 and Simon, 1982.

measuring the real size of the economic activities, the non-official economy, commonly named "black economy" or "underground economy".

TABLE 9
MAIN SOCIOLOGICAL AND SOCIAL PSYCHOLOGICAL THEORIES OF ANALYSES OF TAX EVASION

THEORY	DESCRIPTION
<p>. Individuals and Authorities</p> <p>Alan Lewis The psychology of taxation(1982)</p>	<p>Put forward two models: one which brings together concerns of the individual and the concerns of the authorities, the other which focuses on the relationship between tax attitudes and tax behaviour. The behaviour of public authorities are influenced by the government's fiscal policy and the tax enforcement policy and the policy makers assumptions about taxpayers. The tax-enforcement structure determines the amount of evasion, which itself affects policy makers' assumptions. The individual behaviour is affected by fiscal attitudes and perceptions(support for government policies, perception of the tax system and burden, feelings of alienation and inequity), perceptions of enforcement and opportunity and characteristics of the taxpayers(demographics and personality traits). The governmental and individual affect each other. The attitudes and perceptions of taxpayers feed into fiscal and enforcement policy.</p>
<p>. Tax Decisions in a Social Context</p> <p>K.W. Smith and K.A. Kinsey Understanding taxpaying behaviour: a conceptual framework with implications for research(1987)</p>	<p>Outlining the approach pointing three common research assumptions: a) evasion is a deviation from a normal or nonproblematic state of compliance; b) the analyses focus on the preferences and intentions of taxpayers and largely ignore the social context; c) there is the assumption that noncompliance is the result of a conscious and deliberate decision by taxpayers. The analyses differentiate the process and the content of decision making, considering the first one has been ignore. In the decision process of evading, there are three stages: diagnostic, action and implementation. To take the decision, people weight four ensemble of factors: material consequences, normative expectations, socio-legal attitudes and expressive factors(subjective costs and benefits as the frustration involved).</p>
<p>. Personality and Situational Characteristics as determinants of evasion</p> <p>E.A.G. Groenland and G.M. Van Veldhoden</p>	<p>Individual differences and situational characteristics interact to affect attitude towards(and knowledge of) the tax system, which in turn affects the disposisiton to evade. There are three kinds of situtational characteristics: opportunity, social-economic factors and tax system.</p>
<p>. A Social Psychological Typology of Taxpayers</p> <p>J. Vogel Taxation and public opinion in Sweden: an interpretation of recent survey data(1974)</p>	<p>In the theoretical framework, three factors direct or ir indirectly affect tax opinions and evasion: a) individual's exchange relationship with the government(tax burden minus government services received), social orientation(measured in terms of social class, party membership, etc) and opportunities for evasion. About the typology of taxpayers, the theory distinguishes compliance(what the authority requires), identification(changes in beliefs to be like a person you admire) and internalisation(genuine changes of beliefs in which ideas are integrated into a person's value system). Considering two types of tax behaviour(cheating and compliance), it offers six categories of individual adaptation to the tax system like the conformists internalisers who are morally committed taxpayers, conformist identifiers and deviant identifiers linked to the norms of their reference group fearing being different, conformist compliers who fear punishment and deviant compliers who evades because they consider to low the risks.</p>

SOURCE: Webley, 1991-13-23.

(To Continue)

TABLE 9(Continuance)
MAIN SOCIOLOGICAL AND SOCIAL PSYCHOLOGICAL THEORIES OF
ANALYSES OF TAX EVASION

THEORY	DESCRIPTION
<p>. An Attribution Approach to Tax Evasion</p> <p>H.H. Kelley Attribution theory in social psychology(1967)</p> <p>P.A. Hite An application of attribution theory in taxpayer noncompliance research(1987)</p>	<p>Although there are several developments of the theory, the general approach is concerned with how people make sense of their social world by attributing causes to one thing and another, considering that people do things moved by environmental causes(they have to) and internal causes(they want to). The evaluation of the decision of evading taxes is made directly by confrontation of an individual behaviour against the other. For example, individuals will see their own tax cheating as the result of, say, high tax rates, but cheating for others as the result of poor morals.</p>
<p>. Tax Evasion as Defective Behaviour within a Social Dilemma</p> <p>R.H. Weigel, D.J. Hessing and H. Elffers</p> <p>Tax Evasion research: a critical appraisal and a theoretical model(1987)</p>	<p>The theory emphasize the interactive influence of social and psychological variables. It characterises a social dilemma as a situation in which the individuals get a better outcome if they make a defective choice(evading some or all taxes) rather than a cooperative one(paying taxes in full), but everybody will worse of if all make a defective choice. The motivational orientation of individuals will depend on social and psychological conditions, both of them submitted to institagtions and constraints. Relatively to Social Conditions, there are Situational Instigations involving Financial Strain(amount of tax owed after withholding) and Social Norms(emphasis on individual wealth as a measure of suces within referencce group) and Situational Constraints involving Opportunity(occupational rating regarding the probability of cash receipts, withholding at source, etc), Legal Controls(probability of apprehension and punishment for reference group) and Social Controls(number of evaders in reference group). In the circuit of Psychological Condltions, there are Personal Instigations like Personal Strain(estimates of difficulty meeting tax obligations and perceived unfairness of tax laws and authorities) and Personal Orientation(self-serving versus community orientation) as well as Personal Constraints like Perceived Opportunity(subjective estimate of opportunity to evade), Perceived Risk of Punishment(certainty and severity) and Intolerance of Tax Evasion(attitudes and moral beliefs about the property of tax evasion). The tax-evasion behaviour will be the result of the confluence of these conditions, even producing unreported income, unwarranted deductions or failure to file a return.</p>

SOURCE: Webley, 1991-13-23.

However, although the black economy signifies in a extent meaning the non-officially-declared economic activities²⁰, the dimension of tax evasion also as non-reported activities holds its own characteristics. The definition of black economy involves several illegal economic activities like production and distribution of drugs, illegal

20 The black economy "may contain moonlighting, off-the-books sales, production of illegal goods and services, black-market transactions, and the like; the reason that such activities may fall into both categories is that statistics on national accounts are usually compiled, and cross-checked, from several sources, so that some activities that may successfully be concealed from the tax authorities, and hence escape the conventional income measure, may nevertheless show up in, say, estimates of expenditure. Finally, note that one portion of the black economy contains forms (...) which lie outside the production boundary-for example, benefit fraud and the evasion of taxes on the transfer of capital"(Cowell, 1990).

gambling, prostitution, nonreporting due to illegal status goods among others(Simon, 1982), but also some legal(otherwise para-legal) hidden economic activities like domestic peddler trade and hawker trade. In this case, measuring the shadow economy will not fit adequate to the problem of tax evasion, because nor all the preceding list activities are submitted to taxation. This kind of extension of the black economy would demand a new definition of tax resistance between evasion and avoidance, since what moves great part of the illegal activities included as underground is not the will to avoid to pay the taxes but the belief that those activities eventhough not permitted by the instituted order should be run. Besides, the measurement of tax evasion includes illegal commissions and omissions that involves activities that, in terms of production, will appear and be computed as official economic activities, like, for instance, the activities from the so called bogus or orange enterprises. Whatever, we can accept the concept of informal economy to evaluate the fiscal evasion, that seems to have a narrower meaning than black economy, including the legal non-reported economic activities as well the domestic ones.

Two types of methods, one called direct and the other indirect, have been used to estimate the extent of evasion, even some of them has focused on to the estimative of the size and growth of the black economy(Cowell, 1990). The direct methods rely on the analysis of official records or on surveys of the economic activities and attitudes, in which it is asked directly to people how much they evade. The first direct approach works with a sample of taxpayers, whose records offer elements to reach an estimate of overall evasion. This kind of approach tends to be more accurate, since it deals with real figures²¹, albeit "studies using direct, personal data derived form official files are rare but extremely interesting"(Webley, 1991:31). In the USA, the better example is the permanent evaluation lead by the Internal Revenue Service-IRS known as "the American Compliance Measurement Program(TCMP), which has involved samples of approximately 50,000 individual tax returns at intervals of two to four years since 1963"(Webley, 1991:3). Due to the fact that is based on self-reports, the second approach is subject to "particularly acute form of the difficulties of nonresponse, evasiveness, or misrepresentation that are well known in the theory of survey design(although this can be mitigated if the questionnaire used in the survey focuses on other legitimate activities; so that the evidence of evasion can be inferred)"(Cowell,1990), in spite of it can offer good guidelines to re-draft tributary policies.

