

**THE GEORGE  
WASHINGTON  
UNIVERSITY**

WASHINGTON, DC

IBI: INSTITUTE OF BRAZILIAN ISSUES

---

**THE GEORGE WASHINGTON UNIVERSITY - GWU  
INSTITUTE OF BRAZILIAN ISSUES - IBI  
33<sup>th</sup> MINERVA PROGRAM – SPRING, 2013**

**TAX LOADING IN  
TELECOMMUNICATIONS SERVICES:  
A comparative study between the Brazilian and  
United States Models.**

**By: SERGIO AUGUSTO MARTINS LEBRE**

**Advisor: REID CLICK**

**April, 2013  
Washington, DC, USA.**

**TAX LOADING IN TELECOMMUNICATIONS SERVICES:  
A comparative study between the Brazilian and United States Models.**

Sergio Augusto Martins Lebre

Advisor: Reid Click, Ph.D.

**ABSTRACT**

Over the last four decades, telecommunications services have become, day by day, more essential to people's lives in modern society. However, despite the relevance of these services to help promote development and economic growth in any country, currently this sector is one of highest tax burdens in Brazil and other developing countries.

Last year (2012) in Brazil, Chief Executive Officers of Telecommunications Companies, and even the Chief of Brazilian Federal Department of Communications publicly declared that tax rates in telecommunications services are too high, and because of that, the supply and access to these services are reduced. Considering the economic effects of the tax loading in the telecommunications services, how far are Brazil, and specially Paraná State, from other countries of South America, and from a developed country like the United States ?

The purpose of this research paper is to present a study about the current Tax System of Brazil and its tax burdens in telecommunications services and compare it to the tax burdens of Latin American countries, and mainly, to the tax loading model of the United States.

Subsequently it analyses the advantages and disadvantages of the Brazilian and the American models of taxing in telecommunications services, and concludes raising possible decisions to be made in order to improve the Brazilian model.

Keywords: *telecommunications services, tax loading, comparison models, economic development.*

## **ACKNOWLEDGEMENTS**

I am grateful to Institute of Brazilian Issues – IBI from the George Washington University - GWU, especially Professor Dr. James Ferrer, Kevin Kellbach, and their professors for the opportunity to study and improve my knowledge on Economics, International Trade and Public Finance.

I am thankful to the Finance Secretariat of Parana State, especially Dr. Luiz Carlos Haully, Clóvis Agenor Rogge, and also to the Coordination of State Revenue, mostly Dr. Gilberto Della Coletta, Leonildo Prati, Lidio Franco Samways Junior, and Paulo Roberto Koslosky for the opportunity to participate in the Minerva Program and for the financial support.

I also thank my advisor Prof. Reid Click for his guiding and contributions in this study, my English Professor Jorge Iván Viguera Lepe for his teaching, Prof. David Brunori for his support and teachings about the tax system of the United States, and my classmates from the Minerva Program for friendship and support along this course.

Finally, my eternal gratitude to God, to my family and my friends for their encouragement and unconditional loving support, especially, my mother Maria Helena, my father Augusto Lebre, and my wife Ana Paula.

## TABLE OF CONTENTS

### 1. AN INTRODUCTION TO THE BRAZILIAN TAX SYSTEM

- 1.1. The National Tax System according to the Brazilian Constitution
  - 1.1.1. Taxes, Fees, Improvement contributions, Compulsory loans and Special contributions
  - 1.1.2. Limitations on taxing power
    - 1.1.2.1. Principle of Legality
    - 1.1.2.2. Principle of Anteriority
    - 1.1.2.3. Principle of Non-Retroactivity
    - 1.1.2.4. Principle of Equality
    - 1.1.2.5. Principle of Tax Payment Capability
    - 1.1.2.6. Principle of Non-Confiscatory Taxes
    - 1.1.2.7. Principle of Uniformity
  - 1.1.3. Federal taxes
  - 1.1.4. State taxes
  - 1.1.5. Local taxes
- 1.2. PIS and COFINS – Federal Social contributions over Gross Revenue
- 1.3. ICMS – State Tax over Goods circulation, Transportation and Communications services
  - 1.3.1. Hypotheses of Incidence of ICMS
  - 1.3.2. Tax Base and Tax Rate of ICMS
  - 1.3.3. Tax-Inclusive Rate
  - 1.3.4. Considerations about ICMS.

### 2. AN INTRODUCTION TO THE UNITED STATES TAX SYSTEM

- 2.1. The United States Constitution and Limitations on taxing power.
  - 2.1.1. Origination Clause
  - 2.1.2. Uniformity Clause
  - 2.1.3. Export Taxation Clause
  - 2.1.4. Commerce Clause and Dormant Commerce Clause
  - 2.1.5. Reserved Powers of the States
  - 2.1.6. Federal Income Tax
- 2.2. Federal taxes
- 2.3. State taxes
- 2.4. Local taxes
- 2.5. Excises Taxes – Federal, State and Local
- 2.6. Sales Taxes – State and Local
- 2.7. Differences between the Brazilian and United States tax systems

### **3. TAX LOADING OVER TELECOMMUNICATIONS SERVICES**

- 3.1. The Brazilian taxing model over Telecommunications Services
  - 3.1.1. ICMS over Telecommunications Services
  - 3.1.2. ICMS Nominal Tax Rates of Telecommunications Services in Brazil
  - 3.1.3. Calculating prices of telecommunications services with Brazilian taxes
  - 3.1.4. Tax loading over Mobile Telephony Service in Brazil
  - 3.1.5. Tax loading over Internet Broadband Service in Brazil
  - 3.1.6. Ranking of Brazilian States for Total Tax Loading in Mobile Telephony and Broadband Services
- 3.2. The United States taxing model over Telecommunications Services
  - 3.2.1. Tax loading over Mobile Telephony Service in the United States
  - 3.2.2. Tax loading over Internet Broadband Service in the United States
- 3.3. Brazil's and the United States' position in the International Ranking of Tax Loading over Mobile Telephony Service

### **4. CONCLUSIONS**

- 4.1. Advantages and Disadvantages of the Brazilian and the United States Tax Systems
- 4.2. Tax Loading over Telecommunications Services in Brazil and the United States
- 4.3. The relevance of Telecommunications Services and possible decisions to be taken in order to improve the Brazilian Tax Model

## 1. AN INTRODUCTION TO THE BRAZILIAN TAX SYSTEM

### 1.1. The National Tax System according to the Brazilian Constitution

The current Brazilian Tax System was established by the Constitution of Brazil, promulgated in 1988.

Differently from the previous other Brazilian constitutions<sup>1</sup>, the Constitution of 1988 reserved a entire chapter (*Chapter I of Title VI*) named *National Tax System*, where through the articles 145 to 162 defines the categories of taxes, how these taxes must be regulated, which government entity each tax belongs to, and the constitutional principles that Local, State and Federal governments must obey when taxes are levied.

#### 1.1.1. Taxes, Fees, Improvement contributions, Compulsory loans and Special contributions

According to the constitutional article 145, Local, State and Federal governments may set up three categories of taxes:

- Taxes
- Public Fees
- Improvement contributions

Taxes are the most common category of public financing. They may be classified as direct or indirect, fixed or proportional, progressive or regressive, cumulative or not cumulative, ordinary or extraordinary, personal or real. In Brazil, one particular aspect of taxes is that they are collected from specific activities but the tax authority has no obligation to spend or invest the money collected in those activities. So in general terms, Local, State and Federal governments have free power to decide which public services will be provided with the money collected from taxpayers.

Differently, the payment of Public Fees creates an obligation to the tax authority to provide in return a particular service to the taxpayer. Public Fees generally are charged by governments in exchange for some public services or benefits available to the population, and it only requires the payment when these services are used. Some public services may be mandatory and because of that fee payment turns also to be an obligation. Here are some examples of Public Fees:

- Garbage Collection Fee
- Building Inspection Fee
- Fire Department Fee
- Water and Sewer Impact Fee
- Annual Vehicle License
- Driver License Fee

Improvement contributions are a type of tax that may be charged by governments when public constructions increase the value of private properties nearby.

Although the article 145 of the Brazilian Constitution explicitly refers to these three categories of taxes (*taxes, public fees and improvement contributions*), the most part of the Law science doctrine and court decisions understand that there are still two other categories of taxes in the Constitution of 1988: compulsory loans and special contributions.

Compulsory loans consist of a mandatory extra tax payment to be supported by citizens as a loan to the Federal Government, which in the future will be refunded to the taxpayers. Compulsory loans are exclusive to Federal Government. The last occurrence of a

---

<sup>1</sup> The Constitution of 1988 was the seventh of the Brazil's History. The previous others six Constitutions of Brazil were respectively promulgated in 1824, 1891, 1934, 1937, 1946 and 1967.

compulsory loan in Brazil was in 1994 and the period of taxpayer's refund was of 20 years.

Special Contributions also called Social Contributions or *Parafiscais* are taxes whose revenues have specific purposes. They may be social contribution, contribution of intervention in the economic domain, contribution of concern of economic or professional categories, and finally, contribution to expenditure of public lighting service. The social contributions were projected to finance and sustain the public social security plans.

### **1.1.2. Limitations on taxing power**

The articles 150 to 152 of the Brazilian Constitution framed some government limitations to tax in the National Tax System. Law scientists refer to these limitations as tax constitutional principles. Although there are some other principles that belong to some specific taxes, the tax constitutional principles below apply to most Brazilian taxes:

#### **1.1.2.1. Principle of Legality**

In tax matters, this principle demands that in general, no citizen is obligated to pay a tax unless previously exists a law requiring the fulfillment of such obligation. This means that no government can create or increase taxes without the existence of a previous law defining all the tax issues (*who pays, who receives, hypothesis of incidence<sup>2</sup>, tax base, tax rate, etc*).

#### **1.1.2.2. Principle of Anteriority**

This principle does not allow Governments levy a new created tax or a tax increase in the same year that the law is published, and even if it is published one year before, it does have to complete at least ninety days after its publication. This principle is also known as taxpayer's non surprise principle.

Due to some strategic and economic issues, this principle does not take effect in some Federal taxes.<sup>3</sup>

#### **1.1.2.3. Principle of Non-Retroactivity**

Principle of non retroactivity means that the effects of a law that creates or increases a tax cannot reach earlier periods of time than the date of the published law.

#### **1.1.2.4. Principle of Equality**

A tax law cannot give unequal conditions to taxpayers that are in the same conditions.

#### **1.1.2.5. Principle of Tax Payment Capability**

The principle of tax payment capability states that when possible, the Governments shall levy taxes according to the economic capacity of the taxpayers.

#### **1.1.2.6. Principle of Non-Confiscatory Taxes**

This principle prevents that Governments levy taxes with high tax rates that may cause confiscation effects on the taxpayers' savings and properties.

#### **1.1.2.7. Principle of Uniformity**

This principle states that Federal Government cannot create federal taxes that distinguish or give preferences to some state or local government in detriment of the others.

---

<sup>2</sup> In technical terms of Brazilian tax law, hypothesis of incidence means an abstract fact or situation that requires an obligation to pay a tax.

<sup>3</sup> The Federal taxes are: Import Tax, Export Tax, Tax over Industrialized Products, Tax over Financial Transactions, Extraordinary Tax of War, Compulsory Loans for public calamity and external war.

Nevertheless, the same article (151) of the Brazilian Constitution admits that Federal Government may give tax incentives in order to promote the equilibrium of the social economic development in the country, which in other words, practically reverses the effects of this principle.

### 1.1.3. Federal Taxes

Therefore, considering the National Tax System framed by the Constitution of Brazil, the following hypotheses of incidence are exclusively taxed by the Federal Government:

- Importation of products
- Exportation of products
- Income<sup>4</sup>
- Industrialization of products
- Financial transactions, money exchange and insurance operations.
- Rural properties
- Large fortunes<sup>5</sup>
- War financing<sup>6</sup>
- Any other fact or operation that are not taxed by Local and State Governments (*residual tax*)
- Fees in Federal jurisdiction
- Improvement contributions in Federal jurisdiction
- Compulsory loans
- Special contributions (*social in general, social security, economic intervention, professional categories, etc*).

### 1.1.4. State Taxes

The following hypotheses of incidence are exclusively taxed by State Governments<sup>7</sup>:

- Inheritance of properties or donation of assets and rights.
- Circulation of goods (*including fuels and electrical energy*)
- Transportation services (*excluding municipal transportation service*)
- Telecommunications services
- Property of motor vehicles
- Fees in State jurisdiction
- Improvement contributions in State jurisdiction
- Social security contribution

### 1.1.5. Local Taxes

The following hypotheses of incidence are exclusively taxed by Local Governments:

- Urban properties (*land and building*)
- Real estate transfer by dealing

---

<sup>4</sup> Personal and Corporate Income are levied

<sup>5</sup> Although a tax over Large Fortunes is authorized by the Brazil's Constitution, currently there is no Complementary Federal Law to regulate it, and because of that, this tax cannot be charged by the Federal Government.

<sup>6</sup> Tax for financing war is an Extraordinary tax

<sup>7</sup> The Federal District of Brazil (*Brasilia*) also imposes State taxes.

- Supply of services in general, excluding the services taxed by State Governments
- Fees in Local jurisdiction
- Improvement contributions in Local jurisdiction
- Social security contribution
- Public lighting contribution

Some taxes include more than one hypothesis of incidence, which it means to say that the number of hypotheses is not necessarily the same number of existing taxes.

Thus considering the National Tax System, there are two Federal social contributions (*PIS and COFINS*) and one State Tax (ICMS) that impose a tax burden over telecommunications services in Brazil.

## 1.2 – PIS<sup>8</sup> and COFINS<sup>9</sup> – Federal Social contributions over Gross Revenue

Despite not being corporate income taxes, the Federal Social contributions PIS and COFINS are imposed on Gross Revenue of Telecommunications companies at rates<sup>10</sup> of 0.65% and 3% respectively, when the company pays corporate income tax under the deemed taxable income regime (*cumulative system*).

If the company pays the corporate income tax based on actual income regime, the rates<sup>11</sup> will be 1.65% to PIS and 7.6% to COFINS, where in this last case, the company may use input credit of these two taxes to offset its PIS and COFINS liabilities (*non-cumulative system*).

Paid by corporations, PIS and COFINS are indirect taxes that are obviously included in the price of telecommunications services borne by consumers. This causes an economic effect known as *tax-inclusive rate* that will be described in the section 1.3.3.

In spite of the fact that the Brazilian Supreme Court has already recognized that *tax-inclusive rate* mechanism may be implemented by the ICMS<sup>12</sup>, the adoption of this feature by PIS and COFINS contributions is still a matter of controversial court discussion<sup>13</sup> between companies and Federal Government. Meantime, it has also been applied in these two social contributions

In 2011 the Brazilian Federal Government collected U\$ 103.2 billion<sup>14</sup> from PIS and COFINS contributions.

