The Underground Economy

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Underground Economy

Refers to economic activities not reported to the authorities in order to avoid:

1 – Taxes

2 – Social security contributions

3 – Labor laws and regulations

4 – Costs related to regulations

Underground Economy

- Includes both legal and illegal activities.

- Includes many activities paid for via cash transactions.

To estimate the size of the underground economy, we use

two different methodologies:

1 – Money Demand Method

2 – Informal Labor Market

We then compute the average of the two methods.

1 – Money Demand Method:

includes variables related to the underground economy.

$$\ln m_t = \beta_0 + \beta_1 \ln y_t + \beta_2 \ln i_t + \beta_3 \ln DT_t + \beta_4 \ln TSC_t + \varepsilon_t$$

$$SUB_{MM} = \frac{\hat{\beta}_3 \ln DT_t + \hat{\beta}_4 \ln TSC_t}{\ln \hat{m}_t}$$

Money Demand

Table 1: Underground Economy Estimate based on the Money Demand Method	
2003	20.7%
2004	20.2%
2005	19.9%
2006	19.6%
2007	18.9%
2008	18.4%
2009	17.6%
2010	17.2%
2011	16.8%

Fonte: IBRE – FGV.

2 – Informal Labor Market

A) Informal Labor Ratio

$$SUB_{PTI} = \frac{\sum_{i=1}^{N} p_i SC_i}{\sum_{i=1}^{N} \left[p_i SC_i + p_i \left(1 - SC_i \right) \right]}$$

2 – Informal Labor Market

B) Informal Labor Income Ratio

$$SUB_{RIT} = \frac{\displaystyle\sum_{i=1}^{N} w_i p_i SC_i}{\displaystyle\sum_{i=1}^{N} \left[w_i p_i SC_i + w_i p_i (1 - SC_i) \right]}$$

2 – Informal Labor Market Method:

Measures the underground economy as the average between the informal labor ratio and the informal labor income ratio weighted by the labor income ratio in GDP (60%)

$$SUB_{MT,t} = 0,6 \times \frac{SUB_{PTI,t} + SUB_{RIT,t}}{2}$$

Informal Labor Market

Tabela 2: Underground economy estimate using the Labor Market Method			
	Informal Labor Income Ratio	Informal Labor Ratio	Average
2003	16.9%	25.8%	21.4%
2004	17.3%	25.9%	21.6%
2005	16.6%	25.4%	21.0%
2006	16.8%	24.9%	20.8%
2007	16.2%	23.9%	20.1%
2008	15.1%	22.9%	19.0%
2009	15.8%	22.9%	19.4%
2010	-	-	18.2%*
2011	-	-	16.8%*
Fonte: Elaboração Própria.* Atualizado com a variação da PME.			

The underground economy is computed by determining the average of estimates using the money demand and labor market methods.

$$SUB_{3/t} = \frac{SUB_{MM,t} + SUB_{MT,t}}{2}$$

Underground Economy

	Table 3: Size of underground economy		
		In millions (R$ 1,000,000)	
	% GDP		2011 Reais
		Reais	(adjusted for inflation)
2003	21.0%	357,388.7	625,365.9
2004	20.9%	405,317.3	656,466.7
2005	20.4%	438417.5	662,326.2
2006	20.2%	478,455.2	680,935.3
2007	19.5%	518,520.1	697,048.7
2008	18.7%	566,687.5	703,205.7
2009	18.5%	599,740.0	694,321.4
2010	17.7%	668,604.5	715,196.5
2011	16.8%	695,760.5	695,760.5

Fonte: Elaboração Própria.

Underground Economy

- The size of the underground economy is not the problem. It is a symptom.

- Increases in fiscalization will not solve the problem. They will create a social problem.

- Factors such as excess regulation, high tax burden, corruption, and labor taxes are the main factors contributing to the size of the underground economy.