21 The first direct method "imposes upon itself certain limitations (a taxation authority can be expected to report on only those violations of tax law over which it has direct jurisdiction; one also has to be careful to count differences in auditing policy that may apply to different groups of the taxation). Nevertheless, direct methods based on such studies can promise a relatively reliable, if conservative estimate of the size of the black economy"(Cowell, 1990).

The indirect methods are frequently pointed as '*guesstimates*' (Webley, 1991:4)²², because they try to infer the extent of the non-reported activities through lateral economic variables, normally with doubtful results. The x also as non-reported activities holds its own characteristics. The definition of categorize four indirect methods, shortly describe in the TABLE 10: a) the "expenditure-income discrepancy" method; b) the "employment census" method; c) the monetary "aggregates" method;

TABLE 10
TYPES OF MEASUREMENT OF TAX EVASION

TYPE	DESCRIPTION
. Expenditure-income discrepancy	It relies on the assumption that, although incomes may be concealed or understated, expenditures will eventually show up somewhere. Given that these two concepts should, in principle, be of equal magnitude under suitably well-defined conditions, one can estimate the size of the black economy by looking at the observed discrepancy.
. Employment Census	It employs both crude projections of participation rates (from which one estimates the size of the black economy by deducting reported employment from projected employment) and questionnaire surveys of firms and workers (which indirectly reveal the extent of secondary, concealed employment).
. Monetary Aggregates	The approach relies on a stable relationship between cash held by the private sector and the total monetary base (somehow defined). Fixing a particular baseline date at which the black economy is assumed not to exist then enables one to determine the size of the underground economy by observing the growth of currency in excess of the monetary base or on the quantity equation to predict the "true" size of the gross national product (total transactions) from observations of the money stock.
. Soft Modeling	Rather than employing observations of the dependent -hand side variable (the size of the shadow economy) on the left and observations of independent variables (tax rates, income, indices of tax attitudes, etc.) on the right-hand side of a standard regression design, and then estimating the coefficients, the approach "plugs in" various assumptions about the coefficients on the explanatory variables on the right-hand side and then reads the size of the (unobserved) shadow economy off the left-hand side.

SOURCE: Cowell, 1990

and d) "soft modeling". In general, these approaches carry several limits about the source they used and the effects of its indirect correlation to the problem of the evasion itself. However, Cowell(1990) lists many important studies in some countries.

From a straight economic point of view, the problem of tax evasion can be analyzed from a macroeconomic perspective or microeconomic one. The macro approach will turn possible an evaluation of the relationship between the resistance to pay taxes and the whole economy, permitting the analyses whether the social aggregated disponibilities are according to the social potential wealth. Normally, the macro analyses

²²This may seem a little harsh but (...) the estimates cover a very wide range: for 1976 in the US from 3.4%(Tanzi, 1980) to 21.7%(Feige, 1979); for Sweden in the late seventies from 0.5% to 17.2%(Frey & Weck, 1987)"(Webley, 1991:30).

takes the correlation between the fiscal levying and the Gross Domestic Product-GDP as the central methodology. However, this approach deserves a cautious evaluation, due to the conceptual differences of both variables(GDP and collection). The comparison between both refers to the comparison of values of completely distinct statistical nature. The values of GDP are statistical economic calculated subject to several techniques of forecast, while the levying is given directly by the computation of the collected amount.

Another macro approach refers to the amount of collection as a production function, defined as the geometric place of the dots, which expresses the maximum production of a good through the combination of the possible inputs. Given the quantities of inputs and produced goods, the challenge of the function is to establish the variables, which lead to a situation of maximum or partial return. In the same way, the maximum levying can be determined considering the amount of income-input disposable. Thus, if we have a production function equal to $Y = Y^*e^{-u}$, where Y is the maximum production, Y^* the realized production and e^{-u} the ensemble of factors that affects the utilization of the disposable inputs, we can also write $T = T^*e^{-u}$, where we change to T and T^* , respectively the maximum levying and the realized one, and consider e^{-u} as the ensemble of variables that influences the final collection. If the influence of the variables does have importance, so $u = 0$ and $T = T^*$. But if it gets higher, then $u > 0$ and $T < T^*$. In this case, the ratio of a probable evasion will be e^{-u} . This problem can also be presented considering the income generated by the economic activities(I), forming the equation $T = I^*e^{-u}$, where the e^{-u} part will be the variables that interfere on the income to produce more or less tax levying.

The quality of the macro equation will depend on the characteristics to be chosen to compose its e^{-u} variable. Some of them like the size of the population, the size of the firms or even the per capita income are easily econometrically measurable. Moreover, others will be more difficult to empirically define even to identified, like the degree of social enforcement.

The micro approach focuses on the behavior of the firm considering the evaluation of the opportunity costs. Assuming that a firm has to collect a determined-by-law tax amount, it will take the decision comparing the marginal costs and benefits of cheating. Let's so supposed that, in one hand, "the marginal benefit(MB) for each dollar not reported to the authorities corresponds to t , the amount of tax saved"(Rosen, 1998:329) or, in other words, evaded. In the other hand, the expected marginal cost(MC) is the amount by which the penalty goes for each dollar of cheating (the marginal penalty= ϕ) times the probability of detection(ρ), forming the equation $MC = \rho \times \phi$. Assuming that the owners of the firm knows the value of ρ , then they will look for an optimal amount of cheating, which is where the marginal benefit crosses the marginal cost.

Another microanalyses can rely on the evaluation of the behavior of the

firms to take decision to pay taxes as a matter of preferences of the consumer. In this case, the firms are considered like a consumer who, having a determining income which is the total sales in a period, decides to allocate more or less income to buy two main kinds of goods: the public goods, which correspond to the tax amount paid, and the others one, needed to implement the economic activities. Thus, the question is to define the firm's budget line and its indifference curves.

The micro approach has a managerial meaning for the public authorities. While the macro analyses gives general answers for better drafting the tributary and fiscal policies, the micro one provides to go deeper toward the behavior of single firms or determined economic branches of taxpayers.

By the way, it must be registered that the mensuration of the tax evasion has different meanings from a macro and micro approach. The first one is able to point the largeness of the horizon evade, in order to help drafting fiscal policies, meanwhile the micro approach tends to offer a more accurate dimension of the problem, firm by firm, although its conclusions shall not be generalized to the behavior of the whole economy. The micro approach is appropriated to the public authorities, who are supposed to inspect and cohibit the misreport of each taxpayer, beyond a prior a general economic evaluation of the problem.

4. BRIEF NOTES ABOUT VAT: THE CASE OF BRAZILIAN'S VAT-ICMS

The value-added tax-VAT, also denominated cascade tax or transactions tax, is a multiple stage sales tax, whose was initially conceived in 1918 to the German government by von Siemens to substitute the turnover tax²³. France run an important role, applying it since 1948, extending "it into wholesale channels and broadening the producers goods deductions in 1954 and in 1968 extending it to the retail level"(Due, 1970:125). In Brazil, it was implanted in 1966 with the name of Imposto sobre a Circulação de Mercadorias- ICM, in substitution of the Imposto sobre Vendas e Consignações-IVC(cascade tax on sales and consignments) and amplified in 1998, passing to the denomination of Imposto sobre a Circulação de Mercadorias e Serviços-ICMS²⁴.

Economic neutrality is pointed as the greatest advantage of the value-added tax, since it applies only to the value added by each firm and not to the gross receipts. The built-in cross-check feature is considered also a favorable characteristic, because "the tax paid by one firm shall be reported by firms purchasing from this vendor

23 The turnover tax constitutes a supplement to prices at every transaction: on materials, partly finished goods, final products. Services are frequently taxed as well as commodities." The most ancient example is the alcabala, a tax in the medieval Spain, first imposed in 1342 and reintroduced in 1964. The first most important use of this kind of tax began in Germany in 1918 and continued until the January 1968. (Due, 1970:118)

24 The brazilian tax Imposto sobre Produtos Industrializados- IPI can also be pointed as a VAT tax. It is applied only on the manufacture and the federal level has the competence to assess it.

as a credit against their own liability”(Due, 1970:130), what, in thesis, improves the inner liability control, in contrary of the common sale tax, where the seller is the only interested in the assessed amount. Finally, the possibility to identify and exclude some producers goods from coverage increases with the VAT, through the control of the deductions than of promoting a whole exemption.