## 1.3 - ICMS<sup>15</sup> – State Tax over Goods circulation, Transportation and Communications services

Although there are three major State taxes in Brazil (*not considering*

---

<sup>8</sup> PIS is an acronym of the Portuguese expression “*Programa de Integração Social*” that means “*Social Integration Program*”.

<sup>9</sup> COFINS is an acronym of the Portuguese expression “*Contribuição para Financiamento da Seguridade Social*” that means “*Contribution to Social Security Financing*”.

<sup>10</sup> Tax rates of PIS and COFINS applied since 2004 until present (2013).

<sup>11</sup> Tax rates of PIS and COFINS applied since 2004 until present (2013).

<sup>12</sup> Judicial case: RE nº 212209/RS, Rel. Min. Marco Aurélio, D.J. Feb, 14<sup>th</sup>, 2003.

<sup>13</sup> Judicial case: RE nº 240.785/MG, Rel. Min. Marco Aurélio, (*case not closed up to the moment*).

<sup>14</sup> Values declared by Secretariat of the Federal Revenue of Brazil in the report “*Análise da Arrecadação das Receitas Federais - 2011*” which means “*Analysis of the Collection of Federal Revenues - 2011*” available at: <http://www.receita.fazenda.gov.br/publico/arre/2011/AnalismensalDez11.pdf>. US Dollar to Brazilian Exchange Rate (USD/BLR) was at \$ 1.9848 in March, 1st, 2013.

<sup>15</sup> ICMS is an acronym of the Portuguese expression “*Imposto sobre operações relativas à circulação de mercadorias e sobre prestações de serviços de transporte interestadual e intermunicipal e de comunicação*”, that means “*Tax over goods circulation and over interstate and intercities transportation and communications services*”.

contributions and fees), ICMS is the most important source of revenue to Brazilian States. This relevance is mostly because ICMS taxes different important economic activities, “as if it were five different taxes in one single tax”<sup>16</sup> as explains Roque Carraza<sup>17</sup>.

The Brazilian Constitution does not define all the aspects and details of the taxes listed in the National Tax System chapter, and because of that each tax must have a Federal Complementary Law<sup>18</sup> to regulate its operations. In case of a State tax, there will be also a related State Law<sup>19</sup> to establish the rules of the State.

### 1.3.1. Hypotheses of Incidence<sup>20</sup> of ICMS

In practical terms, according to the Federal Law n° 87/1996, there are three economic activities taxed by the ICMS:

- Circulation of goods, including here: electrical energy, oil, fuels, gas, and minerals
- Interstate and intercity transportation services
- Communication services

### 1.3.2. Tax Base<sup>21</sup> and Tax Rate<sup>22</sup> of ICMS

The tax base of ICMS is the final price of the trade operation (*in case of circulation of goods*) or the final price of the service (*in case of transportation or communications services*).

The tax rate of ICMS is statutory, which means that it is a legally imposed rate. Nevertheless, ICMS has several tax rates according to the relevance or essentiality of the goods or the services to the society. In Paraná State for instance, tax rates of ICMS start from 0% (*zero*) for essential goods like some medicines and vaccines, vegetables, fruit, milk, sugar, bread, meat, coffee, etc., up to 29% over the price of goods or services, like electrical energy, tobacco products, alcoholic beverages, and communications services.

### 1.3.3. Tax-Inclusive Rate

ICMS has also a particular mechanism that distinguishes it from plain taxes. A legal clause requires that the tax owed has to be integrated itself on the tax base, framing the ICMS as a “*tax-inclusive rate*”.

Inspired on value added taxes (VAT) of European countries, this feature makes the real tax rates higher than the nominal tax rates set by the law. By consequence, it results in negative economic effects over the prices of goods and services because a tax-inclusive rate increases further the ICMS tax burden.

---

<sup>16</sup>According to Roque Carrazza’s understanding, the five subdivisions of the ICMS are: tax over goods circulations; tax over interstate and intercities transportation; tax over communication services; tax over production, importation, circulation, distribution or consumption of oil, fuels and electrical energy; and finally, tax over extraction, circulation, distribution or consumption of minerals.

<sup>17</sup> CARRAZZA, Roque Antonio. ICMS. 10<sup>th</sup> edition. São Paulo. Malheiros, 2005, p. 34-35.

<sup>18</sup> The Complementary Law of the ICMS is the Federal Law n° 87/1996.

<sup>19</sup> Considering that Brazil has 27 states, we mention as reference the State Law n° 11.580/1996 of Paraná State.

<sup>20</sup> In technical terms of Brazilian tax law, hypothesis of incidence means an abstract fact or situation that requires an obligation to pay tax.

<sup>21</sup> Tax base is the value of reference in which is applied the tax rate to calculate the value of the tax.

<sup>22</sup> Tax rate is the percentage imposed by the law over the tax base to calculate the amount of tax that shall be paid.

Here is an example of how a tax-inclusive rate works:

- Let  $t$  be the ICMS tax rate. For a 25% rate, then  $t = 0.25$ ;
- Let  $a$  be the real (*effective*) tax rate of a good or a service;
- Let  $p$  be the retail price of the good, including the tax, then  $p = 100$
- The revenue that would go to the government equals to:  $t \times p$ , then  $t \times p = 25$  or  $(0.25 \times 100)$ ;
- The revenue remaining for the retailer of the good or the service:  $p - (t \times p)$ , then  $p - (t \times p) = 75$  or  $[100 - (0.25 \times 100)]$ ;
- To obtain the real tax rate, divide the money going to the government by the retailer's money leftover:

$$a = \frac{t \times p}{p - (t \times p)} \quad \text{or} \quad a = \frac{25}{75} \quad \text{then,} \quad a = 0.3333 \text{ or } 33\%$$

In another example, the table below shows the differences between a tax-inclusive rate (ICMS) and a tax-exclusive rate, and their different economic effects in the retail price of a good or service:

	(a)	(b)	[c] = (a) * (b)	(d)	{e} = [c] + (d)	[c] / (d)
	Retail Price	Tax Rate	Tax owed	Net Retail Price	Net Retail Price plus Tax owed	Real Tax Rate
<b>Tax-Inclusive Rate</b>	100.00	25%	25.00	75.00	100.00	33.33%
<b>Tax-Exclusive Rate</b>	75.00	25%	18.75	75.00	93.75	25.00%

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA

Thus, the *tax-inclusive rate* mechanism makes the real amount of tax paid (*effective tax rate*) higher than the value resulting from the plain calculation of the percentage rate of the tax (*nominal tax rate*), initially assumed to be borne by taxpayers.

#### 1.3.4. Considerations about ICMS.

The ICMS is an indirect tax paid by companies and transferred to prices of goods and services; it is charged in every transfer or sales operations, wholesale or retail; and where it is allowed to use input credit of ICMS paid in previous operations to offset its tax liability (*value added tax*).

Particularly in telecommunications services, the ICMS is only charged when services are destined to the final consumers, reason of why most telecommunication companies have no ICMS input credit to offset their tax liability.

The information about ICMS in this section does not exhaust or cover all the particular aspects of this state tax, as for example, its constitutional principles and other relevant issues that turn it into such complex and special tax to the Brazilian States. Although, the information presented in this section is enough to understand the discussion brought in this research paper.

In 2011 the Brazilian States collected U\$ 154.8 billion<sup>23</sup> from ICMS tax.

<sup>23</sup> In conformity with CONFAZ (National Council of Finance Policy) report “Table I – ICMS Revenue – Current Values – 2011” available at: <http://www.fazenda.gov.br/confaz/boletim/>. (Click in the option titled “Valores

## 2. AN INTRODUCTION TO THE UNITED STATES TAX SYSTEM

### 2.1. United States Constitution and Limitations on taxing power

The United States Constitution was adopted on September, 17<sup>th</sup>, 1787 and it is the second constitution of USA's history<sup>24</sup>. Idealized by the founding fathers<sup>25</sup>, the United States Constitution became worldwide known through History as a well succeed model of rules and principles desired in a modern society, such as popular sovereignty, limited government, separation of powers and bill of rights. Currently, the United States Constitution has 27 amendments made to the original text. The first one was made in 1791 and the last amendment occurred in 1992.

The United States Constitution does not make too many mention about taxes, neither has an article or a section dedicated to design the American Tax System. In fact, there are brief references about taxes with almost no constitutional constraints.

#### 2.1.1. Origination Clause

The Article 1, Section 7, Clause 1, states that all Federal tax and tariff<sup>26</sup> legislation must originate in the House of Representatives, although the Senate retains its normal power to amend any bill sent to it from House. The constitutional designation of the House of Representatives is because it is the most numerous branch of Congress and more associated to the people and their approval. In modern practice, the Origination clause has had little effect, considering that currently many revenue bills have their intellectual genesis in the Treasury Department, not in the Congress.

#### 2.1.2. Uniformity Clause

The Article 1, Section 8, Clause 1 says that "*Congress shall have Power to lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and to provide for the common Defense and the General Welfare of the United States, but all Duties, Imposts and Excises shall be uniform throughout the United States.*" The very first power given to Congress by the Constitution was the power to tax, but as mentioned in the end of the Clause 1, Federal taxes must be geographically equal all over the country. This rule is known as Uniformity Clause, and it was intended to prevent Federal Government from granting preferential tax treatment to influential owners and to protect the citizen against unequal and unjust taxation.

---

*Correntes*" and inform the wanted year). (Accessed in March, 02, 2013). US Dollar to Brazilian Exchange Rate (USD/BLR) was at \$ 1.9848 in March, 1st, 2013

<sup>24</sup> The first Constitution of United States was the Articles of Confederation and Perpetual Union established by 13 founding states. It was created in November, 15<sup>th</sup>, 1777 and ratified in March, 1<sup>st</sup>, 1781. The main problem with the Articles of Confederation was that although the Federal Government could print and borrow money the currency was worthless because the Federal Government could not pay it back. The Congress had no power of taxation and could only request money from the states. The states however did not attend or contribute their part to the Federal Government.

<sup>25</sup> Founding Fathers were political leaders and statesmen who participated in the American Revolution by signing the United States Declaration of Independence and framing the United States Constitution. Among several personalities the most known are: George Washington, Thomas Jefferson, Benjamin Franklin, James Madison, Alexander Hamilton, John Adams and Samuel Adams.

<sup>26</sup> Taxes on imported goods.

### 2.1.3. Export Taxation Clause

The Article 1, Section 9, Clause 5 sustains that “no Tax or Duty shall be laid on articles exported from any State”. At the time of the Constitutional Convention, southern economies depend upon cash crops (*cotton, tobacco, rice, and indigo*). Those states insisted that the Constitution ensure that those exports would not be taxed by national government. In 1996, based on this Clause, the Supreme Court prohibited the Congress to tax any good in export transit and any service related to such export transit.<sup>27</sup> However, this Clause does not prohibit federal taxation of goods and services before they enter the course of exportation.

### 2.1.4. Commerce Clause and Dormant Commerce Clause

The Article I, Section 8, Clause 3 demands that the Congress has the power “to regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes”. Is it not uncommon to see the individual components of the Commerce Clause referred to under specific terms as the Foreign Commerce Clause, the Interstate Commerce Clause, and the Indian Commerce Clause.

From the Commerce Clause, the Supreme Court and lower courts of the United States concluded that from this power yields a negative converse that is a restriction prohibiting a state from approving legislation that discriminates or offends interstate commerce. This restriction is self-executing and applies even when there is not a conflicting federal statute. The Dormant Commerce Clause does not expressly exist in the text of the Constitution but it is widely accept by the U.S. doctrine.

### 2.1.5. Reserved Powers of the States.

The Tenth Amendment reserves all powers not specifically given to the Federal government by the Constitution to State government. It was intended to reduce fears about the federal government possessing excessive power. It articulates the principle that the federal government is one of the specifically delegated powers, and that it should only exercise those powers explicitly enumerated in the Constitution. On the other hand, it gives to the States the power to regulate about non exclusive federal matters, including taxes and its legislation.

### 2.1.6. Federal Income Tax

The Sixteenth Amendment sets up the Federal Income Tax. This amendment altered the effects of Article I, Section 9, Clause 4<sup>28</sup>, in order to make possible for Congress to implement the modern income tax system (*Federal Income Tax*). It also made the effects of Article I, Section 2, Clause 3 obsolete, since it required that federal direct taxes should be charged in proportion to each state’s population rather than in proportion to each individual’s income. The U.S. Federal Income Tax achieved 100 years of existence on February, 3<sup>rd</sup>, 2013.

---

<sup>27</sup> United States vs. IBM, 517 U.S. 843 (1996).

<sup>28</sup> Article I, Section 9, Clause 4 states that “no Capitation or other direct tax shall be laid, unless in Proportion to the Census or Enumeration herein before directed to be taken.”

## 2.2. Federal Taxes

Currently in the United States, the following economic activities are taxed by Federal Government:

- Income<sup>29</sup>
- Gift<sup>30</sup>
- Estate<sup>31</sup>
- Employment<sup>32</sup>
- Excise

## 2.3. State Taxes

States levy taxes on the following economic activities:

- Sales
- Use<sup>33</sup>
- Income<sup>34</sup>
- Excise
- Severance<sup>35</sup>
- Wealth transfer<sup>36</sup>
- Property<sup>37</sup>

## 2.4. Local Taxes

Economic activities that are taxed by Local Governments<sup>38</sup>:

- Property
- Sales
- Excise
- Income<sup>39</sup>

---

<sup>29</sup> Personal and Corporate Income are levied.

<sup>30</sup> Not as common as the income tax, the gift tax is imposed when a American citizen make certain gifts to another person or entity. The tax applies only to large or high-values gifts.

<sup>31</sup> Federal estate tax applies to gifts a person made at death.

<sup>32</sup> Employment Tax deducts values from employees' paycheck to fund Social Security and Medicare. Employers are also responsible to pay for equal amount.

<sup>33</sup> Use Tax is a tax charged on the use of goods or certain services that were purchased from another state and sales tax has not been paid. Services or goods purchased must be destined for use, storage or consumption, not for retail. In the United States, generally sales tax is not charged when the buyer is not resident in the state of the seller.

<sup>34</sup> Personal and Corporate Income are levied.

<sup>35</sup> Severance taxes are levied on nonrenewable natural resources extracted from lands and waters. They are typically imposed on mining coal and other minerals, cutting timber, harvesting fish, and extracting oil and natural gas.

<sup>36</sup> Wealth transfer are levies on gifts, inheritances (*receiving at death*) and estates (*transferring at death*).