Labor Market Dynamics

- GDP growth accelerated from 2003 to 2010.
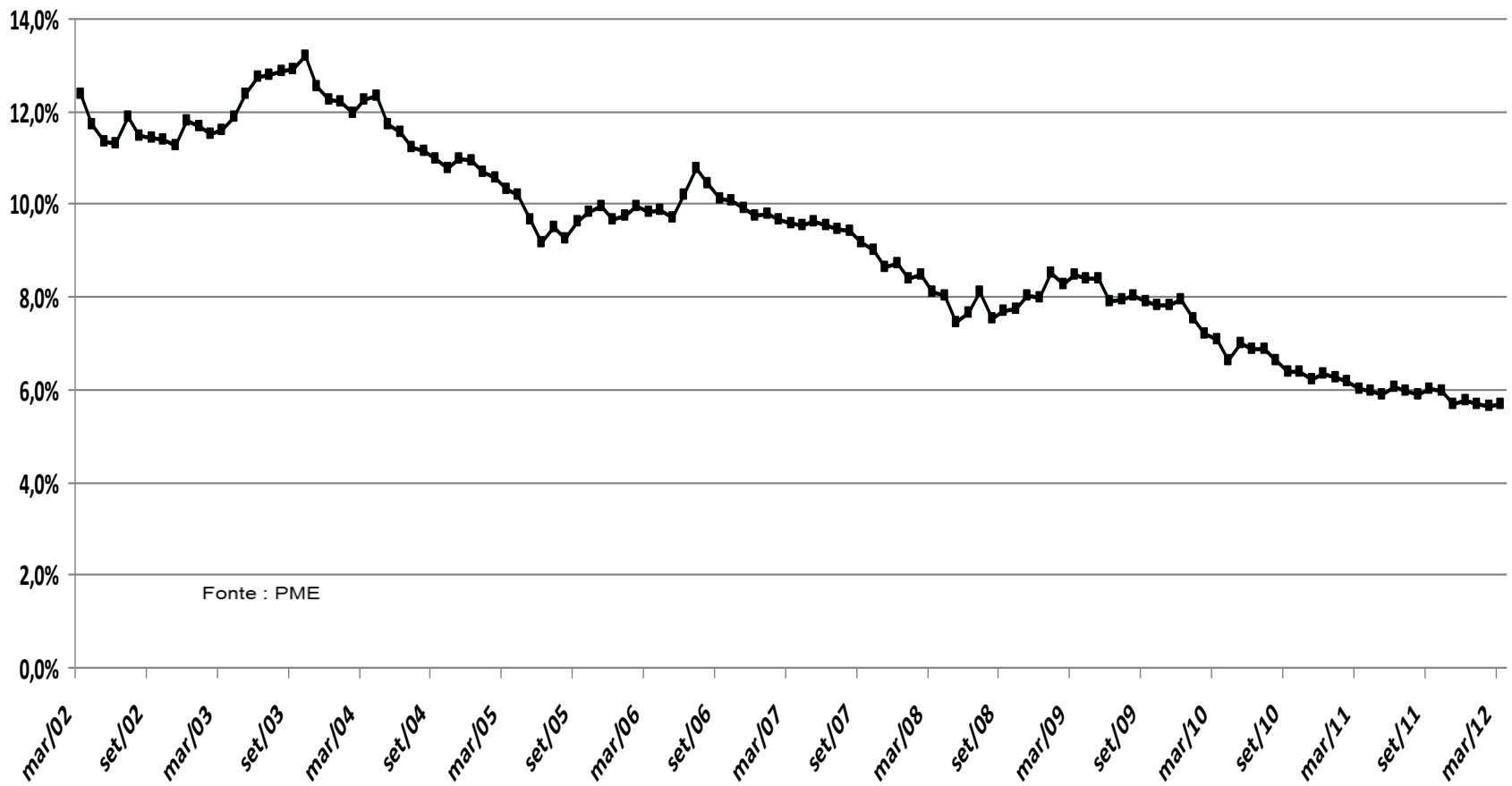
Table 4: Brazil´s GDP Growth Rate	
1995-1998	2.5%
1999-2002	2.1%
2003-2006	3.4%
2007-2010	4.5%

Source: IBGE.