The limitations of value-added taxes lie on “the greater overall complexity compared with the other forms of sales tax”(Due, 1970:131). The main problems, as we will further analyze, are the complexity itself of the accounting record keeping and the rate differentiation. Both turn the compliance, the protection against evasion and even the evaluation of the efficiency of the tax system and the impact of the taxation on the taxpayers very difficult.

Some countries like Unite States of America do not apply any VAT²⁵, with public criticism. Eventhough, during the seventies and eighties, many proposals were presented to the American Congress, without success, even to replace part of the personal and corporate income taxes or the payroll tax. The principal american reasons against a value added tax lie on five criticisms: of the liberals on its regressivity, of the conservatives on the “money machine” effect, of liberals and conservatives on its possible inflationary effect, of state and local officials about a VAT’s intrusion into their traditional preserve for raising revenues and of both federal and state officials about the difficulties to raise its administrative management(Tait, 1988: 34).

The VAT is a form of sales tax, which applies to each firm at each level of production and distribution. The tax applies on the value-added by the producer(manufacturer, distributor, retailer, wholesaler, etc), which is added “to his raw materials or purchases(other than labor) before selling the new or improved product or service”(Tait, 1988:4)²⁶. Normally, the base to be taxed is the difference between the value-added by the producer and the value added by the previous one, included in the purchases the current producer has done.

In Brazil, the Federal Constitution of 1988 - CF/88, in the article 155, has defined competent the states to assess the brazilian VAT on “transactions relating to the circulation of goods and to the rendering of interstate and intermunicipal transportation services and services of communication, even when such transactions and renderings begin abroad”(Federal Constitution, 1988). However, the Federal Senate has the power

25 The state of Michigan is the only one that applies a value added tax since the eighties.

26 The value-added taxes can be classified by the coverage of stages(production and distribution or limited stages like manufacturing plus whosale or whosale plus retail); the basis of the method of calculation(tax credit form, the most common, in which th tax rate applies to total sales minus the tax paid on purchases in the period, or tax standard form, in which the rate applies to a determined figure of value addde minus the mentioned purchases); and the tax treatment of final-product capital goods such as machinery, equipment and supplies(consumption form: taxes on all goods purchased for business use may be deducted or income form: the deduction of taxes on durable capital goods is permitted only on a depreciation basis). (Due, 1970:126)

to establish the minimum rates (TABLE 11) and all exemptions only can be approved by unanimity by the Conselho Fazendário-CONFAZ, an administrative council integrated by all the secretaries of finance of all Brazilian states, with the presence of at least five eighths (5/8) of its members. The main Brazilian VAT, whose name is the just mentioned ICMS, was firstly regulated by the Supplementary Law n^o 24 and, after the Constitution of 1988, also by the Supplementary Law n^o 87/96, that has turned the Brazilian VAT to the consumption form.

The VAT rates are very important to determine its tributary efficiency. Two issues must be detached: the size of the rate and the number of rates. Tait (1988) notes that rates less than 10 percent would not be worth. In fact, lowest rates are inefficient and do not stimulate much more tax payments, as someone would imagine, because its administrative costs tend to reach proportionally a higher ratio of the tax amount to be paid. It tends to be more expensive to manage the tax than to pay it. Nevertheless, the economic branches that aggregate less intensively value on their raw materials will tend to accumulate more value added of the purchases than to generate it with the sales, under lowest VAT rates.

About the number of VAT rates, the question is whether to establish a single rate or multiple ones. Of course, from an administrative sight, the tendency is to use a single rate, because it is easy manageable. This is very improbable, due to the limits to draft a tributary policy with a social meaning, having to tax everything on the same rate. Indeed, the supposed single rate always is since the beginning three as Tait (1988) points: a standard rate, a lower one and a higher other to build a tax structure driven by social guidelines like lowly tax products consumed by lower-income households and highly assess luxury products. But only this decision makes the tax register more complex, requiring of the firms accounting, at least, nine specific informations: the value of the supplies at the two rates and the value of exempt supplies, the value of purchases at the two rates, two liabilities to VAT on output and two liabilities to VAT on inputs (Tait, 1988:42). Those numbers will increase geometrically, if the number of rates also increases. Certainly, this scenery either makes easy the evasion, since it becomes almost impossible to verify all the assessments²⁷.

In Brazil, theoretically, we have three ICMS rates: an internal rate (18%), an interstate one (12%) and another interstate for operations with the states of the north and northeast (7%). But there are also distinctions of rates between many goods and

27 The main problem of multiple absolute rates is that it provokes a number much greater of effective rates after the proceedings to assess the value added. "Even with a simple single rate of 15 percent and zero rate with some exemptions (...) the effective rates on value added in the United Kingdom ranged from -24 percent (on food) to 37 percent (on leather goods and furs. ...) They occur because traders are unable to claim full credit for some inputs (...) For example, a VAT of 10 percent on a restaurant meal, where inputs represent 40 percent of the final value with no credit because they are exempt, is transformed into an effective rate of over 16 percent". (Tait, 1988:44)

TABLE 11
MAIN CONSTITUTIONAL PRECEPTS FOR THE BRAZILIAN VAT

I - it shall be non-cumulative, and the tax due in each transaction concerning the circulation of goods or rendering of services shall be compensated by the amount charged in the previous transactions by the same or by another state or by the Federal District;

II - exemption or non-levy, except as otherwise determined in the law:

a) shall not imply credit for compensation relative to the amount due in the subsequent transactions or renderings of services;

b) shall cause the annulment of the credit for the previous transactions;

III - it may be selective, based on the essentiality of the goods or services;

IV - a resolution of the Federal Senate, on the initiative of the President of the Republic or of one-third of the Senators, approved by the absolute majority of its members, shall establish the rates that apply to interstate and export transactions and rendering of services;

V - the Federal Senate may:

a) establish minimum rates for domestic transactions, by means of a resolution on the initiative of one-third and approved by the absolute majority of its members;

b) establish maximum rates for the same transactions to settle a specific conflict involving the interest of the states, by means of a resolution on the initiative of the absolute majority and approved by two-thirds of its members;

VI - unless otherwise determined by the states and the Federal District, under the terms of the provisions of item XII, g, the domestic rates for transactions concerning the circulation of goods and the rendering of services may not be lower than those established for interstate transactions;

VII - the following shall be adopted for transactions and rendering of goods and services to end-users located in another state:

a) the interstate rate, when it is incumbent upon the recipient to pay that tax;

b) the internal rate, when it is not incumbent upon the recipient to pay that tax;

VIII - in the case of subitem a of the preceding item, the tax corresponding to the difference between the internal and the interstate rate shall be attributed to the state where the recipient is located;

IX - it shall also be levied:

a) on the entry of goods imported from abroad, even in the case of goods intended for consumption or for the fixed assets of the establishment, as well as on services rendered abroad, and the tax shall be attributed to the state where the establishment receiving the goods or services is located;

b) on the total value of the transaction, when goods are supplied with services not included in the power to tax of the municipalities;

X - it shall not be levied:

a) on transactions transferring industrialized products abroad, excluding semi-finished products as defined in a supplementary law;

b) on transactions transferring petroleum, including lubricants, liquid and gaseous fuels derived therefrom, and electric energy to other states;

c) on gold, in the cases defined in article 153, paragraph 5;

XI - its assessment basis shall not include the amount of the tax on industrialized products when the transaction carried out between taxpayers and concerning a product intended for industrialization or sale represents a taxable event for both taxes;

XII - A supplementary law shall:

a) define its taxpayers;

b) provide for tax substitution;

c) regulate the system of tax compensation;

d) establish, for purposes of collection of the tax and definition of the responsible establishment, the location of the transactions concerning the circulation of goods and the rendering of services;

e) exclude from levy of the tax, in exports to other countries, services and other products other than those mentioned in item X, a;

f) provide for the event of maintenance of a credit for services and goods remitted to another state and exported to other countries;

g) regulate the manner in which, through deliberation by the states and the Federal District, tax exemptions, incentives and benefits shall be granted and revoked.