<sup>37</sup> Property tax levies Real property and motor vehicles (*Tangible personal and Business properties*)

<sup>38</sup> As published in U.S. Census Bureau report "*Table 2 - Local Governments by Type and State: 2012*", there are 89,004 local governments units spread across the United States. This number includes 3,031 counties, 19,522 municipalities, 16,364 townships, 12,884 independent schools districts, and 37,203 special districts. For more information, see the page: [http://www2.census.gov/govs/cog/2012/formatted\\_prelim\\_counts\\_23jul2012\\_2.pdf](http://www2.census.gov/govs/cog/2012/formatted_prelim_counts_23jul2012_2.pdf).

<sup>39</sup> Personal and Corporate Income are levied

As it can be noticed, differently from Brazil, the Tax System of the United States does not restrain the three levels of Government (*federal, state and local*) to levy a tax on the same subject, meaning that in real terms, it can result in a more complex tax system with a bigger quantity of tax laws to observe, as well as more than one tax authority to be paid because of similar tax impositions. Nevertheless, it is important to mention that Local Governments cannot require tax impositions without the permission of a state law (*State Tax Code*).

Thus, according to American Tax System, in the United States four major taxes may comprise the tax burden over telecommunications services: two excises (*federal and state*) and two sales taxes (*state and local*).

## 2.5. Excise Taxes – Federal, State and Local

Excises, also called special or selective sales taxes, encompass many types of levies, including a large category of products or services, which may vary according to the tax authority. For instance, Federal Government taxes alcohol products, tobacco products, firearms, diesel and kerosene, insurance policies, harbor maintenance, medical devices, certain types of vaccines, tires, heavy trucks and trailers, group health plan, telecommunications services, and several other items<sup>40</sup>. In Federal level, each type of product or service has its own specific value per unit or percentage of imposition of tax. States mostly tax alcohol beverages, tobacco, fuels products, car rentals, hotel rooms, telecommunications services, and other products and services with different tax rates and administrative rules. Local Governments mainly tax hotel lodging, meals, tobacco, fuels products, and licenses on business and professions.

Although sales tax and excises taxes may seem identical models of taxing, they have particular differences that distinguish one from another. According to David Brunori<sup>41</sup>, “*Sales taxes and excise taxes differ in two important ways: First, sales taxes have general applicability; they are imposed on all goods and services except those specifically exempted from the tax. Excise taxes are imposed only on designated items. Second, sales taxes are ad valorem taxes. In other words, they derive from the value of the product sold. Excise taxes are often imposed per unit (e.g., by pack of cigarettes, or gallon of gasoline)*”. Originally excises are indirect taxes.<sup>42</sup>

In 2011 Federal Government collected U\$ 72 billion<sup>43</sup> and American State Governments collected U\$ 131.8 billion<sup>44</sup> from selective sales (excises). In 2010, Local Governments collected U\$ 26.7 billion<sup>45</sup> from excises.

---

<sup>40</sup> For more information of Federal Excises, see the Internal Revenue Code (USC) Title 26, Subtitles D and E available at: <http://www.law.cornell.edu/uscode/text/26>.

<sup>41</sup> BRUNORI, David. Local Tax Policy. 2<sup>nd</sup> edition. Washington. The Urban Institute. 2007, p. 78.

<sup>42</sup> A tax is classified as an indirect tax when it is supported by the consumer of a good or a service but the tax liability is required from the company or service provider. Some law scholars still classify as indirect tax when it taxes consumption or production instead of taxing directly the taxpayer's income.

<sup>43</sup> Published in Congressional Budget Office report “*The U.S. Federal Budget – A closer look at Revenues – 2011*”, available at: [http://www.cbo.gov/sites/default/files/cbofiles/attachments/BS\\_Revenues\\_print.pdf](http://www.cbo.gov/sites/default/files/cbofiles/attachments/BS_Revenues_print.pdf). (Accessed in March, 12, 2013).

<sup>44</sup> In conformity with U.S. Census Bureau report “*State Government Tax Collections: 2011*”, available at: <http://www2.census.gov/govs/statetax/2011detailedrevisions1212.pdf>. (Accessed in March, 02, 2013).

<sup>45</sup> Published in the U.S. Census Bureau report “*Appendix Table A-1. State and Local Government Finances by Level of Government: 2010*”, available at: [http://www2.census.gov/govs/estimate/summary\\_report.pdf](http://www2.census.gov/govs/estimate/summary_report.pdf). (Accessed in March, 12, 2013).

## 2.6. Sales Taxes – State and Local

Sales taxes are imposed on the sale of goods and services. They are also charged on lease or rental of tangible personal property, such as portable machinery and equipment, tools, office furniture, vehicles, and others supplies held by businesses. Sales tax is an indirect tax, and because of that, it is collected by the seller or service provider at the moment of sale or rental.

Sales taxes (*State and Local*) genuinely have exclusive tax rate, which means that the value of tax is resulted from a simple calculation of the purchase price times the applicable tax rate. However, tax rates may widely vary by jurisdiction and by type of good or service, from the percentage of 1% up to 10%.

Considered one of the most important sources of revenue in the United States, in 2011 states collected U\$ 234.4 billion<sup>46</sup> from sales tax. According to David Brunori<sup>47</sup>, from 50 states of the U.S., 45 states impose sales tax. Alaska, Delaware, Montana, New Hampshire, and Oregon do not impose state sales tax, although Alaska authorized local-option sales taxes. Nevertheless, the states that do not charge sales tax comprise less than 3% of the U.S. population, which means that the overwhelming majority of Americans routinely pays sales tax.

On the other hand, local governments depend on state laws permission to impose tax in their jurisdiction. Once permitted by state law, the local community might also need to approve the imposition of a local tax by referendum. Generally, local sales taxes are charged as an additional percentage to the state's sales tax rate. The local percentage is collected from the consumer on retail sales at the time of sale and is distributed back to the locality where the sale occurred. Because of that, local sales taxes are mainly administered by states Department of Revenue.

Local sales taxes are the second source of revenue<sup>48</sup> for local governments, and currently are charged in 33 of the 45 states that impose sales tax in the United States. In 2010, Local Governments collected U\$ 62.3 billion<sup>49</sup> in sales tax.

## 2.7. Differences between the Brazilian and United States tax systems

Before concluding the analysis of the American tax system, it is relevant to point out that there are significant differences between the Brazilian and the USA's legal systems that reflect directly in how tax laws are written and how the tax system is established in each country.

In Brazil, and in most of Europe, Latin America, Africa and Asian countries the adopted legal system is the Civil Law. The tradition of this model was developed in continental Europe and was applied in the colonies of European imperial power such as Spain and Portugal. It was also adopted in the 19<sup>th</sup> and 20<sup>th</sup> centuries by countries formerly possessing distinctive legal traditions, such as Russia and Japan.

---

<sup>46</sup> According to U.S. Census Bureau report “*State Government Tax Collections - Summary Report: 2011*”, available at: <http://www2.census.gov/govs/statetax/2011stcreport.pdf>. (Accessed in March, 02, 2013).

<sup>47</sup> BRUNORI, David. *State Tax Policy*. 3<sup>rd</sup> edition. Washington. The Urban Institute. 2011, p. 61.

<sup>48</sup> Property tax is the most important source of revenue to Local Governments, as announced in the U.S. Census Bureau report “*Appendix Table A-1. State and Local Government Finances by Level of Government: 2010*” available at: [http://www2.census.gov/govs/estimate/summary\\_report.pdf](http://www2.census.gov/govs/estimate/summary_report.pdf). (Accessed in March, 02, 2013).

<sup>49</sup> Published in the U.S. Census Bureau report “*Appendix Table A-1. State and Local Government Finances by Level of Government: 2010*”, available at: [http://www2.census.gov/govs/estimate/summary\\_report.pdf](http://www2.census.gov/govs/estimate/summary_report.pdf). (Accessed in March, 12, 2013).

The Civil Law system is *codified*, which means that it has comprehensive continuously updated legal codes that specify all matters capable of being brought before a court, the applicable procedure, and the appropriate punishment for each offense. In a civil law system, the judge's role is to establish the facts of the case and to apply the provisions of the applicable code. Though the judge often brings the formal charges, investigates the matter, and decides on the case, he works within a framework established by a comprehensive, codified set of laws. The judge's decision is consequently less crucial in shaping civil law than the decisions of legislators and legal scholars who draft and interpret the codes.

In the United States the operated legal system is the Common Law. The Common Law tradition emerged in England during the Middle Ages and was taken within British colonies across continents.

Common law is generally *uncodified*. This means that there is no comprehensive compilation of legal rules and statutes. While common law does rely on some scattered statutes, which are legislative decisions, it is largely based on precedent, meaning the judicial decisions that have already been made in similar cases. These precedents are maintained over time through the records of the courts as well as historically documented in collections of case law known as yearbooks and reports. The precedents to be applied in the decision of each new case are determined by the presiding judge. As a result, judges have an enormous role in shaping American and British law.

Brazil has an entire chapter devoted to frame the National Tax System in its Constitution. In the highest and most important law of the country it has already been established which taxes are allowed and who their tax authorities are. It also defines the governments' limitation to tax, as well as specific features that taxes must have, known as tax constitutional principles. With this constitutional framing, federal, state and local governments cannot create or impose taxes that do not belong to their competence, or even, enact tax laws that disrespect any tax constitutional principles. In this sense, it is noticeable that Brazil has more a vertical, inflexible and structured tax system that limits the power of Governments and the effects of tax laws.

On the other hand, the United States do not have in their Constitution a tax system designed. With the exception of the reference to the Federal Income Tax in the Amendment XVI, there are no references to other taxes in the American Constitution. This feature delegates to Federal, State and Local tax laws (*codes*) a wide competence to create and impose taxes on American citizens. Thus, it is obvious that the United States has more a flexible and distributed tax system, with few constitutional restrictions and wider liberty for Federal, State and Local governments to create and regulate their taxes.

### 3. TAX LOADING OVER TELECOMMUNICATIONS SERVICES

The purpose of this chapter is to present the figures of tax loading in telecommunications services mainly in Brazil and the United States, in order to compare how different the fiscal policies are for these services, as well as to show the economical impact of taxes over the prices of telecommunications services in both countries.

Additionally, numbers of taxation on mobile telephony of Latin America (*Central and South America*) were brought here with the objective of having a wider and better comparison of the tax burden over telecommunications services in different economies.

The comparisons of tax burden in telecommunications services in different countries will help to identify if lower taxation in these services is more practiced in developed countries<sup>50</sup> than in economic developing ones. It also may help to see if more accessible prices in telecommunications services may be related to economic development.

Finally, aiming to focus in the most relevant telecommunications services in numbers of quantity, values, and market relevance for long terms, as well as uniformity in the comparisons, this chapter will preferably analyze tax burden in the mobile telephony and broadband internet services.

#### 3.1. The Brazilian taxing model on Telecommunications Services

The 3<sup>o</sup> paragraph of the article 155 of Brazilian Constitution states that with the exception of ICMS, import and export taxes, no other tax shall be charged over telecommunications services. Nevertheless, other tax species of taxes like social contributions and fees<sup>51</sup> may be charged. Currently in Brazil there are no import or export taxes on these services. In practical terms, the taxes charged over telecommunications services are ICMS and Federal social contributions (*PIS and COFINS*).

This study will not consider other indirect taxes that may be imposed to telecommunications companies, like corporate income tax, property tax, social contribution over net profit (*CSSL*), financial transactions tax (*IOF*) or the *FUST*<sup>52</sup>, *FUNTEL*<sup>53</sup> and *FISTEL*<sup>54</sup> fees.

---

<sup>50</sup> One of the most used criterion for classifying economies in Developing or Developed countries is the World Bank's indicator of Gross National Income (*GNI*) per capita. Based on GNI per capita of each year, the World Bank classifies 214 economies as low income, middle income (*subdivided into lower middle and upper middle*), or high income. According to 2011 GNI per capita, using the World Bank Atlas method, the groups are: low income, US\$1,025 or less; lower middle income, US\$1,026 - US\$4,035; upper middle income, US\$4,036 - US\$12,475; and high income, US\$12,476 or more. Some indicators GNI per capita in 2011: Brazil's US\$ 10,720 (47°); The United States' US\$ 48,620 (9°); Norway is the highest with US\$ 88,890 and Congo is the lowest with US\$ 190. For more information, see the World Bank Data available at: <http://data.worldbank.org/indicator>.

Other indicator used to measure the development of a country is the Human Development Index (HDI) from published by the United Nations Development Programme. See more at: <http://data.un.org/DocumentData.aspx?q=human+development+index&id=269>.

<sup>51</sup> *FUST*, *FUNTEL* and *FISTEL* are examples of Federal Fee charged over telecommunications services.

<sup>52</sup> *FUST* is an acronym of the Portuguese expression "*Fundo de Universalização dos Serviços de Telecomunicações*" that means "*Fund for Universalization of the Telecommunications Services*". *FUST* was created to fulfill projects for universalization of the telecommunications services. *FUST* rate is 1% over Gross Revenue of Telecommunications companies. The collected money is administered by Federal Department of Communications. According to ANATEL's 2011 Annual Report, *FUST* collected US\$ 1.36 billion in 2011 and US\$ 6.25 billion since it was created (2000). (*US Dollar to Brazilian Exchange Rate (USD/BLR) was at \$ 1.9848 in March, 1st, 2013*).

<sup>53</sup> *FUNTEL* is an acronym of the Portuguese expression "*Fundo para o Desenvolvimento Tecnológico das Telecomunicações*" that means "*Fund for Technological Development of Telecommunications*". *FUNTEL* was created to stimulate the process of technological innovation and to enlarge the capacity of competition of national telecommunications industry. *FUNTEL* rate is 0.5% over Gross Revenue of Telecommunications companies. The collected money is administered by Federal Department of Communications. As published in its electronic page (see at

### 3.1.1. ICMS over Telecommunications Services.

In Brazil the Federal Complementary Law of ICMS is the Federal Law nº 87/1996. This law does not frame all the details and rules of ICMS, but it establishes national uniform definitions and procedures that all states must observe, such as the scope of taxation of ICMS, definitions of the place where the tax shall be paid and who is responsible for tax payment, the moment of tax payment, how tax bases are determined, and finally, rules of the input credits mechanism to obtain the net value of ICMS that shall be paid.

On the other hand, ICMS state laws generally define tax rates, exemptions, tax incentives, general liabilities, accessories obligations (*like registration in the Department Taxation, report forms and filing procedures, etc*), tax monitoring controls, special regimes, penalties and fines for late filing return, late or under payment, etc.

The Federal Law nº 87/1996 states that ICMS shall be collected when a person contract *non-free* communication services, provided in any way, included generation, emission, reception, transmission, retransmission, repetition and enlargement of communication of any type<sup>55</sup>. This statement implies in a wide interpretation of what communication services are, and because of that, law doctrine in general consider telecommunications as a species of the communication gender<sup>56</sup>.