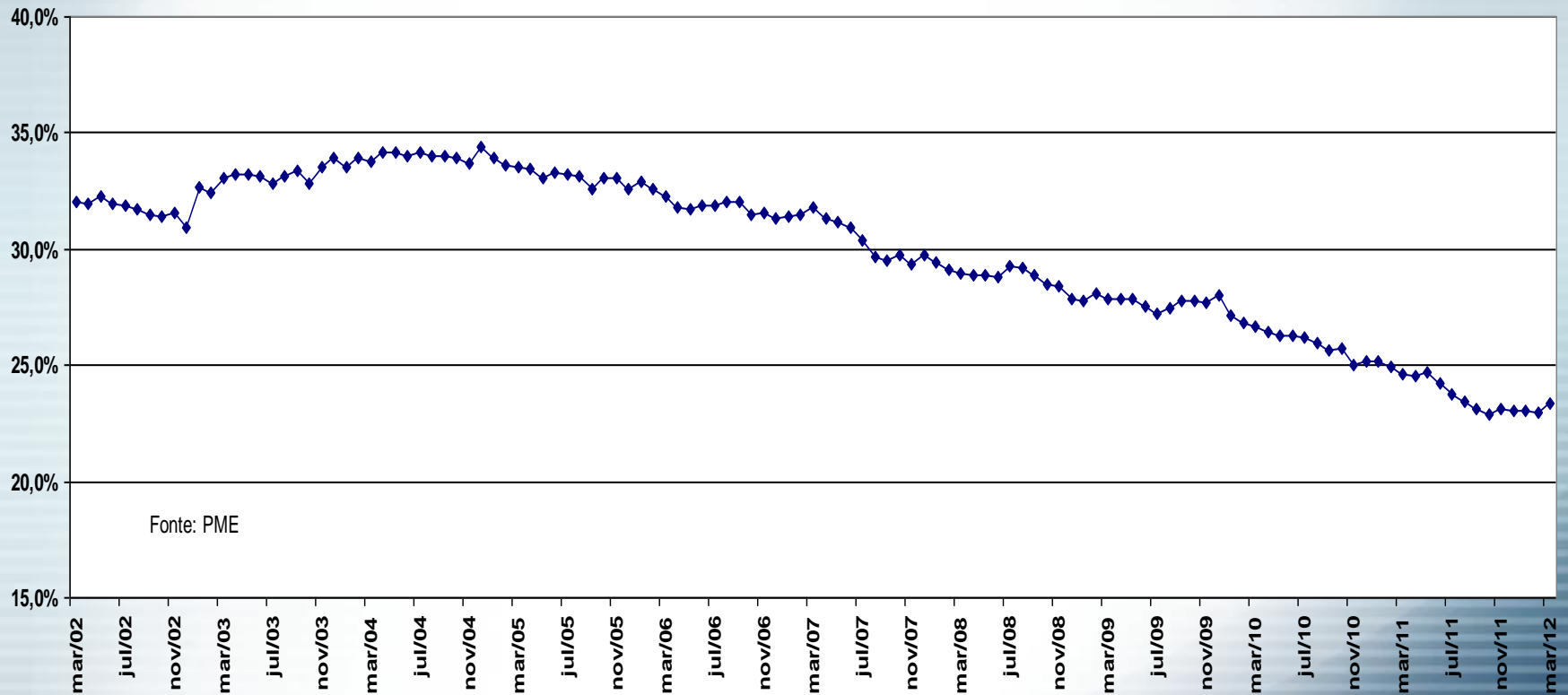- Higher economic growth led to higher levels of employment.

Labor Market Dynamics

Figure 1: Unemployment Rate

Fonte : PME

Labor Market Dynamics

Figure 2: Informality Rate

Fonte: PME

Labor Market Dynamics

- The level of labor market regulation was seen as the most important factor affecting the size of the informal labor market in Brazil.

- Economists used to believe that informal labor levels would not decrease without major labor law regulation. Yet over the past few years we have seen a large decrease in the size of the informal labor market despite the lack of major modifications to labor regulations.

Labor Market Dynamics

- Increase in Educational Attainment

Table 4: Labor Force by Education Group		
Years of Schooling	2002	2009
0-3	23.3%	16.3%
4-7	29.0%	23.1%
8-10	16.4%	17.0%
11-14	23.5%	33.0%
>15	7.8%	10.6%
Total	86,335,873	101,110,213
Source: Barbosa Filho and Pessôa (2011)		

Education Impact

- The decline in informality was particularly pronounced among highly educated workers .

Table 5: Informality by Education Group			
	2002	2008	2009
0-3	62.8%	59.7%	59.1%
4-7	50.4%	47.9%	48.7%
8-10	42.1%	42.1%	41.9%
11-14	28.7%	25.4%	24.7%
>15	26.1%	24.5%	23.4%

Source: Barbosa Filho and Moura (2012)

Education Impact

- Barbosa Filho and Moura (2012) show that almost 60% of the decrease in informality between 2002 and 2009 was due to compositional effects stemming from increases in education levels.