SOURCE: Federal Constitution of Brazil, article 155, II.

services, what makes the number a little bit complex. In the State of Minas²⁹

Gerais(TABLE 12), there really are eight basic rates including the three one mentioned plus other ones for typical operations, without pointing the specific rates due to partial exemptions.

Certainly, facing this framework, the degree of compliance of the value-added taxes has its own colors. As a self-assessment tax, VAT becomes more vulnerable under a managerial environment of a lot of requirements. The tendency of the taxpayers is to bet that the legal complexity is on their side. They have a jungle of rates to get

TABLE 12
MAIN ICMS RATES IN THE STATE OF MINAS GERAIS

<p>I - Operations and internal installments:</p> <ul style="list-style-type: none"> . 25% in the installment of communication service, in the telephony modality and in the operations with the following goods: <ul style="list-style-type: none"> 1. cigarettes and tobacco products; 2. imported sodas of countries non-members of GATT; 3. weapons and ammunition; 4. fires of artifices, etc. . 12% in the installments below discriminated and in the operations with the following goods: <ul style="list-style-type: none"> A. operations with the following goods: B. drinks products of the basic basket; C. bovine, bufaline and pork meat, etc.; D. installment of services of aerial transport, etc. <ul style="list-style-type: none"> D.1. in the alcoholic ones, except beers, draught beers and cane liquors or of sugar-cane-syrup; D.2. electric energy for residential consumption. . 7% in the operations with product of computer science industry and automation. . 18% in the operations and in the installments not specified previously. <p>II - in the interstate operations and installment:</p> <ul style="list-style-type: none"> . 7% in the interstate operations with States of the North, Northeast, Center-west and Espírito Santo and 12% for the others; . 18% in the internal operations and imports in São Paulo, Minas Gerais and Rio de Janeiro and 17% for the others; . 7% in the operations with products of the basic basket; . 25% in the internal and interstate operations, and imports of perfumes, cosmetics, cigarettes, weapons and ammunition, alcoholics, etc.

SOURCE:SEF-MG, 1991:38-43)

hidden. That of the authorities is to relax in front of the impossibility of controlling everything. They do not have enough spotlights to illuminate each bush of the jungle. The main point, however, is that the whole VAT system generates a confuse tax market, where the taxpayer is not able to easily compare his liability position with the one of the others taxpayers. In fact, the greater variety of effective rates is a powerful variable to lead firms to lose faith in the fairness of the system, getting instigated to avoid reporting and paying the due-by-law value-added tax amount.

There are many routes to evade VAT, exploring the mentioned legal complexity. The basic forms involve the underreporting of gross sales, the misclassification of goods and the record of taxables as exempt sales or exempt

purchases for the credit purposes (TABLE 13). A possible measurement of each one of these forms would be a challenge. It would require a huge and accurate information system, built in the administrative level, able to register and compute each form of underreporting and misusing funds.

TABLE 13
FORMS OF VAT EVASION

FORM	DEFINITION
. Traders Who are Liable to VAT but do not Register	Traders that initially are not within the VAT limits, when sales exceed the limit established by law, they do not register their new liability.
. Exaggerated Refund Claims	The trader inflates the claims to reduce VAT paid at earlier stages, by fabricating fake invoices for purchases never made or using new business, that can exceed VAT liability at the beginning and disappears before being audited.
. Unrecorded Cash Purchases	Traders buy goods from unregistered suppliers and sell them without charging VAT and no record will exist.
. Credit Claimed for Invoices from Unregistered Suppliers	The trader who has purchase from the unregistered supplier pretends that the purchase invoice is useful.
. Credit Notes on Purchase Including VAT not shown on return	When a credit note is issued on a purchase and the credit for VAT is claimed on the full invoice before credit, more VAT credit will be allowed than it ought to be.
. Credit Claimed for Taxable Suppliers used in exempt activities	The trader sells both taxable and exempt goods and services, claiming both of them as credit.
. Credit claimed for Purchases that are not creditable	The purchase of a good for nonbusiness purposes classified as deductible.
. Imported Goods and Taxed but Unreported Sales	Goods imported illegally and sold with the full VAT added, but not recorded.
. Underreported Sales	Record of the values of sales lower than it was.
. VAT Collected but not Remitted to the Authorities	The non-register-by-law trader collects the due amount, but it disappears before giving it to the authorities.
. Multiple Rates and Incorrect Descriptions	Combination of misclassification of goods with the application of a low rate defined by law among the several ones.
. Omission of Self-Deliveries	The non-report of the production for the own trader's consumption, required as a sale liable for VAT.
. False Export Claims	The report of non-existent exports that generates continuous credits.
. Bogus Traders	The creation of short-lived companies that fabricate fake export invoices and claim VAT rebates on goods that have never been handled.
. Barter Arrangement	The collusion between seller and purchaser to exchange goods and services with no payment and no invoice record.
. Accounting "Errors"	The register of some non-happened event that can delay or diminish the tax amount due-by-law.

SOURCE: Tait, 1988:306-315

5. AN APPROACH TO ANALYZE THE VAT-ICMS EVASION: THE STATE OF MINAS GERAIS ICMS

The following is a brief analysis presenting some initial concerns for a microapproach onto the performance of the evasion of ICMS in Minas Gerais. The data were obtained in the Fiscal and Economic Information Office (Diretoria de Informações Econômico-Fiscais-DIEF) of the Finance Secretariat of Minas Gerais, albeit the responsibility of preparing and gathering the data and even the concepts made with them are from the author. Indeed, the informations were disposed from the DAPI by economic branch, which is the monthly report of the taxpayers to state their economic activity and calculate the correspondent amount of ICMS to be paid. The reported fiscal data are about taxed and non taxed sales and purchases for 10(ten) items and 842 groups of economic activities during the 12 months of 1999. The economic activities were gathered in general branches as *Industry, Trade, Services, Agriculture and Cattle Raising* and *Other Activities*, as well as in sub-branches, in the case of the Industry (*Transformation, Extractive Mineral, Others*) and of the Trade (*Retailer and Wholesaler*), and in groups of economic activities (*Metallurgy, Electric Energy, Communication* etc). The values were converted to dollars with the exchange rate of december/99, after being monthly monetary up-to-date by the price index IGP-DI.

The tables were prepared to permit an evaluation of the taxpayer behavior in Minas Gerais facing the theory of consumer choice. Basically, this approach deals with a very simple economic model, where the consumer's behavior is influenced by the possibilities to buy goods, that are given by the income and the prices of the goods, as well as influenced by the consumer's preferences, dependent on the combination of goods. In fact, public goods are considered by the traditional economic approach non-rivals goods, what means that the nature of a public good is that you get it whether or not you choose to pay, that non-exclusion exists. Besides, this approach points that each persons tax payments are so small relative to the entire government that they have no effect on the quality or quantity of public goods provided. Not paying would not have effect on the availability of public goods. It concludes that, therefore, people will cheat on their taxes fully rationally even if they want and will use lots of public goods.

However, the idea that people decide how much in the way of public goods to buy when they pay taxes is very close to the real taxpayers behavior. First, the surveys about evasion behaviors show that the evaluation of the benefits that the contributors expect to receive is a hard variable on their disposal to the tax compliance. Second, although by definition non-rivals, people often choose between a good supplied by public authorities and a similar one furnished by the market, as especially in the case of education and health²⁸. In third place, although we could agree with the statement that people will cheat without thinking they are loosing public goods, the decision to

²⁸ In Brazil, for instance, the income tax returns permit the deduction of expenses with education and health bought from private sources, what is a clear option of purchase for the citizen.

evade involves the decision to save some amount, which earlier or later will translate to consumption of private goods. Thus, it is feasible to postulate that, in the analysed situation, there is some trade off between public and private goods, eventhough the only visible and mensurable amount of goods is the private one.