In practical terms, communication services today consist of voice, video and data (*including audio and video*) transmission services delivered over wires (*telephone wires, cable TV lines, optical fiber, etc*) and wireless (*mobile telephony, radio waves, satellite, etc*) in a private or public network, including Internet. For a better convenience in translation terms and purposes of this research paper, all communications services will be simply referred to as telecommunications services.

Besides the communication services mentioned by Federal Law nº 87/1996, additionally the Constitution of Brazil demands that ICMS shall not tax communication services that are provided by free and open reception of audio and images<sup>57</sup>, such as free-to-air (FTA) television (TV) and radio broadcasts.

Considering that the tax rates of the telecommunications services are established by state laws, each state may have different tax rate for identical service. As exposed above in the beginning of this chapter, this research paper does not intend to compare the tax loading of all types of telecommunications services taxed by ICMS; however for registration purposes only, Table 1 below displays current<sup>58</sup> tax rates of ICMS in Paraná State for all telecommunications services.

---

<http://www.mc.gov.br/acoes-e-programas/inovacao-tecnologica/fundo-para-o-desenvolvimento-tecnologico-das-telecomunicacoes-funttel/392-temas/inovacao-tecnologica/fundo-para-o-desenvolvimento-tecnologico-das-telecomunicacoes-funttel/23762-receita-e-orcamento>) FUNTTEL collected US\$ 248.8 million in 2011 and US\$ 1.7 billion since it was created (2000). (*US Dollar to Brazilian Exchange Rate (USD/BLR) was at \$ 1.9848 in March, 1st, 2013*).

<sup>54</sup> FISTEL is an acronym of the Portuguese expression “*Fundo de Fiscalização das Telecomunicações*” that means “*Telecommunication Inspection Fund*”. FISTEL was created in 1966 and it is formed by two fees that are charged from telecommunications companies; The first fee is charged when it is given a license to operate stations (TFI) and the second is an annually license to explore telecommunication service (TFF). The collected money is administered by Federal Department of Communications. According to ANATEL’s 2011 Annual Report, FISTEL collected US\$ 1.87 billion in 2011. (*US Dollar to Brazilian Exchange Rate (USD/BLR) was at \$ 1.9848 in March, 1st, 2013*).

<sup>55</sup> Subsection III of the Article 2º of the Federal Complementary Law nº 87/1996.

<sup>56</sup> MELO, José Eduardo Soares de. ICMS Teoria e Prática. 4<sup>th</sup> edition. São Paulo. Dialética, 2000, p. 110.

<sup>57</sup> Article 155, 2º Paragraph, Subsection X, Item “d” of the Constitution of Brazil (1988).

<sup>58</sup> April 2013. Conforming to the State Law nº 11.580/1996 (*updated until State Law nº 17.444 of Dec*

### ICMS Tax Rates in Paraná State for all types of taxed telecommunications services

Telecommunications Services	Nominal Tax Rate	Fiscal Incentive	Net Nominal Tax Rate	Legal Clause of Fiscal Incentive
Wireline Telephony	29%		29%	
Mobile Telephony	29%		29%	
Internet Broadband	29%	Exemption of tax for 1 Mbps Internet Broadband at montly price of U\$ 15	29%	Item 138 - Appendix I of RICMS/PR Decree nº 6080 of Sep 28th, 2012
Data Transmission	29%		29%	
VOIP - Voice over Internet Protocol communication	29%		29%	
Satellite Communication and Data Transmission	29%		29%	
Subscription Television (pay TV)	29%	Reduction of Tax Base 65,52% Off	10%	Item 19 - Appendix II of RICMS/PR Decree nº 6080 of Sep 28th, 2012
Monitoring and Tracking of Vehicles and other Personal Properties	29%	Reduction of Tax Base 82,76% Off	5%	Item 32 - Appendix II of RICMS/PR Decree nº 6080 of Sep 28th, 2012

Table 1 – Current Tax Rates of ICMS in Paraná State for all types of taxed telecommunications services - (April 2013)  
Source: RICMS/PR<sup>59</sup>

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models. Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA

### 3.1.2. ICMS Nominal Tax Rates of Telecommunications Services in Brazil

Brazil is divided into 27 federal units (26 states and 1 federal district) and as ICMS is a state tax, each state has its own list of ICMS tax rates for goods and services. Table 2 below lists current<sup>60</sup> nominal tax rates of ICMS for mobile telephony and internet broadband services, two types of telecommunications services that will be examined in this study.

The highest ICMS tax rate for Mobile Telephony Service is 35% and it is from Rondônia State (35%). The lowest is 25% in 12 states (AC, AP, DF, ES, MG, MT, PI, RR, RS, SC, SP and TO).

The highest ICMS tax rate for Internet Broadband Service is 32% and it is from Mato Grosso State. The lowest is 25% in 12 states (AC, AP, DF, ES, MG, PI, RO, RR, RS, SC, SP and TO). Brazil's average of ICMS tax rate is 27% for both services.

<sup>59</sup> RICMS/PR is an acronym of the Portuguese expression “Regulamento do ICMS do Estado do Paraná” that means “ICMS Tax Code of Paraná State”. It was enacted by Decree nº 6080 in September 28th, 2012.

<sup>60</sup> December 2012.

		State Tax	
		ICMS Nominal Tax Rates in Brazil	
State		Mobile Telephony Service	Internet Broadband Service
Acre	AC	25%	25%
Alagoas	AL	27%	27%
Amazonas	AM	30%	30%
Amapá	AP	25%	25%
Bahia	BA	27%	27%
Ceará	CE	27%	27%
Federal District	DF	25%	25%
Espírito Santo	ES	25%	25%
Goiás	GO	29%	29%
Maranhão	MA	27%	27%
Minas Gerais	MG	25%	25%
Mato Grosso do Sul	MS	29%	29%
Mato Grosso	MT	25%	32%
Pará	PA	30%	30%
Paraíba	PB	30%	30%
Pernambuco	PE	28%	28%
Piauí	PI	25%	25%
Paraná	PR	29%	29%
Rio de Janeiro	RJ	29%	29%
Rio Grande do Norte	RN	27%	27%
Rondônia	RO	35%	25%
Roraima	RR	25%	25%
Rio Grande do Sul	RS	25%	25%
Santa Catarina	SC	25%	25%
Sergipe	SE	27%	27%
São Paulo	SP	25%	25%
Tocantins	TO	25%	25%
<b>Brazil's Average</b>	<b>BR</b>	<b>27%</b>	<b>27%</b>

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA

Table 2 – Nominal tax rates of ICMS for telecommunications services in Brazil - (December 2012)

Source: GT40 – COTEPE/CONFAZ

### 3.1.3. Calculating prices of telecommunications services with Brazilian taxes

To get the total amount of tax loading over telecommunications services it is not enough to consider the percentage given by the nominal tax rate of ICMS. There are still the burden of the federal social contributions (*PIS and COFINS*) and the economic effects of *tax-inclusive rate* from the three taxes.

Thus, the first thing to know is how calculate the price of service with taxes. Remembering that taxes must be integrated in the tax base. For this procedure, the formula used is:

<b>Formula to include taxes in the price of the service</b>	
<i>Price of service with taxes</i>	= $\frac{\text{Price of service without taxes}}{1 - (\text{ICMS} + \text{PIS} + \text{COFINS rates})}$

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 – Washington, DC - USA

To make it clearer, the following examples must be observed:

In the first example, it was assumed a cumulative PIS/COFINS rate (3.65%) and an ICMS rate of 25%. From 28.65%, with *tax-inclusive rate* effect, the tax loading increases to 40.15% the price of telecommunications services.

<b>Tax Loading over Telecommunications Services in Brazil</b>			
<b>First Example - Cumulative PIS/COFINS Rates</b>			
Tax Rates:			Total % of Tax Rates
PIS	(Cumulative system)	0.65%	<b>3.65%</b>
COFINS	(Cumulative system)	3.00%	
ICMS		25.00%	<b>25.00%</b>
Calculation to include taxes in price:			
Price of the service without taxes:		<b>\$ 100.00</b>	
<b>\$ 100.00</b>	or	<b>\$ 100.00</b>	
$1 - (3.65\% + 25\%)$		$1 - (0.0365 + 0.25)$	
Price of of the service with taxes:			<b>\$140.15</b>
<b>Percentage of price increase due to Tax Loading in Brazil:</b>			<b>40.15%</b>

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 – Washington, DC - USA

Table 3 – First Example - Price of telecommunications services with taxes

In the second example, it was assumed a non-cumulative PIS/COFINS rate (9.25%) and an ICMS rate of 25%. From 34.25%, with *tax-inclusive rate* effect, the tax loading increases to 52.09% the price of telecommunications services.

Tax Loading over Telecommunications Services in Brazil			
Second Example - Non-Cumulative PIS/COFINS Rates			
Tax Rates:			Total % of Tax Rates
PIS	(Non-Cumulative system)	1.65%	9.25%
COFINS	(Non-Cumulative system)	7.60%	
ICMS		25.00%	25.00%
Calculation to include taxes in price:			
Price of the service without taxes:			\$ 100.00
\$ 100.00		or	\$ 100.00
$1 - (9.25\% + 25\%)$			$1 - (0.0925 + 0.25)$
Price of of the service with taxes:			\$152.09
Percentage of price increase due to Tax Loading in Brazil:			52.09%

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA

Table 4 – Second Example - Price of telecommunications services with taxes

Finally, it is important to keep in mind that the examples above use a single ICMS tax rate (25%), but as mentioned previously, each state has its own.

FUST and FUNTTEL rates were not considered in the calculation of tax loading of telecommunications services because they are not technically classified<sup>61</sup> as taxes in Brazil.

The next two tables show the tax loading of Mobile Telephony and Internet Broadband Services of all Brazilian states, included in the total amount: the ICMS rate, the PIS and COFINS cumulative and non-cumulative rates, and the economic effects of *tax-inclusive rate*.

<sup>61</sup> FUST and FUNTTEL are considered Fees.

### 3.1.4. Tax loading over Mobile Telephony Service in Brazil

Table 5 below shows the tax burden of Mobile Telephony Service of all Brazilian states, showing the percentage of increase when state and federal taxes are added in the price of the service.

If PIS and COFINS taxes are charged by cumulative system when combined with ICMS, the tax loading starts at 40.2% and reaches 63% (*Rondônia*). If they are charged by non-cumulative system combined with ICMS, the tax loading starts at 52.1% and ends up 79.4%. The average of total tax loading in Brazil for Mobile Telephony Service is 44.5% and 57.3% respectively.

State		Mobile Telephony Service					
		Cumulative System			Non-Cumulative System		
		State Tax ICMS Nominal Tax Rates	Federal Social Contributions PIS/COFINS Tax Rate	Combined Federal-State Tax Total Tax Loading (ICMS + PIS/COFINS) with tax-inclusive rate effect	State Tax ICMS Nominal Tax Rates	Federal Social Contributions PIS/COFINS Tax Rate	Combined Federal-State Tax Total Tax Loading (ICMS + PIS/COFINS) with tax-inclusive rate effect
Acre	AC	25%	3.65%	40.2%	25%	9.25%	52.1%
Alagoas	AL	27%	3.65%	44.2%	27%	9.25%	56.9%
Amazonas	AM	30%	3.65%	50.7%	30%	9.25%	64.6%
Amapá	AP	25%	3.65%	40.2%	25%	9.25%	52.1%
Bahia	BA	27%	3.65%	44.2%	27%	9.25%	56.9%
Ceará	CE	27%	3.65%	44.2%	27%	9.25%	56.9%
Federal District	DF	25%	3.65%	40.2%	25%	9.25%	52.1%
Espírito Santo	ES	25%	3.65%	40.2%	25%	9.25%	52.1%
Goiás	GO	29%	3.65%	48.5%	29%	9.25%	61.9%
Maranhão	MA	27%	3.65%	44.2%	27%	9.25%	56.9%
Minas Gerais	MG	25%	3.65%	40.2%	25%	9.25%	52.1%
Mato Grosso do Sul	MS	29%	3.65%	48.5%	29%	9.25%	61.9%
Mato Grosso	MT	25%	3.65%	40.2%	25%	9.25%	52.1%
Pará	PA	30%	3.65%	50.7%	30%	9.25%	64.6%
Paraíba	PB	30%	3.65%	50.7%	30%	9.25%	64.6%
Pernambuco	PE	28%	3.65%	46.3%	28%	9.25%	59.4%
Piauí	PI	25%	3.65%	40.2%	25%	9.25%	52.1%
Paraná	PR	29%	3.65%	48.5%	29%	9.25%	61.9%
Rio de Janeiro	RJ	29%	3.65%	48.5%	29%	9.25%	61.9%
Rio Grande do Norte	RN	27%	3.65%	44.2%	27%	9.25%	56.9%
Rondônia	RO	35%	3.65%	63.0%	35%	9.25%	79.4%
Roraima	RR	25%	3.65%	40.2%	25%	9.25%	52.1%
Rio Grande do Sul	RS	25%	3.65%	40.2%	25%	9.25%	52.1%
Santa Catarina	SC	25%	3.65%	40.2%	25%	9.25%	52.1%
Sergipe	SE	27%	3.65%	44.2%	27%	9.25%	56.9%
São Paulo	SP	25%	3.65%	40.2%	25%	9.25%	52.1%
Tocantins	TO	25%	3.65%	40.2%	25%	9.25%	52.1%
<b>Brazil's Average</b>	<b>BR</b>	<b>27%</b>	<b>3.65%</b>	<b>44.5%</b>	<b>27%</b>	<b>9.25%</b>	<b>57.3%</b>

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 – Washington, DC - USA

Table 5 - Tax Burden of Mobile Telephony Service in Brazil - Combined Federal-States Taxes - (December 2012)

### 3.1.5. Tax loading over Internet Broadband Service in Brazil

Table 6 below shows the tax burden of Internet Broadband Service of all Brazilian states, showing the percentage of increase when state and federal taxes are added in the price of the service.

If PIS and COFINS taxes are charged by cumulative system when combined with ICMS, the tax loading starts at 40.2% and reaches 55.4% (*Rondônia*). If they are charged by non-cumulative system combined with ICMS, the tax loading starts at 52.1% and ends in 70.2%. The average of total tax loading in Brazil for Internet Broadband Service is 44.3% and 56.9% respectively.