Tabela 6: Informality rate Variation Decomposition			
Schooling			
Period – Sample	Level Effect	Composition Effect	Total
2009-2003	-1.8%	-3.1%	-4.9%
2008-2003	-1.6%	-2.6%	-4.2%
2009-2002	-2.4%	-3.8%	-6.2%
2008-2002	-2.3%	-3.2%	-5.5%
2009-2002 RM	-3.2%	-2.7%	-5.9%
2009-2002 NRM	-2.3%	-4.2%	-6.5%
2009RM-2009NRM	-8.2%	-3.8%	-11.9%
2002RM-2002NRM	-8.1%	-4.4%	-12.6%

Fonte: Elaboração Própria com dados da PNAD.

Tax Burden

- The Brazilian tax burden has increased in recent years. Federal taxes have increased the most.

Figura 4: Tax Burden
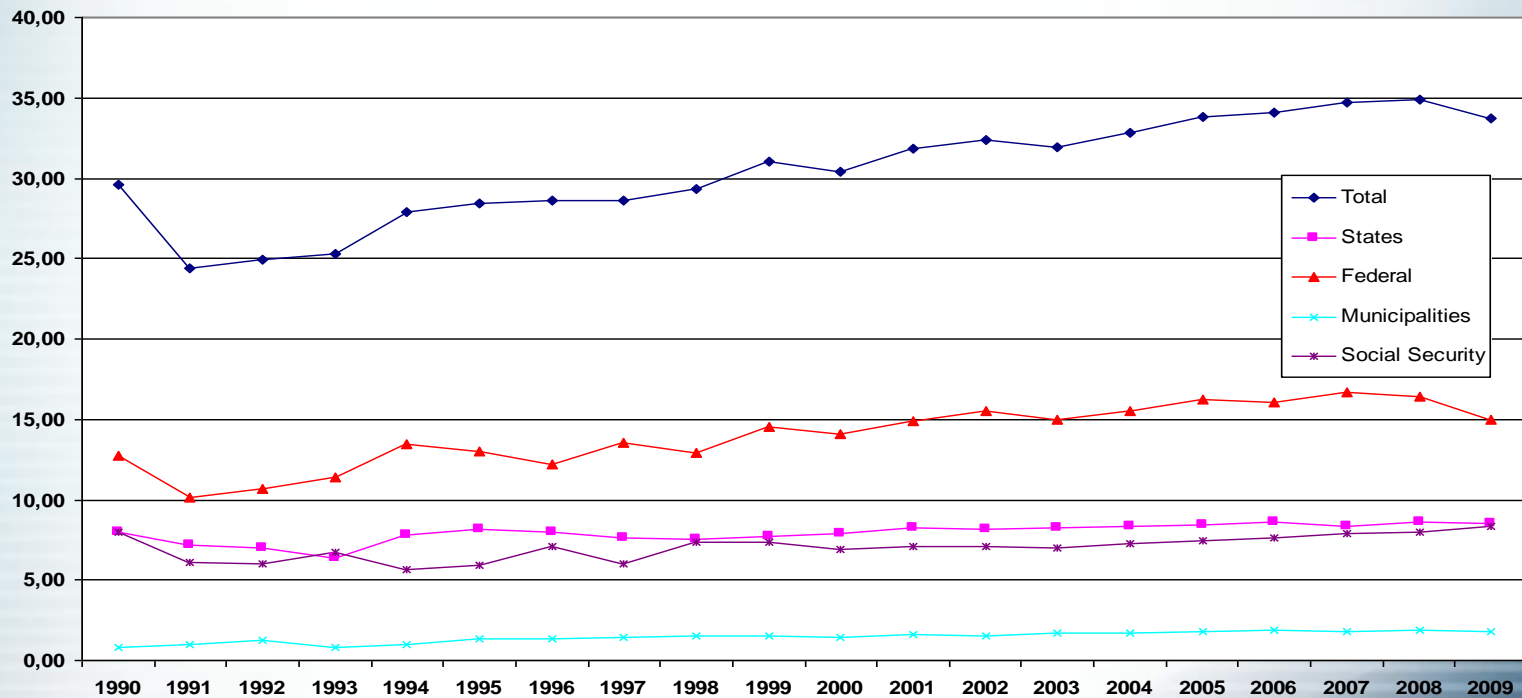
Conclusions

- Brazil has a huge underground economy, but its size has been reduced over the last few years.

- This reduction has been observed using both methods.

- The decline in the informal labor market was due to an informal ratio level reduction and to an education composition effect.

Conclusions

- Over the last few years, the tax burden has increased. This has stimulated underground activity.

- The government should find ways to reduce the tax burden to encourage more formal economic activity.

- The government can increase the proportion of formal to informal labor by increasing education expenditures.