Even recognizing the limits of the proposed approach, we try to simulate a probable relationship between the choice of public goods and private goods. In this case, the environment of consumption of a taxpayer is described as the constraint situation in which he compulsory has to make rationally the choice about the better combination of two purchases: the purchase of *public goods* and the purchase of *other goods and service*. The economic choice runs through the definition of the amount of public goods to be purchased, what means define how much tax to pay²⁹, against the amount demanded to buy the others goods, that are necessary to attempt personal needs as well as to improve the own economic activity. We assume that, for the taxpayer(for the purposes of this analysis, considered as the owner of the firm), both goods are fundamental for the survival of his economic activity, since the firms need the provision of several public services as well as they depend on their performance to raise the funds to run and improve their deal.

In fact, from a social or psychological approach, the decision of the taxpayer-consumer, mainly the aspects involving the more or less interest to buy public services(or resistance to pay taxes, in a traditional analysis), will depend on many social and personal variables, like the discussions in the prior sections. Certainly, some of those variables can be empiracally measured and, thus far, introduced into a function of preferences, balancing the choice between the two types of goods. However, at this moment, we will consider the taxpayer's choice as a matter of finding economically the better point of satisfaction in a same indifference curve. This means that, at the principle, the dislocation along the same indifference curve due to the possible combinations between public goods and other goods, especially downwards, is not assumed as a deliberated act of tax evasion- even because it is possible a movement upwards, that will not mean a purchase of an undesirable amount of public goods, in others words, an over tax payment, but a better economic position.

For the public authorities, the intended micro-approach offers the possibility to evaluate the problem of tax evasion from the sight of the marginal rate of substitution (MRS) that the taxpayers face to choice how many public goods to buy. How higher the MRS, bigger the chances to evade. Therefore, the challenge is to establish a tax structure able to put the taxpayers in very closer indifference curves.

²⁹ Of course, there is two assumptions behind this simplified model. The first assumption is that the decision of the taxpayer to pay taxes corresponds to a decision of buying some services provided by the government. The second one considers only one government level exacting taxes, in this case the sale level.

The tables contain information about the aggregates of taxpayers in economic branches and not about distinct individual taxpayers in the same economic branch. This is remarkable, because the eventual conclusions on them must be considered with attention. The comparison between two different branches involves several economic differences like inner tax rates for sales and purchases and inner relationship between inputs and outputs, that will not be evaluated in this article, due to its limitations. Nevertheless, they offer a good sample to further researches.

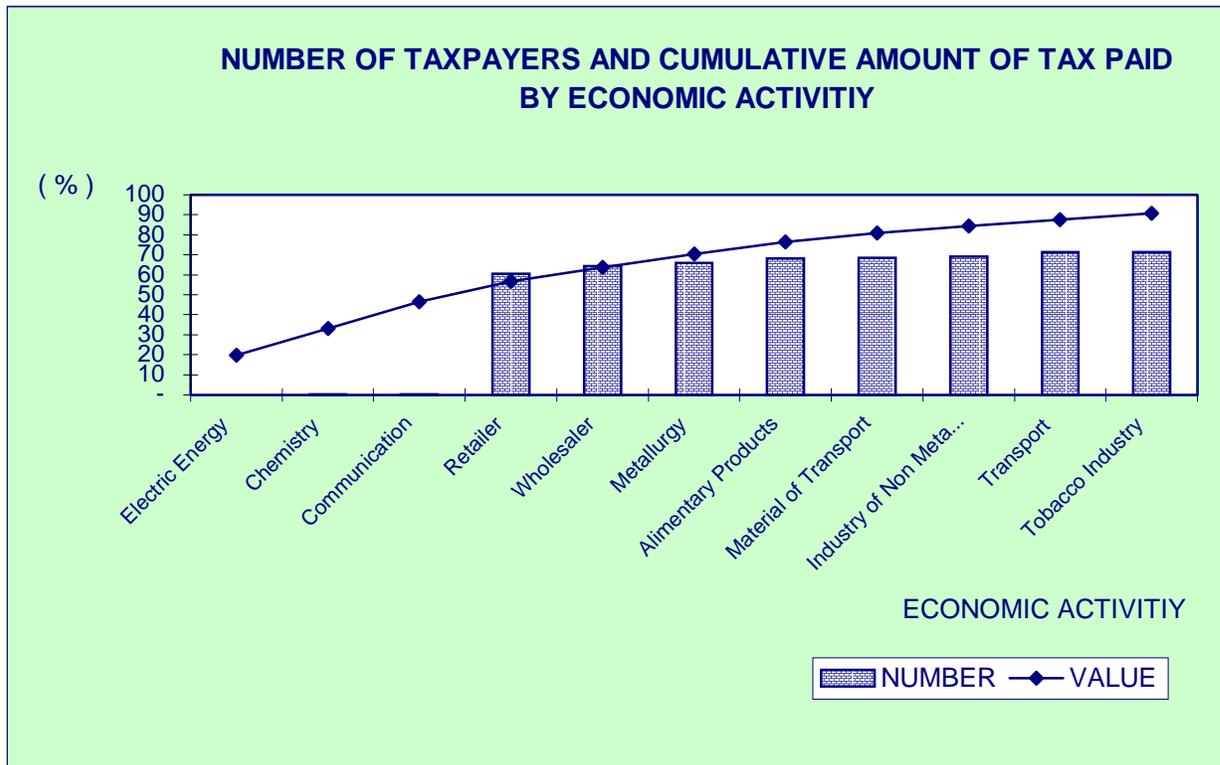
The first table, TABLE 14, shows the number of ICMS' taxpayers in the State of Minas Gerais as well the amount of due tax. This amount is not really what have been collected, but the one which should be collected. The biggest number of taxpayers³⁰, 181,285, concentrates in the *Retailer*(a *Trade* sub-branch), that represents 60.11% of the total taxpayers. It is followed by the group of activities *Other Services* with 48,34% taxpayers(16.03%). In another hand, the smallest contingent lies in the *Tobacco Industry*, with only 18 taxpayers(0.01%). Considering the weight of the levying of each one of those economic activities, there is a great concentration(GRAPHIC 2), where few taxpayers respond for the bigger part of the collection. *Electric Energy*, *Chemistry* and *Communication*, the three bigger contributors, collect together 46.35% of the total, although they represent just 0.27% of the total of the ICMS taxpayers. In other side, the smallest collectors levy 9.34%, but they totalize 28.68% of the total number. This concentration denotes that we have only three economic sectors collecting in a year more than 2.5 millions of dollars, the Electric Energy(US\$ 5,303,432), the Tobacco Industry(US\$ 4,221,048) and the Services of Communication(US\$ 2,807,260), meanwhile the undisputable majority of the others levy less than US\$ 50,000 a year.

For the management of the ICMS compliance, a composition like that creates challenges to the enforcement. The fiscal authorities need to find a balance between the monitoring a big number of taxpayers and the deepness of the inspection of the biggest taxpayers. The tendency to face this defiance has been the simplification of the tributary duties for the smallest taxpayers, in order to collect a basic tax amount, able to pay, at least, the public expenditures with their monitoring and so concentrate the efforts to inspect the thousand first taxpayers.

The TABLE 16 presents the main fiscal aggregates of the ICMS: the *Total Taxed Purchases*(goods and services bought by the firms to run its economic activity, except labor), the *Total Sales*(the whole firm's invoice, including ICMS taxed and non-taxed sales), the *Total Taxed Sales* and the *Total Due Tax*(calculated considering the credits own due to ICMS taxed purchases). Theses aggregates are used normally to indicate the extention of the evasion, from the evaluation in a same economic activity of

³⁰ It is included all types of taxpayers that are classified in Minas Gerais in almost 30 regimes of payments: debit and credit, estimate, micro-enterprise etc.