State		Internet Broadband Service					
		Cumulative System			Non-Cumulative System		
		State Tax ICMS Nominal Tax Rates	Federal Social Contributions PIS/COFINS Tax Rate	Combined Federal-State Tax Total Tax Loading (ICMS + PIS/COFINS) with tax-inclusive rate effect	State Tax ICMS Nominal Tax Rates	Federal Social Contributions PIS/COFINS Tax Rate	Combined Federal-State Tax Total Tax Loading (ICMS + PIS/COFINS) with tax-inclusive rate effect
Acre	AC	25%	3.65%	40.2%	25%	9.25%	52.1%
Alagoas	AL	27%	3.65%	44.2%	27%	9.25%	56.9%
Amazonas	AM	30%	3.65%	50.7%	30%	9.25%	64.6%
Amapá	AP	25%	3.65%	40.2%	25%	9.25%	52.1%
Bahia	BA	27%	3.65%	44.2%	27%	9.25%	56.9%
Ceará	CE	27%	3.65%	44.2%	27%	9.25%	56.9%
Federal District	DF	25%	3.65%	40.2%	25%	9.25%	52.1%
Espírito Santo	ES	25%	3.65%	40.2%	25%	9.25%	52.1%
Goiás	GO	29%	3.65%	48.5%	29%	9.25%	61.9%
Maranhão	MA	27%	3.65%	44.2%	27%	9.25%	56.9%
Minas Gerais	MG	25%	3.65%	40.2%	25%	9.25%	52.1%
Mato Grosso do Sul	MS	29%	3.65%	48.5%	29%	9.25%	61.9%
Mato Grosso	MT	32%	3.65%	55.4%	32%	9.25%	70.2%
Pará	PA	30%	3.65%	50.7%	30%	9.25%	64.6%
Paraíba	PB	30%	3.65%	50.7%	30%	9.25%	64.6%
Pernambuco	PE	28%	3.65%	46.3%	28%	9.25%	59.4%
Piauí	PI	25%	3.65%	40.2%	25%	9.25%	52.1%
Paraná	PR	29%	3.65%	48.5%	29%	9.25%	61.9%
Rio de Janeiro	RJ	29%	3.65%	48.5%	29%	9.25%	61.9%
Rio Grande do Norte	RN	27%	3.65%	44.2%	27%	9.25%	56.9%
Rondônia	RO	25%	3.65%	40.2%	25%	9.25%	52.1%
Roraima	RR	25%	3.65%	40.2%	25%	9.25%	52.1%
Rio Grande do Sul	RS	25%	3.65%	40.2%	25%	9.25%	52.1%
Santa Catarina	SC	25%	3.65%	40.2%	25%	9.25%	52.1%
Sergipe	SE	27%	3.65%	44.2%	27%	9.25%	56.9%
São Paulo	SP	25%	3.65%	40.2%	25%	9.25%	52.1%
Tocantins	TO	25%	3.65%	40.2%	25%	9.25%	52.1%
<b>Brazil's Average</b>	<b>BR</b>	<b>27%</b>	<b>3.65%</b>	<b>44.3%</b>	<b>27%</b>	<b>9.25%</b>	<b>56.9%</b>

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models. Sergio Augusto Martins Lebre – Spring, 2013 - Washington, DC - USA

Table 6 - Tax Burden of Internet Broadband Service in Brazil - Combined Federal-States Taxes - (December 2012)

### 3.1.6. Ranking of Brazilian States for Total Tax Loading in Mobile Telephony and Broadband Services

The Table 7 below merges the Tables 5 and 6 previously shown and ranks the Brazilian States by total tax loading in both services.

#### Ranking of Brazilian States for Total Tax Loading in Mobile Telephony and Internet Broadband Services

Mobile Telephony Service						Internet Broadband Service					
		State Tax		Combined Federal-State Tax				State Tax		Combined Federal-State Tax	
RANK	STATE	ICMS	Total Tax Loading (ICMS + PIS/COFINS Cumulative) with tax-inclusive rate effect	Total Tax Loading (ICMS + PIS/COFINS Non-Cumulative) with tax-inclusive rate effect		RANK	STATE	ICMS	Total Tax Loading (ICMS + PIS/COFINS Cumulative) with tax-inclusive rate effect	Total Tax Loading (ICMS + PIS/COFINS Non-Cumulative) with tax-inclusive rate effect	
1	Rondônia	RO	35%	63.0%	79.4%	1	Mato Grosso	MT	32%	55.4%	70.2%
2	Amazonas	AM	30%	50.7%	64.6%	2	Amazonas	AM	30%	50.7%	64.6%
	Pará	PA									
	Paraíba	PB									
3	Goiás	GO	29%	48.5%	61.9%	3	Goiás	GO	29%	48.5%	61.9%
	Mato Grosso do Sul	MS									
	Paraná	PR									
	Rio de Janeiro	RJ									
4	Pernambuco	PE	28%	46.3%	59.4%	4	Pernambuco	PE	28%	46.3%	59.4%
5	Alagoas	AL	27%	44.2%	56.9%	5	Alagoas	AL	27%	44.2%	56.9%
	Bahia	BA									
	Ceará	CE									
	Maranhão	MA									
	Rio Grande do Norte	RN									
Sergipe	SE										
6	Acre	AC	25%	40.2%	52.1%	6	Acre	AC	25%	40.2%	52.1%
	Amapá	AP									
	Federal District	DF									
	Espírito Santo	ES									
	Minas Gerais	MG									
	Mato Grosso	MT									
	Piauí	PI									
	Roraima	RR									
	Rio Grande do Sul	RS									
	Santa Catarina	SC									
	São Paulo	SP									
Tocantins	TO										

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre - 33th Minerva Program - Spring, 2013 - Washington, DC - USA

Table 7 - Ranking of Brazilian States for Total Tax Loading in Telecommunications Services - (December 2012)

### 3.2. The United States taxing model over Telecommunications Services

Considering that telecommunications services are related to technology, most of the taxed telecommunications services in Brazil are equally taxed in the United States. However taxation on telecommunications services in U.S. varies greatly from state to state, from city to city, from one service to another, and even on the way how the service is delivered to consumers. These variations may occur because of a particular fiscal policy of a tax authority (*Local or State Government*), or because of the legacy of tax and regulatory decisions made before the advent of a new communication technology.

The most common taxed telecommunications services in the United States are Wireline telephony, Mobile telephony, Cable TV, Internet Broadband, VOIP, IPTV, among others.

Because in the U.S. each state and many local governments can impose taxation over telecommunications services, and because each tax authority may apply a percentage or a flat rate, there are numerous taxes which vary widely. Researchers have found it difficult to create a database of telecommunications services taxes, and even the companies have faced similar problems in calculating the taxes.

Further, besides State and Local Sales and Excises taxes, in the U.S. there are other taxes and fees imposed exclusively in telecommunications services such as Federal Universal Service Fund (*Federal USF*)<sup>62</sup>, State Universal Service Fund (*State USF*), E911 Tax<sup>63</sup>, Telecommunication Device for Deaf (*TDD*), FCC User Fee<sup>64</sup> (*Cable TV*), and Cable Television Franchise Fee<sup>65</sup> that make it even more difficult to estimate the American tax burden in telecommunications services.

In 2007, the Heartland Institute<sup>66</sup> and the Beacon Hill Institute<sup>67</sup> published a survey of taxes and fees imposed by federal, state, and local governments of some telecommunications services in the 50 largest cities of the country and the 50 state capital cities. The Institutes were able to collect complete data only for 59 of these cities. The results of the study were published in the report titled "*Taxes and Fees on Communication Services*"<sup>68</sup> that among several other information, presented the summary shown in the Table 8 below.

According to this study, the average of tax rate for telecommunications services in USA are 11.69% for Cable Television (pay TV), 17.23% for Wireline telephony, 11.78% for Wireless telephony, 0.71% for Broadband Internet, and a total average for these 4 services of 11.04%. Table 8 shows further information.

---

<sup>62</sup> Federal Universal Service Fund was created by the United States Federal Communications Commission (FCC) in 1997. It was designed to help ensure first-class, affordable telecommunications service for all consumers across the country, especially residents in high-cost rural communities and low-income customers. Additionally, the Federal USF provides for discounted telecommunications services for schools, libraries and rural healthcare facilities. All telecommunications providers are required to pay into the Federal USF, and their contributions may be recovered from customers. . These companies include wireline phone companies, wireless phone companies, paging service companies, and certain Voice over Internet Protocol (VoIP) providers.

<sup>63</sup> Local Enhanced 911 (E911) tax funds are used for county emergency service communication systems. This emergency system automatically provides a caller's name, address, and phone number to the E911 answering service. E911 Tax is a monthly tax on switched access (*hard*) lines, radio access (*wireless telephone numbers*) lines, and Voice Over Internet Protocol (*VoIP*) service.

<sup>64</sup> Cable regulatory/user fees are determined by the FCC and are imposed on all cable television

<sup>65</sup> Cable franchise fees are paid by the cable company to the local government in exchange for the use of public rights-of-way (ROWs). The franchise fee is typically 5 percent of the gross revenue from providing cable services.

<sup>66</sup> The Heartland Institute is an independent national nonprofit organization based in Chicago.

<sup>67</sup> The Beacon Hill Institute (BHI) is the research arm of the Department of Economics at Suffolk University in Boston.

<sup>68</sup> For accessing full report, visit internet address at:  
[http://heartland.org/sites/all/modules/custom/heartland\\_migration/files/pdfs/21104.pdf](http://heartland.org/sites/all/modules/custom/heartland_migration/files/pdfs/21104.pdf).

Variability of Average Monthly Taxes and Fees Paid by Subscribers of Cable, Wireline, Wireless and Internet Services										
Statistic	Cable Television		Wireline Telephony		Wireless Telephony		Broadband Internet		Total	
	Tax	Tax Rate	Tax	Tax Rate	Tax	Tax Rate	Tax	Tax Rate	Tax	Tax Rate
Min	\$ 1.63	3.11%	\$ 4.32	8.76%	\$ 1.81	3.62%	\$ -	0.00%	\$ 10.93	5.81%
Max	\$ 11.07	21.14%	\$ 14.99	30.40%	\$ 10.67	21.35%	\$ 2.19	6.00%	\$ 30.22	16.06%
Mean	\$ 6.12	11.69%	\$ 8.32	16.87%	\$ 5.89	11.78%	\$ 0.26	0.71%	\$ 20.59	10.94%
Standard Deviation	\$ 2.21	4.22%	\$ 2.94	5.96%	\$ 1.93	3.87%	\$ 0.65	1.78%	\$ 5.19	2.76%

Taxes and Fees on Communication Services  
By David Tuerck, Ph.D., Paul Bachman, Steven Titch,  
and Janh Rutledge, Ph.D.

Table 8 - Summary of Taxes and Fees on Communications Services in USA  
Source: The Heartland Institute and the Beacon Hill Institute at Suffolk University

Still, tax rates of Mobile Telephony and Broadband Internet services will be looked in more details in this chapter.

### 3.2.1. Tax loading over Mobile Telephony Service in the United States

On February 18<sup>th</sup>, 2011, Tax Foundation published in Fiscal Fact n° 259, signed by Joseph Henchman, a Report titled “*States Target Cell Phones for Stealth Burdensome Taxes*”<sup>69</sup> where among several considerations, displays tax rates of Mobile Telephony Service for all states of the United States, considering Federal, State and Local taxes.

According to this report, “*cell phones<sup>70</sup> are taxed at much higher level than other consumer items, even as much as or more than alcohol or cigarettes*”. Continuing, it asserts that scholars from across the political spectrum have criticized telecom taxes as a burdensome, regressive, and stifling consumer choice.

Another report published on February 14, 2011 by Tax Analysts named “*A Growing Burden: Taxes and Fees on Wireless Service*”<sup>71</sup> signed by Scott Mackey also brings tax burden numbers over Mobile Telephony Service in the United States, as well as, the configuration of the federal tax, and a detailed 50-state breakdown of the types of taxes and fees imposed by states and local governments in each state.

Later on January 30<sup>th</sup>, 2013, Tax Foundation published in Fiscal Fact n° 355 signed by Joseph Henchman and Scott Drenkard, a Report titled “*State and Local Governments Impose Hefty Taxes on Cell Phone Consumers*”<sup>72</sup> where it brings tax loading numbers of Mobile Telephony Service in the United States, updated to July 2012. Table 9 below is based on the numbers and tax rates published in this report, to consider the tax loading of Mobile Telephony Service in the United States.

However to achieve the purposes of this study, Table 9 considered as amount of federal tax, only the federal excise tax for communications services (26 USC § 4251), discarding the relative percentage of the federal fee USF (*Universal Service Fund*), because it is technically not classified as a tax.

<sup>69</sup> The report is available at: <http://taxfoundation.org/article/states-target-cell-phones-stealth-burdensome-taxes>.

<sup>70</sup> Cell phones here mean Mobile Telephony.

<sup>71</sup> The report is available at: <http://www.ksefocus.com/wordpress-content/uploads/2011/02/2010-Tax-Study-Final-Tax-Notes-PDF.pdf>.

<sup>72</sup> The report is available at: <http://taxfoundation.org/article/state-and-local-governments-impose-hefty-taxes-cell-phone-consumers>.

		Mobile Telephony Service			
State	ST	State Tax	Federal	Combined	Ranking
		State-Local Tax Rate	Federal Excise Tax 26 USC § 4251	Combined Federal- State-Local Tax Rate	
Alabama	AL	7.49%	3.00%	10.49%	40
Alaska	AK	12.09%	3.00%	15.09%	15
Arizona	AZ	12.98%	3.00%	15.98%	11
Arkansas	AR	11.54%	3.00%	14.54%	18
California	CA	10.95%	3.00%	13.95%	22
Colorado	CO	10.82%	3.00%	13.82%	24
Connecticut	CT	7.41%	3.00%	10.41%	41
Delaware	DE	6.28%	3.00%	9.28%	47
District of Columbia	DC	11.62%	3.00%	14.62%	17
Florida	FL	16.59%	3.00%	19.59%	4
Georgia	GA	8.78%	3.00%	11.78%	30
Hawaii	HI	7.53%	3.00%	10.53%	39
Idaho	ID	2.28%	3.00%	5.28%	49
Illinois	IL	15.94%	3.00%	18.94%	5
Indiana	IN	10.86%	3.00%	13.86%	23
Iowa	IA	7.95%	3.00%	10.95%	35
Kansas	KS	13.11%	3.00%	16.11%	10
Kentucky	KY	10.54%	3.00%	13.54%	25
Louisiana	LA	7.21%	3.00%	10.21%	44
Maine	ME	7.27%	3.00%	10.27%	42
Maryland	MD	12.77%	3.00%	15.77%	12
Massachusetts	MA	7.85%	3.00%	10.85%	36
Michigan	MI	7.69%	3.00%	10.69%	38
Minnesota	MN	9.53%	3.00%	12.53%	27
Mississippi	MS	9.23%	3.00%	12.23%	28
Missouri	MO	14.29%	3.00%	17.29%	7
Montana	MT	6.09%	3.00%	9.09%	48
Nebraska	NE	18.67%	3.00%	21.67%	1
Nevada	NV	2.13%	3.00%	5.13%	50
New Hampshire	NH	8.21%	3.00%	11.21%	32
New Jersey	NJ	8.91%	3.00%	11.91%	29
New Mexico	NM	11.08%	3.00%	14.08%	20
New York	NY	17.85%	3.00%	20.85%	3
North Carolina	NC	8.51%	3.00%	11.51%	31
North Dakota	ND	10.96%	3.00%	13.96%	21
Ohio	OH	8.04%	3.00%	11.04%	34
Oklahoma	OK	11.48%	3.00%	14.48%	19
Oregon	OR	1.85%	3.00%	4.85%	51
Pennsylvania	PA	14.13%	3.00%	17.13%	8
Rhode Island	RI	14.68%	3.00%	17.68%	6
South Carolina	SC	10.07%	3.00%	13.07%	26
South Dakota	SD	13.13%	3.00%	16.13%	9
Tennessee	TN	11.63%	3.00%	14.63%	16
Texas	TX	12.15%	3.00%	15.15%	14
Utah	UT	12.67%	3.00%	15.67%	13
Vermont	VT	8.10%	3.00%	11.10%	33
Virginia	VA	6.60%	3.00%	9.60%	45
Washington	WA	18.62%	3.00%	21.62%	2
West Virginia	WV	6.38%	3.00%	9.38%	46
Wisconsin	WI	7.24%	3.00%	10.24%	43
Wyoming	WY	7.79%	3.00%	10.79%	37
<b>United States' Average</b>	<b>US</b>	<b>10.15%</b>	<b>3.00%</b>	<b>13.1%</b>	

TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
 Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA  
 Based on Tax Foundation (Joseph Henchman & Scott Drenkard) Report

Table 9 - Tax Burden of Mobile Telephony Service in the United States - Combined Federal-States Taxes - (July 2012)

### 3.2.2. Tax loading over Internet Broadband Service in the United States

In the United States Internet Broadband services have a particular and interesting issue. Internet Broadband Services are not taxed in the United States. Since the Internet Tax Freedom Act<sup>73</sup> (ITFA) was enacted by the U.S. Congress in 1998, State and Local Governments are prohibited to tax Internet services and electronic commerce.

Nevertheless, states that commonly imposed taxes on Internet services before the enactment of ITFA were exempted from the moratorium and allowed to continue collecting taxes over Internet services. This exemption was due to a grandfather clause in the ITFA, that initially (1998) included 10 states and the District of Columbia. Subsequently, Connecticut, Iowa, Tennessee, and the District of Columbia eliminated their tax on internet services, and South Carolina did not enforce the collection of its tax during the federal moratorium.

According to the Congressional Research Service Report titled "*Internet Taxation: Issues and Legislation*"<sup>74</sup>, currently in the United States, there are 6 grandfathered states that may impose sales or excise tax on Internet access services, since January 2006: New Mexico, North Dakota, Ohio (*on commercial use only*), South Dakota, Texas (*on monthly charges over \$25*), and Wisconsin. There are other 3 states that also are exempted from moratorium of the Internet Tax Freedom Act, but not for charging sales tax over Internet services, but for other types of taxation in telecommunication companies. The states are: Hawaii (*general excise tax on telecommunication companies*), New Hampshire (*communications services tax over all two-way communications equipment*) and Washington State (*gross receipts tax levied on Internet Access business*).

If the U.S. Congress does not extend it again, the Internet Tax Freedom Act expires on November, 1<sup>st</sup>, 2014.

Still, the mentioned report titled "*Taxes and Fees on Communication Services*" from the Heartland Institute affirms that even with the rules of ITFA, it may be difficult sometimes to have all internet services untaxed, because it mostly depends on how state and federal rulings constitute "*internet access*" and what fraction of the value of service might still be subject to tax. Because of that, the report of Heartland Institute classifies Internet broadband services by technology to show how common tax policies are applied in the United States:

Internet broadband service provided via cable modem, Wi-Fi and satellite is generally exempt from state and local taxes;

---

<sup>73</sup> Internet Tax Freedom Act was enacted in 1998 (*Pub. L. 105-277, 112 Stat. 2681-719 - 1998*), 47 U.S.C. § 151 Note). Later, the Internet Tax Nondiscrimination Act (*Public Law No: 107-75 November 15, 2001*) extended the Internet Tax moratorium for two years (*to be terminated on November 1, 2003*). In 2004, the Internet Tax Nondiscrimination Act, (*Pub. L. 108-435, § 7, 118 Stat. 2615, 2618 - 2004*) amended language that had exempted telecommunications services from the moratorium. This amendment allowed States and Local Governments to tax voice services provided over Internet, as well as telephone service using VOIP (*Voice over Internet Protocol*). Finally in 2007, Internet Tax Freedom Act Amendments Act of 2007 (*H.R. 3678 - Public Law No: 110-108*) extend the effects of ITFA of Internet Access and Electronic Commerce (*moratorium*) to November 1st, 2014, as well as, the exemption from such moratorium for states with previously enacted Internet tax laws (*grandfathering provisions*). It also extended the definition of "*Internet Access*" to include related communication services, as homepage, emails and instant messages; repeals the exception for taxing Voice over Internet Protocol (VOIP). Denied the grandfather provisions of ITFA for states that repealed or nullified their tax laws on Internet Access more than 24 months prior to the enactment of ITFA Amendments Act of 2007. For more information, see Page of the Library of Congress at: <http://thomas.loc.gov/cgi-bin/bdquery/z?d110:h.r.03678:>

<sup>74</sup> Congressional Research Service Report titled "*Internet Taxation: Issues and Legislation*" available at: [http://www.ipmall.info/hosted\\_resources/crs/RL33261\\_080707.pdf](http://www.ipmall.info/hosted_resources/crs/RL33261_080707.pdf). Access in March 23th, 2013.

Internet broadband service provided by digital subscriber line (DSL) is also exempted from states and local taxes, except for those states with taxes grandfathered under the Internet Tax Freedom Act.

Internet broadband service provided via wireless device may not be taxed if it is provided by a monthly internet access plan. However, if the service is bundled with a voice service plan for a fixed price, the service may be taxable depending upon whether provider separately states the charge of each service (*internet and voice*) or has the capability to identify the non-taxable part of the bundle in its billing system.

The mentioned report titled “*Taxes and Fees on Communication Services*” shows the results of a survey made in 9 cities of the United States that are known to tax Internet access service. Their rates range from 0.88% to 6% over the price of the service. Averaged across all of the states in the study, the “*grandfathered*” states are responsible for a national mean average monthly of 0.71% for Internet broadband service provided by DSL and cable modem. Table 10 shows the results of the Heartland Institute’s survey in 9 cities where taxing Internet Broadband services is not avoided by ITFA.

<b>Monthly Taxes and Fees and Imputed Rate Paid by Average Subscribers to Broadband Internet Service</b>			
<b>City</b>	<b>State</b>	<b>Tax</b>	<b>Tax Rate</b>
Birmingham	AL	\$ 2.19	<b>6.00%</b>
Montgomery	AL	\$ 2.19	<b>6.00%</b>
Bismark	ND	\$ 1.83	<b>5.00%</b>
Fargo	ND	\$ 1.83	<b>5.00%</b>
Madison	WI	\$ 2.19	<b>6.00%</b>
Milwaukee	WI	\$ 2.19	<b>6.00%</b>
Santa Fé	NM	\$ 1.83	<b>5.00%</b>
Sioux Falls	SD	\$ 1.83	<b>5.00%</b>
Seattle	WA	\$ 2.19	<b>6.00%</b>
Montgomery	AL	\$ 2.19	<b>6.00%</b>
<b>Average for 9 cities</b>	<b>US</b>	<b>\$ 1.70</b>	<b>4.65%</b>
<b>Average for 59 cities</b>	<b>US</b>	<b>\$ 0.26</b>	<b>0.71%</b>

Taxes and Fees on Communication Services  
By David Tuerck, Ph.D., Paul Bachman, Steven Titch, and Janh Rutledge, Ph.D.

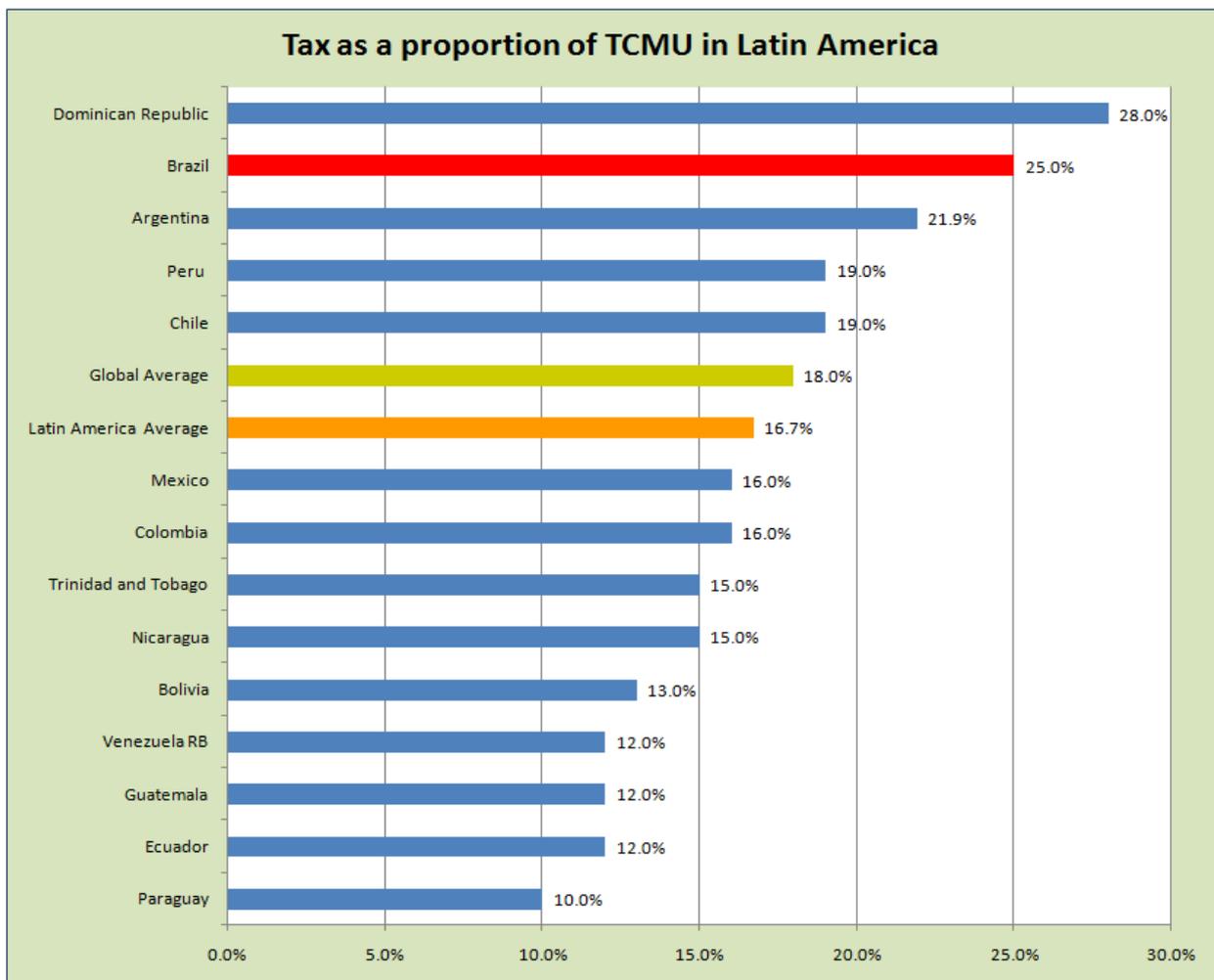
Table 10 - Survey of Tax Rates on Internet Broadband Services in localities that are covered by ITFA  
Source: The Heartland Institute and the Beacon Hill Institute at Suffolk University

Even considering that in the United States there are some states and localities that Internet Broadband services are taxed, it is undeniable that the effects of this tax burden are irrelevant in view of the huge benefits of the Internet Tax Freedom Act in the United States.

### 3.3. Brazil's and the United States' position in the International Ranking of Tax Loading over Mobile Telephony Service

On June 21th, 2012 the partnership Deloitte / GSM Association published the Report titled “*Global Mobile Tax Review 2011*”<sup>75</sup> that survey Mobile Telephony taxes paid by consumers in 2010/2011. According to the publishers, the objective of the mentioned study is to measure the taxes paid by consumers as a proportion of ownership and usage costs of mobile services. Among several issues of the Mobile Telephony taxation in the World, the study analyzes the “*Total Cost of the Mobile Usage*” (TCMU) in a panel of 111 countries worldwide. The TCMU focuses on service usage and does not include handset and connection costs<sup>76</sup>. According to the publishers, “*the TCMU reflects the cost of using a mobile phone once the “access” investment of purchasing a handset and a connection have been made, and therefore indicate spend on calls and SMS*”. Afterwards, taxes as a proportion of service costs were calculated.

The Graph 1 below shows the Tax Loading (*tax proportion*) of Mobile Telephony Service in Latin America (*Central and South America*) including Brazil. Nevertheless, the remarkable survey considered for Brazil a TCMU rate of 25%, which is assumed by us, that it is the averaged Nominal ICMS tax rate, not considering the PIS/COFINS tax rates and the economic effects of *tax-inclusive rate*.