GRAPHIC 2



SOURCE: Simulations from the DAPI and Number of Taxpayers

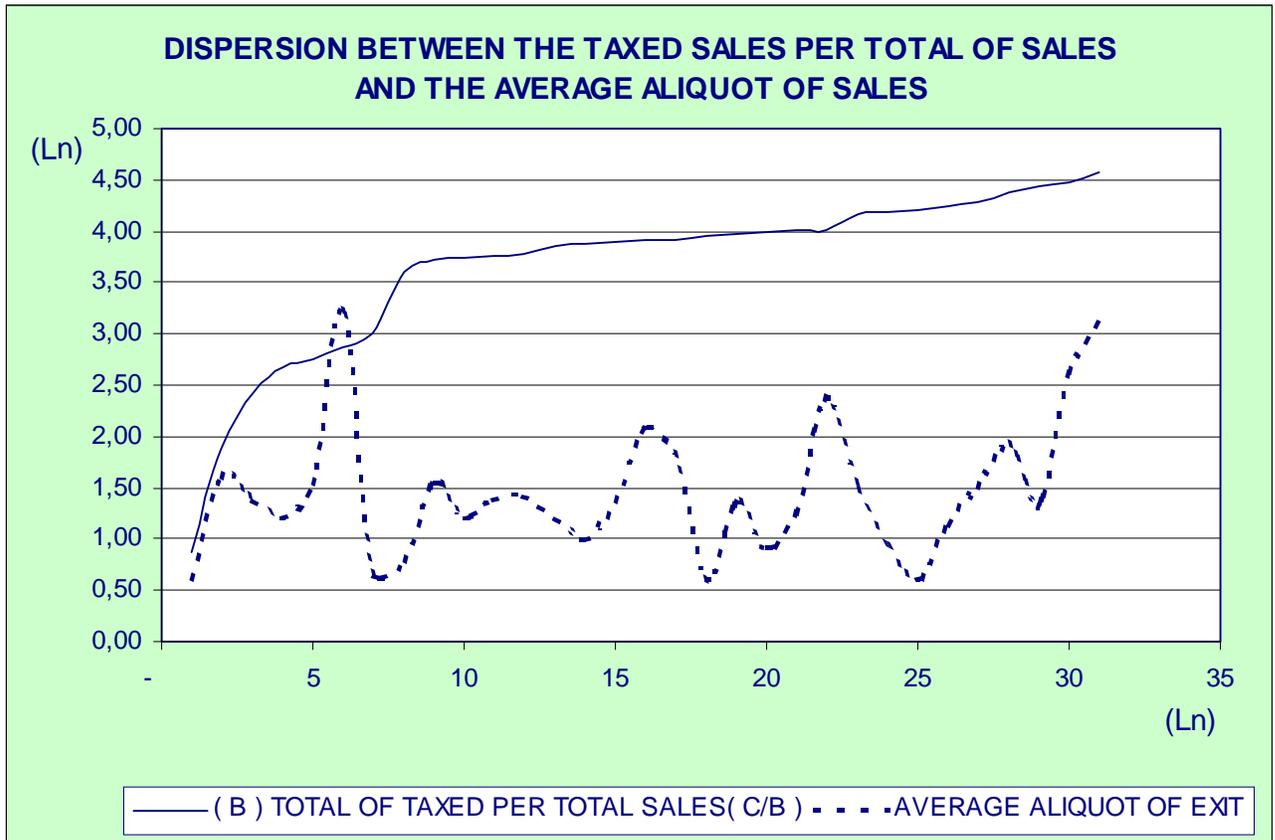
the ratios between them. Without doubt, among the possible ratios, the principal is the *Average Rate of Exit(Sales)* or *Real ICMS Aliquot*, which measures the relationship between the Total Due Tax and the Total Taxed Sales. After the calculation of the rates for an economic branch, the analyst defines a reference ratio and an acceptable interval of deviation. It will be considered evading taxes the firms outside the interval.

Continuing with our approach, the GRAPHIC 3 shows the relationship between the Average Rate of Sales and the Total Due ICMS. The relation offers a initial similar ratio between the bigger taxpayers and the smaller one, where bigger and smaller amounts of due tax correspond, respectively, to bigger and smaller aliquots. Along the serie, there are not variations of sensible amplitude. In thesis, this situation permits to point that, independently of the size of the taxpayers, the behavior of an eventual evasion tends to be same for all the economic branches. Looking to those numbers, we may not conclude, for instance, that bigger taxpayers will pay less or even more tax than the smaller one, because the ratio between the aliquot of sales and the size of the sale tend to be proportional in both situation.

In the TABLE 17, we have tried to built the budget line for each economic branch, considering each one as a tipical and unique taxpayer. Certainly, the dynamic behavior of this unusual taxpayer may only be analysed, considering the temporal series of the presented variables and the figures for each taxpayer or the different groups of economic activities inside a determined economic sub-branch, that will not happen

here.

GRAPHIC 3



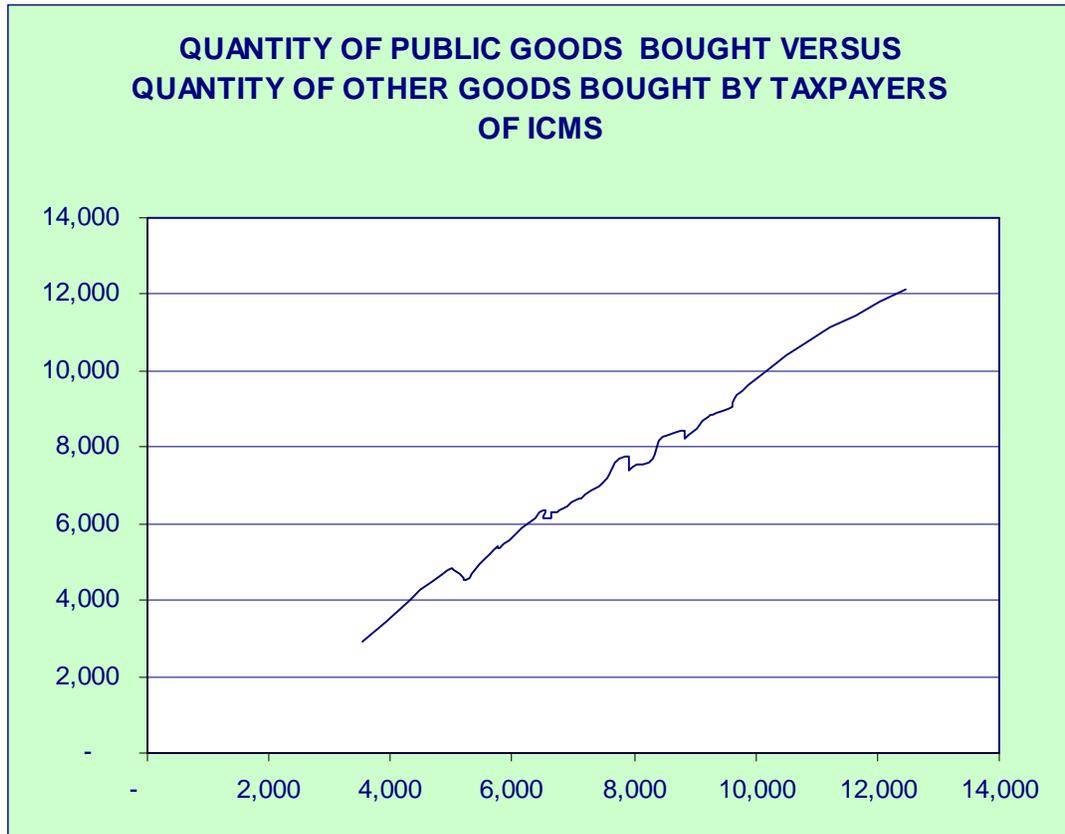
SOURCE: Simulations from the DAPI and Number of Taxpayers

However, the table shows how possible is the definition of the Price and Quantity of Public Goods and Services, the Price and Quantity of the Other Goods and Services, as well as the Total Income and the Marginal Rate of Substitution. As it is known, a budgetline may be defined as $P_1Q_1 + P_2Q_2 = I$, where P_1 and P_2 are, respectively, the price of the Good A and of th Good B, Q_1 and Q_2 , respectively, the quantity of the good A and of the good B, and I , the total income. For the present analysis, we consider the same reasoning with the notations described in the TABLE 17, defining the whole income(I) as the monetary amount of the total sales, as well as the total expenses with public goods(P_1Q_1) as the *Total Due ICMS Tax* and the one with the other goods(P_2Q_2) as the difference between the *Total Sales* and the *Total Due Tax*.