Graph 1 - Source: Global Mobile Tax Review 2011 - Deloitte Analysis

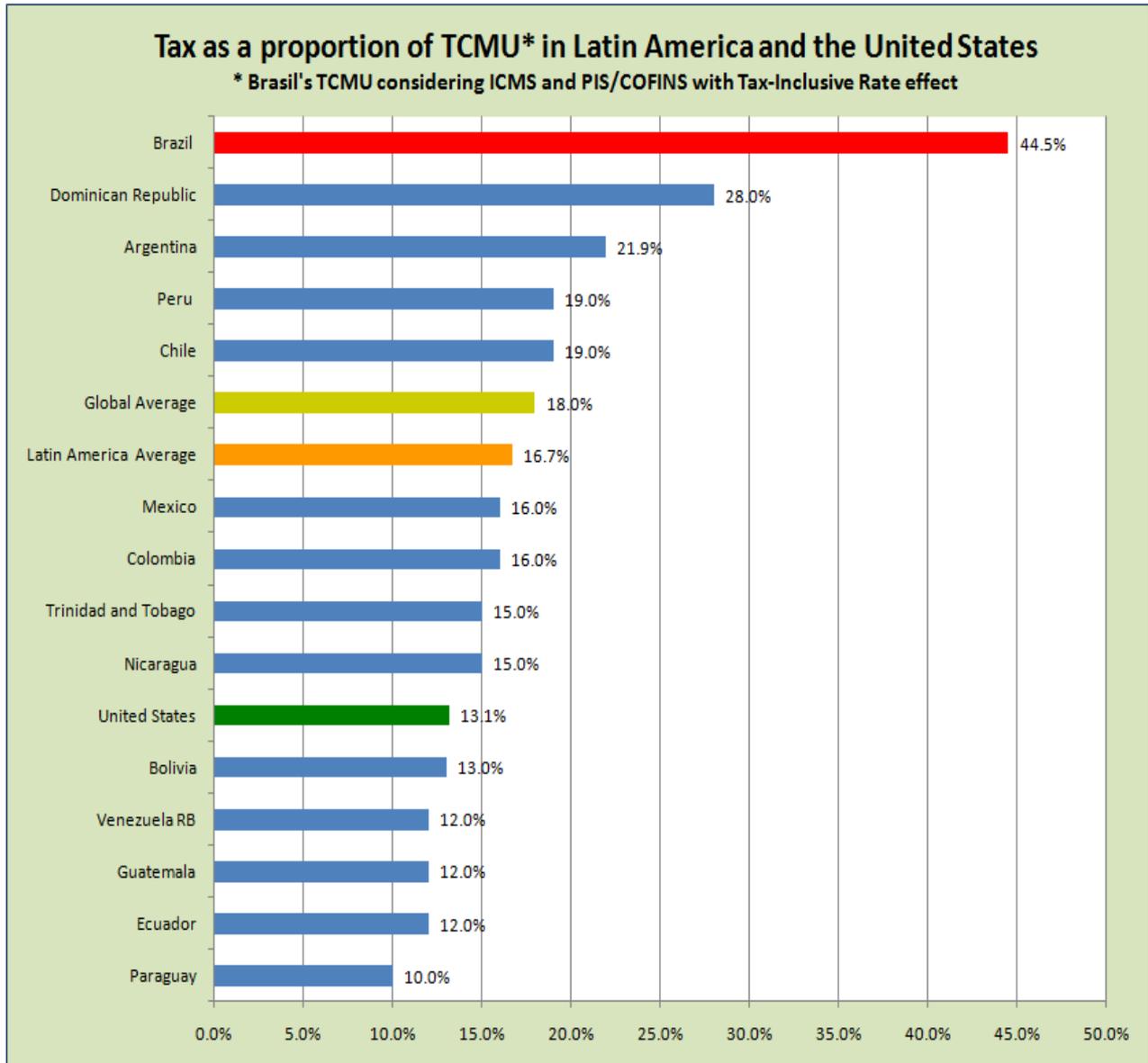
TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models. Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA

<sup>75</sup>The report is available at: <http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gsmaglobaltaxreviewnovember2011.pdf>.

<sup>76</sup> Handset and connection costs here mean the Tax Costs with handsets and initial activation services charged by telecommunication companies.

Thus, considering the numbers brought by this research paper for Brazilian and United States Tax Loading in Mobile Telephony Service, we adjusted the TCMU rate of Brazil from 25% to, at least, 44.5% (*ICMS + PIS/CONFIS in Cumulative System with tax-inclusive rate effect*) and added the United States' Averaged Combined Federal-State-Local Tax Rate for Mobile Telephony Service.

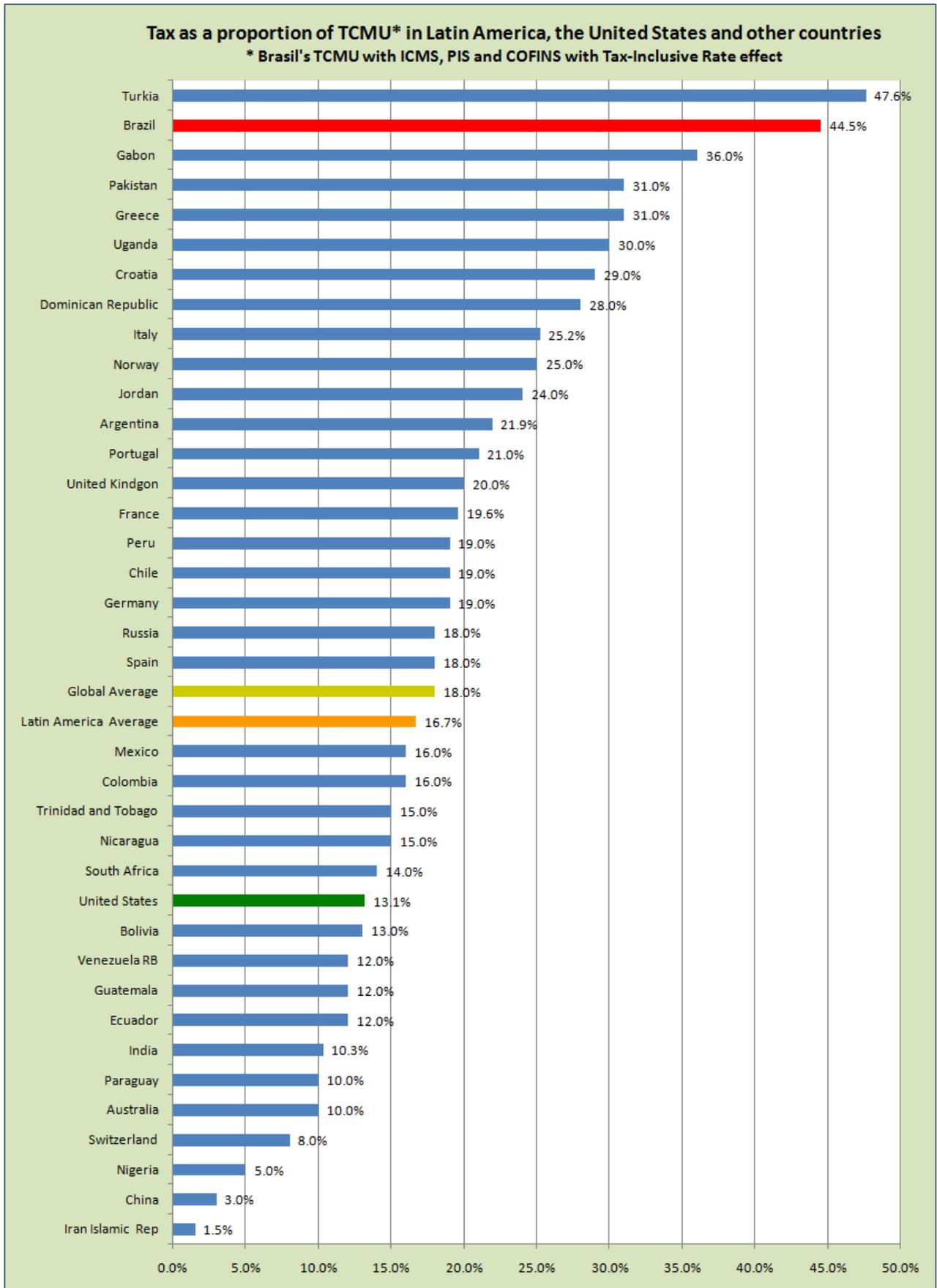
The results of these changes are shown in the Graph 2 below compiled with other TCMU rates from Latin America countries.



TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 – Washington, DC - USA

Graph 2 - Source: Global Mobile Tax Review 2011 - Deloitte Analysis - Except Brazil's and the United States' TCMU rates  
Source of Brazil's and the United States' TCMU rates (2012): TAX LOADING IN TELECOMMUNICATIONS SERVICES Study

The Graph 3 below shows the Brazil's adjusted TCMU rate appointed by this study (44.5%), and the United States' Averaged Combined Federal-State-Local Tax Rate, along with TCMU tax rates of Mobile Telephony Service from other countries around the World published by the Global Mobile Tax Review 2011 report.



TAX LOADING IN TELECOMMUNICATIONS SERVICES: A comparative study between the Brazilian and United States Models.  
Sergio Augusto Martins Lebre – 33th Minerva Program – Spring, 2013 - Washington, DC - USA

Graph 3 - Source: Global Mobile Tax Review 2011 - Deloitte Analysis - Except Brazil's and the United States' TCMU rates  
Source of Brazil's and the United States' TCMU rates (2012): TAX LOADING IN TELECOMMUNICATIONS SERVICES Study

## 4. CONCLUSIONS

### 4.1. Advantages and Disadvantages of the Brazilian and the United States Tax Systems

The Brazilian and United States Tax Systems are unlike, but each one has its own particular features that reflect on how taxes are imposed.

Some important features of the Brazilian Tax System are:

- It is framed by the Constitution with explicit tax principles that enforce governments to follow legal procedures before an increase of taxation;
- It establishes exclusive tax competences (*tax authorities*) for each tax of the National Tax System, avoiding the existence of several tax authorities for same type of tax and making any attempt of tax invasion be considered illegal.
- An imposition of a new local or state tax requires a constitutional amendment, where no doubt, it turns into a long and more difficult mission to be accomplished;
- New federal taxes do not require a constitutional amendment because of the *residual taxation* (Article 154 of the Brazilian Constitution- CF 1988), but they require a federal complementary law approved by the Congress with observation of the constitutional tax principles;
- Because of the Civil Law system, the Brazilian tax laws are totally codified, as result, every tax imposition or demand from Governments over taxpayers must be previously predicted by law, providing some guarantees to taxpayers and a more predictable legal environment.

These features make the Brazilian Tax System more hierarchical, structured and strict with little room for Governments to vary or make innovation on taxation.

On the other side, the United States Tax System has the following features:

- It is not framed in the United States Constitution, so it is much easier for American governments to make changes in the taxation model, because it does not become a constitution amendment issue.
- The U.S. Constitution has few tax principles or constraints for Governments to impose taxes to the people. For example, Governments do not have to wait for a predetermined period of time to pass before starting to charge a new tax or impose a tax increase. Besides, they can impose a tax increase or a new tax on prior periods, before the existence of the tax law.
- There are no exclusive competences for taxes, so Federal, State and Local governments can impose similar type of taxes on taxpayers, resulting on great numbers of Tax Authorities and filing procedures to observe. To demonstrate how complex things are in the United States with several Tax Authorities for the same type of tax, in 2004, a non-profit association based in Washington DC, named the Council On State Taxation (COST) published a report titled "*2004 Telecommunications Tax Study*"<sup>77</sup> where among some other information, it shows the numbers of Tax Authorities in each state for general business and telecommunications companies. Table 11 below reproduces the COST study.

<sup>77</sup> The report is available at: <http://www.cost.org/WorkArea/DownloadAsset.aspx?id=75397>.

<b>Total Numbers of Taxing Jurisdictions in the United States</b>			
<b>State</b>		<b>General Business</b>	<b>Telecommunications</b>
Alaska	AK	98	92
Alabama	AL	231	307
Arkansas	AR	538	835
Arizona	AZ	102	102
California	CA	608	824
Colorado	CO	519	519
Connecticut	CT	1	4
District of Columbia	DC	1	1
Delaware	DE	1	1
Florida	FL	68	312
Georgia	GA	160	481
Hawaii	HI	1	1
Iowa	IA	867	963
Idaho	ID	11	32
Illinois	IL	131	1,204
Indiana	IN	1	84
Kansas	KS	1	262
Kentucky	KY	1	272
Louisiana	LA	64	177
Massachusetts	MA	1	1
Maryland	MD	1	25
Maine	ME	1	1
Michigan	MI	1	88
Minnesota	MN	12	15
Missouri	MO	781	781
Mississippi	MS	2	97
Montana	MT	0	1
North Carolina	NC	0	92
North Dakota	ND	100	134
Nebraska	NE	0	572
New Hampshire	NH	0	4
New Jersey	NJ	1	1
New Mexico	NM	274	295
Nevada	NV	1	64
New York	NY	86	588
Ohio	OH	1	2
Oklahoma	OK	577	577
Oregon	OR	0	84
Pennsylvania	PA	108	182
Rhode Island	RI	1	1
South Carolina	SC	269	326
South Dakota	SD	275	339
Tennessee	TN	328	425
Texas	TX	1	1,012
Utah	UT	275	275
Virginia	VA	96	316
Vermont	VT	1	1
Washington	WA	519	848
Wisconsin	WI	55	124
West Virginia	WV	1	93
Wyoming	WY	24	42
Average	US	<b>141</b>	<b>272</b>
<b>Total</b>	<b>US</b>	<b>7196</b>	<b>13879</b>

2004 TELECOMMUNICATIONS TAX STUDY  
By The Council On State Taxation (COST) - Washington, DC - USA.

Table 11 - Total numbers of State and Local Tax Jurisdiction in the United States for General Business and Telecommunications Services  
Source: The Council on State Taxation - COST - 2005

Besides the multitude of jurisdictions<sup>78</sup> faced by general companies and telecommunications providers in the United States, the COST study also counted that each year General Business companies must fill out 7,501 returns and Telecommunications providers 47,921.

As result of these features, the U.S. Tax System turns into a more open, liberal and divided system that gives the Governments a huge taxation power. However, despite this large room for tax imposition in the United States, the public opinion is one of the most efficient tools to curb governments in exceeding their fiscal policies.

#### **4.2. Tax Loading over Telecommunications Services in Brazil and the United States**

Although the Brazilian Tax System is more strict and systematized, it does not prevent federal contributions from being imposed over values with other taxes included; or prohibits the use of *tax-inclusive rate* mechanism to calculate taxes, or even ensures that ICMS tax rates will be imposed according to the essentiality of products and services.

In analysis of the Tax Loading over Telecommunications Services, Brazil does not have a comfortable position.

When the Global Tax Review 2011 Report<sup>79</sup> was published by the partnership Deloitte / GSM Association, Brazil ranked the 15<sup>th</sup> position in the World Tax Loading of Mobile Telephony Service with 25% of the cost of the service (*TCMU*). But, the report did not consider the PIS/COFINS rates that are charged over telecommunications services and the *tax-inclusive rate* effects of ICMS and PIS/COFINS taxes. When they are considered, the Brazilian averaged total tax loading over Mobile Telephony Service reaches from 44.5% up to 57.3% of the cost of service, jumping to the 2<sup>nd</sup> position of the World Tax Loading of Mobile Telephony Service.

Also in the Internet Broadband Service the averaged total tax loading is considerably high, reaching from 44.3% up to 56.9% of the cost of the service. In Paraná State, exceptionally, there is an exemption of tax for 1 Mbps at monthly price of U\$ 15 that is mostly destined for stimulating digital inclusion, but this exemption does not reduce the averaged tax loading in the Internet Service.

Thus, even with all the rules established by the Brazilian Tax System to prevent Governments from imposing excessive taxation, the final results are not very successful from taxpayers' point of view, and Brazil stands with a high tax loading in telecommunications services.

The United States has a more open and liberal tax system, much more favorable and convenient for higher taxation, however when tax loading over telecommunications services are analyzed, it shows the opposite.