The challenge of this approach was to establish the amounts of *Public Goods* and of *Other Goods*. For *Public Goods*, there is no possible empirical data to determine the quantity of consumption. For calculating the *Other Goods*' quantity, the ideal would be having the informations about the production of each firm or economic activity or even any ratio involving the number of consumers of the good or service of the economic activity. In this case, probably, we may find data for some few activities,

but unprobably for all and, especially, for an individual taxpayer, unless required by

GRAPHIC 4



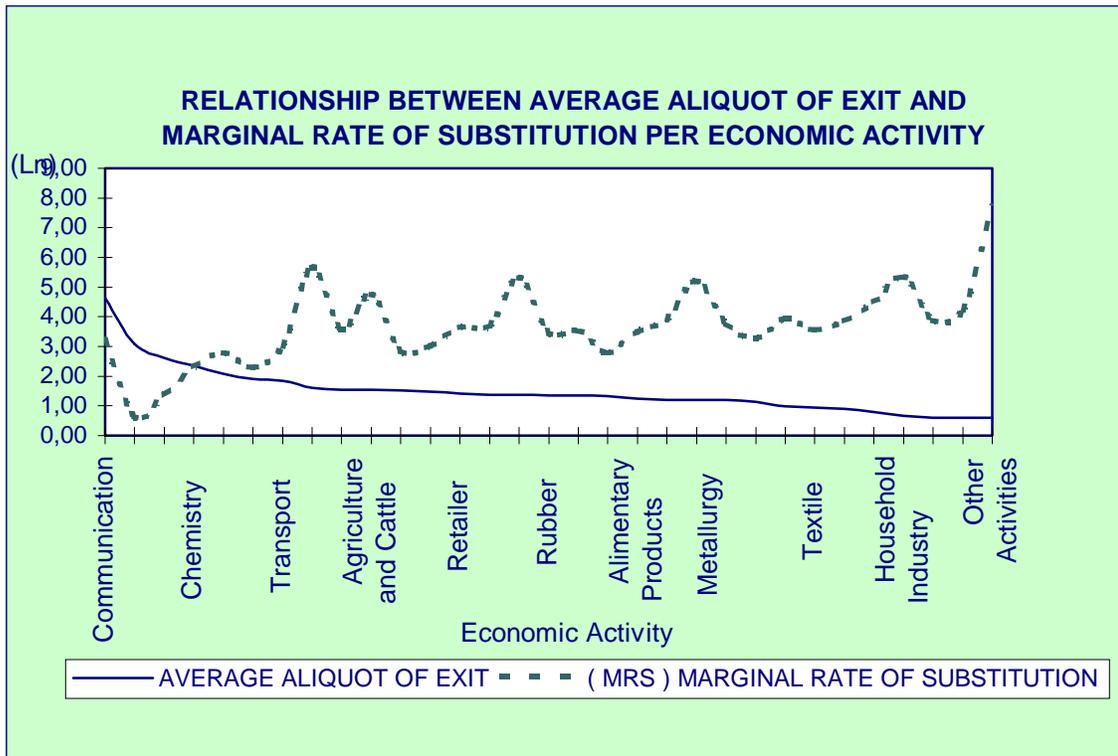
SOURCE: Simulations from the DAPI and Number of Taxpayers

some regulamentation. To solve the problem, we have taken the number of taxpayers for economic branch to estimate the respective quantities. For *Other Goods*, it has been considered that there is no differences of demand among the economic activities. So each economic activity consumes units of *Other Goods* proportionally to the numbers of existing taxpayers. To find the amount, we have only divide the total monetary amount for consumption expenditures, calculated as described in the prior paragraph. For Public Goods, we have pondered the number of taxpayers with the weight of the Taxed Sales in relation to to the Total Sales. Thus, how much bigger is the rate, we have considered that it is also bigger the intention to purchase *Public Goods*.

The Marginal Rate of Substitution(MRS) varies sensibly. In the GRAPHIC 5, we can see that it increases when the Average Aliquot of Exit decreases. This means that the capacity of value aggregation affects the disposition to evade. How more the taxpayer pays, lower is the tendency to evade. The Electric Energy Activitty, for instance, presents one of lowest MRS(1.9), but one of the highest rates of exit(21.77%). In another hand, others acitivities like Wholesaler, which is pointed as one of the main evader's branches, has an opposite profile, high MRS(90.5) and low aliquot of

exit(2.19%).

GRAPHIC 5



SOURCE: Simulations from the DAPI and Number of Taxpayers

6. ANNEX
TABLE 14
QUANTITY OF ICMS TAXPAYERS AND TOTAL DUE TAX BY ECONOMIC ACTIVITIES
STATE OF MINAS GERAIS-DEC/99

ECONOMIC ACTIVITIES	TAXPAYERS		TOTAL DUE TAX		AVERAGE LEVYING BY TAX PAYER(1)
	QUANTITY	(%)	US\$	(%)	
INDUSTRY	50.276	16,67	1.161.470.882	45,75	23.102
<i>Extractive Mineral</i>	2.356	0,78	18.932.519	0,75	8.036
Extraction of Minerals	2.356	0,78	18.932.519	0,75	8.036
<i>Transformation</i>	40.704	13,50	1.134.322.757	44,68	27.868
Industry of Non Metallical Minerals	2.233	0,74	84.830.829	3,34	37.990
Metallurgy	4.620	1,53	169.991.782	6,70	36.795
Mechanics	1.207	0,40	25.302.130	1,00	20.963
Electric, Electronic and Communication	800	0,27	27.848.261	1,10	34.810
Material of Transport	453	0,15	113.414.318	4,47	250.363
Wood	1.790	0,59	5.291.208	0,21	2.956
Furniture	3.712	1,23	10.137.597	0,40	2.731
Paper	226	0,07	10.027.826	0,39	44.371
Rubber	213	0,07	2.006.812	0,08	9.422
Leather, Skins and Resembled	546	0,18	1.473.552	0,06	2.699
Chemistry	596	0,20	338.965.221	13,35	568.734
Pharmacists and Veterinarians Products	137	0,05	5.223.998	0,21	38.131
Perfumery	459	0,15	6.270.104	0,25	13.660
Plastic Materials	540	0,18	11.807.039	0,47	21.865
Textile	1.640	0,54	28.436.317	1,12	17.339
Clothes and Footwears	8.775	2,91	19.253.610	0,76	2.194
Alimentary Products	7.062	2,34	155.696.302	6,13	22.047
Beverages	800	0,27	42.366.995	1,67	52.959
Tobacco Industry	18	0,01	75.978.855	2,99	4.221.048
<i>Others</i>	7.216	2,39	8.215.606	0,32	1.139
Household Industry	3.919	1,30	1.048.355	0,04	268
Editorial and Graph Industry	1.949	0,65	880.100	0,03	452
Various	1.348	0,45	6.287.150	0,25	4.664
TRADE	193.211	64,07	440.746.055	17,36	2.281
Retailer	181.285	60,11	265.172.326	10,44	1.463
Wholesaler	11.926	3,95	175.573.729	6,92	14.722
SERVICES	55.243	18,32	932.037.351	36,71	16.872
Electric Energy, Channeled Gas and Others	95	0,03	503.826.056	19,84	5.303.432
Transport	6.681	2,22	84.194.276	3,32	12.602
Communication	119	0,04	334.063.900	13,16	2.807.260
Another	48.348	16,03	9.953.119	0,39	206
AGRICULTURE AND CATTLE RAISING	573	0,19	4.480.039	0,18	7.819
OTHER ACTIVITIES	2.271	0,75	157.152	0,01	69
TOTAL	301.574	100,00	2.538.891.479	100,00	8.419

SOURCE: DAPI/SEF-MG/1999(Monthly Statement of Taxpayer to Defined the due Tax)

(1) Calculated from the field 34 of the DAPI(Total Due Tax)

TABLE 15
MAIN FISCAL AGGREGATES OF THE ICMS BY ECONOMIC ACTIVITIES
STATE OF MINAS GERAIS
1999

	US\$ 1.00(1)			
ECONOMIC ACTIVITIES	(A) TOTAL TAXED PURCHASES (FIELD 10)	(B) TOTAL SALES (FIELD 15)	(C) TOTAL TAXED SALES (FIELD 19)	(D) TOTAL DUE TAX(FIELD 34)
INDUSTRY	14.909.795.562	50.530.791.184	25.350.107.839	1.161.470.882
<i>Extractive Mineral</i>	<i>570.887.943</i>	<i>3.936.082.554</i>	<i>571.554.546</i>	<i>18.932.519</i>
Extraction of Minerals	570.887.943	3.936.082.554	571.554.546	18.932.519
<i>Transformation</i>	<i>14.201.035.485</i>	<i>45.805.924.664</i>	<i>24.568.727.278</i>	<i>1.134.322.757</i>
Industry of Non Metallical Minerals	558.490.797	1.580.161.629	1.256.359.238	84.830.829
Metallurgy	3.151.290.551	10.980.539.575	5.153.328.051	169.991.782
Mechanics	460.580.528	1.328.730.073	651.937.784	25.302.130
Electric, Electronic and Communication	794.091.077	2.070.047.982	1.128.894.522	27.848.261
Material of Transport	2.795.702.980	8.852.482.492	4.253.858.040	113.414.318
Wood	79.475.372	184.362.358	119.379.009	5.291.208
Furniture	182.423.023	312.709.335	266.692.619	10.137.597
Paper	222.161.303	725.474.938	302.633.707	10.027.826
Rubber	37.192.983	98.047.729	51.630.334	2.006.812
Leather, Skins and Resembled	83.918.134	153.677.279	80.373.178	1.473.552
Chemistry	1.130.260.701	5.719.098.395	3.184.298.454	338.965.221
Pharmacists and Veterinarians Products	59.022.140	159.369.432	115.101.834	5.223.998
Perfumery	258.148.401	509.612.195	341.065.249	6.270.104
Plastic Materials	212.665.138	696.777.542	298.099.227	11.807.039
Textile	751.454.791	1.682.204.147	1.115.333.592	28.436.317
Clothes and Footwears	423.325.253	885.166.603	614.687.116	19.253.610
Alimentary Products	2.439.428.584	8.160.433.656	4.540.613.292	155.696.302
Beverages	319.755.084	1.073.003.511	534.498.235	42.366.995
Tobacco Industry	241.648.644	634.025.793	559.943.795	75.978.855
<i>Others</i>	<i>137.872.134</i>	<i>788.783.966</i>	<i>209.826.016</i>	<i>8.215.606</i>
Household Industry	49.592.762	264.766.038	53.555.389	1.048.355
Editorial and Graph Industry	19.241.698	198.985.412	22.331.110	880.100
Various	69.037.674	325.032.516	133.939.517	6.287.150
TRADE	11.902.258.828	36.815.655.517	14.488.899.472	440.746.055
Retailer	5.433.584.786	14.921.899.605	6.471.010.561	265.172.326
Wholesaler	6.468.674.042	21.893.755.912	8.017.888.912	175.573.729
SERVICES	967.788.625	9.930.390.513	4.168.801.594	932.037.351
Electric Energy, Channeled Gas and Others	85.628.116	2.388.569.185	2.314.417.011	503.826.056
Transport	371.725.587	2.626.843.503	1.329.768.149	84.194.276
Communication	363.146.282	1.848.641.129	323.904.096	334.063.900
Another	147.288.640	3.066.336.696	200.712.337	9.953.119
AGRICULTURE AND CATTLE RAISING	87.344.549	609.519.173	96.167.028	4.480.039
OTHER ACTIVITIES	8.090.363	360.024.702	8.617.245	157.152
TOTAL	27.875.277.928	98.246.381.090	44.112.593.179	2.538.891.479

SOURCE: DAPI/SEF-MG/1999(Monthly Statement of Taxpayer to Defined the due Tax)

(1) Average US\$ of Dec/99 after monthly monetary atualization by the IGP-DI

TABLE 16
ESTIMATIVE OF THE BUDGET CONSTRAINT FOR THE TAXPAYERS OF ICMS
MINAS GERAIS - BRAZIL
1999

ECONOMIC ACTIVITIES	US\$ 1,000							
	(PX) PRICE OF PUBLIC GOODS (US\$)	(X) QUANTITY OF PUBLIC GOODS	(G) TOTAL OF PUBLIC GOODS BOUGHT (US\$)	(PY) PRICE OF OTHER GOODS (US\$)	(X) QUANTITY OF OTHER GOODS	(O) TOTAL OF OTHER GOODS BOUGHT (US\$)	(I) TOTAL INCOME (US\$)	(MRS) MARGI- NAL RATE OF SUBSTI- TUTION
INDUSTRY	23,1	50,3	1.161.471	653,9	75,5	49.369.320	50.530.791	28,3
<i>Extractive Mineral</i>	8,0	2,4	18.933	1.451,8	2,7	3.917.150	3.936.083	180,7
Extraction of Minerals	8,0	2,4	18.933	1.451,8	2,7	3.917.150	3.936.083	180,7
<i>Transformation</i>	27,9	40,7	1.134.323	714,3	62,5	44.671.602	45.805.925	25,6
Ind.Non Metallical Minerals	38,0	2,2	84.831	373,0	4,0	1.495.331	1.580.162	9,8
Metallurgy	36,8	4,6	169.992	1.592,5	6,8	10.810.548	10.980.540	43,3
Mechanics	21,0	1,2	25.302	724,4	1,8	1.303.428	1.328.730	34,6
Electric, Electronic, Commun.	34,8	0,8	27.848	1.651,9	1,2	2.042.200	2.070.048	47,5
Material of Transport	250,4	0,5	113.414	13.030,2	0,7	8.739.068	8.852.482	52,0
Wood	3,0	1,8	5.291	60,7	2,9	179.071	184.362	20,5
Furniture	2,7	3,7	10.138	44,0	6,9	302.572	312.709	16,1
Paper	44,4	0,2	10.028	2.233,8	0,3	715.447	725.475	50,3
Rubber	9,4	0,2	2.007	295,4	0,3	96.041	98.048	31,3
Leather, Skins and Resemble	2,7	0,5	1.474	183,0	0,8	152.204	153.677	67,8
Chemistry	568,7	0,6	338.965	5.798,5	0,9	5.380.133	5.719.098	10,2
Pharmacists and Veterin.Pts	38,1	0,1	5.224	653,3	0,2	154.145	159.369	17,1
Perfumery	13,7	0,5	6.270	656,9	0,8	503.342	509.612	48,1
Plastic Materials	21,9	0,5	11.807	888,4	0,8	684.971	696.778	40,6
Textile	17,3	1,6	28.436	606,4	2,7	1.653.768	1.682.204	35,0
Clothes and Footwears	2,2	8,8	19.254	58,2	14,9	865.913	885.167	26,5
Alimentary Products	22,0	7,1	155.696	728,3	11,0	8.004.737	8.160.434	33,0
Beverages	53,0	0,8	42.367	859,9	1,2	1.030.637	1.073.004	16,2
Tobacco Industry	4.221,0	0,0	75.979	16.463,1	0,0	558.047	634.026	3,9
<i>Others</i>	1,1	7,2	8.216	85,4	9,1	780.568	788.784	75,0
Household Industry	0,3	3,9	1.048	56,0	4,7	263.718	264.766	209,2
Editorial and Graph Industry	0,5	1,9	880	91,4	2,2	198.105	198.985	202,4
Various	4,7	1,3	6.287	167,5	1,9	318.745	325.033	35,9
TRADE	2,3	193,2	440.746	135,1	269,2	36.374.909	6.815.656	59,2
Retailer	1,5	181,3	265.172	56,4	259,9	14.656.727	14.921.900	38,6
Wholesaler	14,7	11,9	175.574	1.332,9	16,3	21.718.182	21.893.756	90,5
SERVICES	16,9	55,2	932.037	114,7	78,4	8.998.353	9.930.391	6,8
Electric Energy, Gas & Others	5.303,4	0,1	503.826	10.076,1	0,2	1.884.743	2.388.569	1,9
Transport	12,6	6,7	84.194	252,7	10,1	2.542.649	2.626.844	20,1
Communication	2.807,3	0,1	334.064	10.830,0	0,1	1.514.577	1.848.641	3,9
Another	0,2	48,3	9.953	59,3	51,5	3.056.384	3.066.337	288,2
AGRICULTURE AND CATTLE	7,8	0,6	4.480	912,0	0,7	605.039	609.519	116,6
OTHER ACTIVITIES	0,1	2,3	157	154,8	2,3	359.868	360.025	2.236,4
TOTAL	8,4	301,6	2.538.891	224,8	437,0	98.246.381	98.246.381	26,7

SOURCE: DAPI/SEF-MG/1999

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