The United States did not stand in the panel of 111 countries studied in the Global Tax Review 2011 Report, but if so, the U.S. averaged total tax loading of 13.1% over Mobile Telephony Service would be ranked in the 86<sup>th</sup> position of the World Tax Loading of Mobile Telephony Service. Still, Tax Analysts in the country complain about the

---

<sup>78</sup> According to the COST Study, for each state, the data is based on the assumption that the taxpayer is either a statewide general business (*i.e., the business would have at least one store in each taxing jurisdiction*) or a statewide provider of telecommunications.

<sup>79</sup> The report is available at: <http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gsmaglobaltaxreviewnovember2011.pdf>.

high taxation over telecommunications services in comparison with tax loading of retail sales for general business<sup>80</sup>.

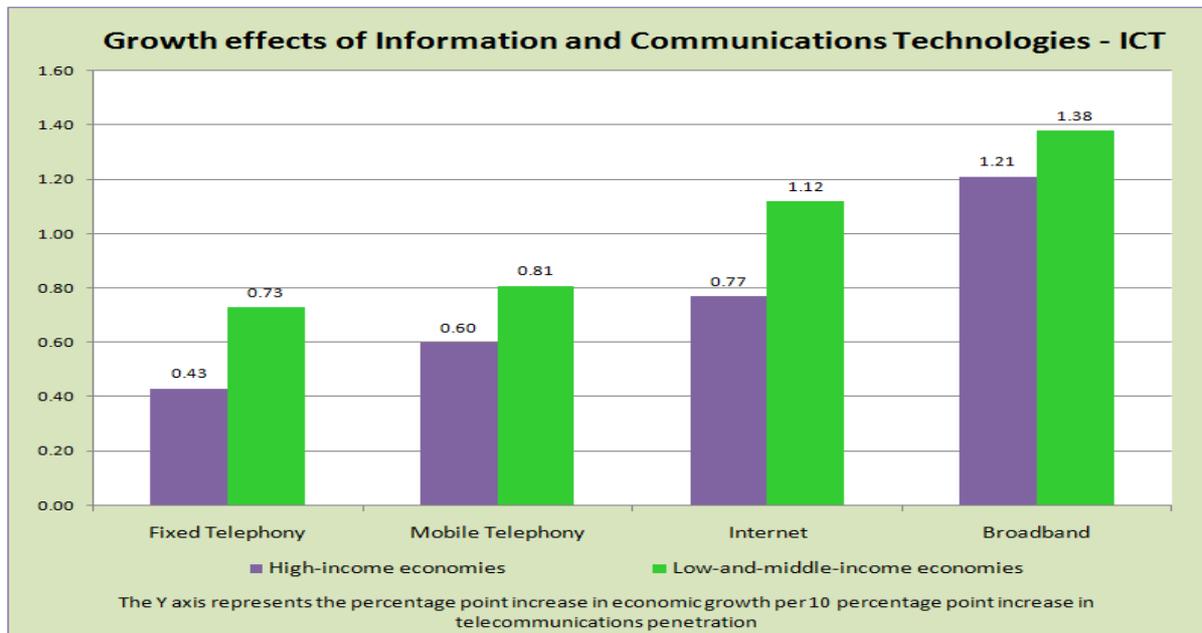
When analyzing the U.S. tax loading of Internet Broadband Service, the differences between Brazil and U.S taxation in telecommunications services get even bigger and obvious. Because of the Internet Tax Freedom Act (ITFA) approved by Senate since 1998, the taxation over Internet Broadband Service in the United States is practically zero, contrasting enormously with the Brazilian averaged tax rates (44.3% up to 56.9%) for the same service.

As result, the present study shows that only having a more complex and modern tax system is not enough to ensure a better tax and fiscal policy for a nation and its citizens.

### 4.3. The relevance of Telecommunications Services and possible decisions to be taken in order to improve the Brazilian Tax Model

The TCMU rates of Mobile Telephony Service shown in the graphs 1, 2 and 3 of this study do not give enough information to indicate the level of development of a country, because low and high TCMU rates comprehend both developing and developed countries. Graph 3 shows that there is no developed country with TCMU rate higher than 25.2% (*Italy*) but it also shows developing countries with low TCMU rates (*Iran 1.5%, Nigeria 5%, Paraguay 10% and India 10.3%*).

Even so, in 2009 the World Bank revealed that telecommunications services have a crucial relevance for developing countries. Based on analysis of 120 countries<sup>81</sup>, the study indicates that in developing countries, for every 10% increase in the penetration of mobile phones, there is an increase in economic growth of 0.81%; for every 10% increase in the penetration of internet service, there is an increase of 1.12% in economic growth, and if this service is provided through broadband networks, the economic growth reaches 1.38%. See graph 4 below.



Graph 4 - Growth effects of Information and Communications Technologies - ICT - Source: World Bank, Qiang 2009

<sup>80</sup> See the reports “A Growing Burden: Tax and Fees on Wireless Service” by Scott Mackey and “2004 Telecommunications Tax Study” by COST.

<sup>81</sup> See the report titled “Mobile Telephony: A Transformational Tool for Growth and Development”, by Christine Zhen-Wei Qiang. Available at: [http://www.proparco.fr/webdav/site/proparco/shared/PORTAILS/Secteur\\_privé\\_developpement/PDF/SPD4/SPD4\\_Christine\\_Zhen\\_Wei\\_Qiang\\_uk.pdf](http://www.proparco.fr/webdav/site/proparco/shared/PORTAILS/Secteur_privé_developpement/PDF/SPD4/SPD4_Christine_Zhen_Wei_Qiang_uk.pdf).

Still, according to this study, “...all information and communications technologies promote growth more effectively in developing countries than in developed ones. This is because telecommunications services help improve the functioning of the markets, reduce transaction costs and increases productivity through better management in both the public and private sectors”. Based on this analysis, World Bank’s economists defend that telecommunications services have the potential to contribute so much to economic development, that these services should be widely available at affordable prices and should become an integral part of national development strategies<sup>82</sup>.

On the other hand, Governments need to constantly ensure sources of revenue for financing expenditures on public services and making investments. Without financing governments by collection of taxes, there is no how to sustain a democratic and republican power and afford its institutions. In Brazil, collection of taxes from telecommunications services became one of the most important sources of state revenue<sup>83</sup>, and because of that, states have increased constantly the tax burden over these services in order to face their budget liabilities.

This fiscal policy of hefty taxation on telecommunications services in Brazilian states has made themselves financial dependents, in a way that, any change in their fiscal policies aiming to implement the World Bank’s recommendation almost becomes impossible. Besides, many states do not want to face any type of tax reductions even when there is a taxation surplus.

However, this still condition does not mean that federal and state governments shall not keep looking for better fiscal policies and not try to innovate and implement these new fiscal policies to stimulate their economic growth.

In Brazil, Mobile Telephony and Internet Broadband services have a great market potential to increase their consumption, but they also have an elastic price of demand<sup>84</sup>. This means that a great number of potential consumers desire to buy these

---

<sup>82</sup> See the report titled “*Information and Communications for Development (IC4D)*” from the World Bank. Available at: [http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D\\_2009\\_Overview.pdf](http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D_2009_Overview.pdf).

<sup>83</sup> Telecommunications services have been taxed by ICMS (*state tax*) since 1988 when the current Brazilian Constitution was enacted. Since that period, Brazilian states have applied the highest ICMS tax rates on communications services, along with electrical energy, tobacco products, alcoholic beverages, and fuels. In Paraná State for example, the ICMS tax rate for telecommunications services started at 25% in 1992 (*State Law n° 9,870 of December 0<sup>th</sup>, 1991*), later in 2002, it was raised to 27% (*State Law n° 13,410 of December 26<sup>th</sup>, 2001*), and in 2009, it was raised again to 29% (*State Law n° 16,016 of December, 19<sup>th</sup>, 2008*). This fiscal policy of high ICMS tax rate for telecommunications services became a pattern for all Brazilian states, mostly because it streamlines the collection of taxes having few economic sectors paying the major part of the state revenue. Secondly, it makes smaller the efforts of states to combat and avoid tax frauds. Still, it is important to mention that this fiscal policy may become a weakness for states in case of one of these concentrated sectors suffer any type of economic crisis.

<sup>84</sup> Price elasticity of demand is a measure of how sensitive quantity demanded is to a change in a product’s price. If the price elasticity of demand is elastic it means that the quantity demanded is relatively responsive to a price change.

A study published in 2009 by Carlos M. Baigorri and Wilfredo F. L. Maldonado, titled “*Impacts of changes in the Brazilian Mobile Termination Rates*” calculated the price-elasticity of demand for Mobile Telephony service in Brazil is equal to -1.62. See the study available at: [www.anpec.org.br/encontro2010/inscricao/arquivos/000-24fe4cc46cda6b45c23f925ae784f02f](http://www.anpec.org.br/encontro2010/inscricao/arquivos/000-24fe4cc46cda6b45c23f925ae784f02f). Access in April 9<sup>th</sup>, 2013.

Another study published in 2010 by Hildebrando R. Macedo and Alexandre X. Y. de Carvalho, titled “*Análise de possíveis determinantes da penetração do serviço de acesso à Internet em Banda Larga nos municípios brasileiros*” which means “*Analysis of possible determinants of service penetration of Internet Broadband access in Brazilian municipalities*”, at its page 19 affirms that in Brazil “*the penetration of broadband service is very sensitive to the price, or indirectly sensitive to the population’s capacity of buying as indicate the study of Guedes, Pasqual, Pitoli e Oliva (2008, p. 7) that obtained a value of -2.0 to the price-elasticity of demand for broadband service in Brazil -*

services but they do not consume as much as they wish because of the prices. Considering that Mobile Telephony and Internet Broadband services are taxed at rates<sup>85</sup> of 44.3% up to 57.3%, a good fiscal policy to achieve the World Bank's recommendation could be a tax loading reduction of telecommunications services to cut down the prices and spur penetration of these services at high levels in all economic classes and activities, aiming to obtain a maximized economic output produced by the "return to scale"<sup>86</sup> effect.

Also at medium and long terms, federal and state governments would be able to offset the revenue losses caused by the reduction of taxes through the incremental tax revenue gained from the increase of consumption of telecommunications services, and also from the increase of wealth created by economic growth in general economy. Thus, a designed and balanced fiscal policy could ensure public financing without tax overloading telecommunications services and still, it would stimulate economic growth with plentiful quantity and affordable prices for Mobile Telephony and Internet Broadband services.

The solution presented above could be more effective than the National Broadband Plan implemented by the Brazilian Federal Government in 2010<sup>87</sup>. The Brazilian National Broadband Plan has a set of policies in order to stimulate supply and the use of internet services in all over the country. However until now<sup>88</sup>, the results are irrelevant at least in terms of tax reduction and high penetration of internet broadband service. In terms of taxation, the Federal Government did not reduce PIS/COFINS tax rates for these services but has required a tax reduction from states. Some states voluntarily enacted a national agreement<sup>89</sup> granting exemption for internet services, but at monthly price of U\$ 15 and at maximum speed of 1 Mbps. Still, from 27 Brazilian federation units, only 17 states<sup>90</sup> signed the national agreement, and from these 17, until now<sup>91</sup>, only 6 states<sup>92</sup> effectively have accomplished in their state law an exemption for internet service. In terms of high penetration of internet services, the results were not very successful either, because the national agreement n° 38/2009 only aimed basic internet service (*maximum 1 Mbps speed and monthly price of U\$15*) and preferably for low-income consumers. Some critics say that this exempted internet basic service cannot even be considered internet broadband because of its limited speed (*1 Mbps*).

Brazil needs a better national strategy for taking advantage of modern technologies to stimulate and gain economic development. Mobile Telephony and Internet Broadband services at critical mass could help to accomplish this mission, but not while these services are burdened with the second highest tax loading in the world, as shown in this study. Additionally, Federal Government has to be conscious that these services are

---

Wohlers, Abdala and Kubota (2009) and Ávila (2008, p. 49) which the price-elasticity of demand found varies of -3.36 to -1.0". The mentioned 2010 study is available at: [https://ipea.gov.br/agencia/images/stories/PDFs/TDs/td\\_1503.pdf](https://ipea.gov.br/agencia/images/stories/PDFs/TDs/td_1503.pdf). Access in April 9th, 2013.

<sup>85</sup> Averaged Combined Federal-State Tax.(ICMS + PIS/COFINS)

<sup>86</sup> The Theory of Return to Scale explain the behaviour of output in response to a proportional and simultaneous change in inputs. Increasing inputs proportionately and simultaneously is, in fact, an expansion of the scale of production. According to this theory, three possibilities can arise: increase output in the same proportion of input (CRS); increase output in greater proportion than input (IRS); and increase output in smaller proportion than input (DRS). For the present case of tax loading reduction for telecommunications services, the expected effect is the Increase Return to Scale (IRS) because the consumption of these services are still in the very beginning of the scale operation.

<sup>87</sup> Federal Decree n° 7175, May 12<sup>th</sup>, 2010, Available at: [http://www.planalto.gov.br/ccivil\\_03/\\_Ato2007-2010/2010/Decreto/D7175.htm](http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2010/Decreto/D7175.htm). Access in April 4<sup>th</sup>, 2013.

<sup>88</sup> April, 2013.

<sup>89</sup> National Agreement n° 38/2009, enacted in April 3<sup>th</sup>, 2009. Available at: <http://www.fazenda.gov.br/confaz/>. Access in April 4<sup>th</sup>, 2013.

<sup>90</sup> Acre, Amapá, Bahia, Ceará, Espírito Santo, Goiás, Pará, Paraná, Paraíba, Pernambuco, Rio Grande do Sul, Rio de Janeiro, Roraima, Santa Catarina, São Paulo e Sergipe and Federal District.

<sup>91</sup> April, 2013.

<sup>92</sup> Espírito Santo, Paraná, Paraíba, Pernambuco, Rio de Janeiro, and São Paulo.

one of the most important source of state revenue, and because of that, a better fiscal policy to be also well succeed, shall not only consider plenty quantities, affordable prices and high penetrations of telecommunications services, but also ensure a sustainable source of revenue for Brazilian states.

Finally, the solution mentioned in this conclusion, aiming to increase the demand of telecommunications services through the reduction of tax loading, is based on the assumptions that telecommunications companies will provide services as much as demanded by consumers without increasing the prices, or not allowing shortage of telecommunications services. The first assumption is based in the fact that in Brazil, telecommunications services are indexed by IST (*index of telecommunications services*) and regulated by the National Agency of Telecommunications (ANATEL), thus prices of these services can only be adjusted once a year under the authorization of the National Agency. The second assumption is based in a recent public declaration of a Chief Executive Officer (CEO) from a telecommunication company that operates in Brazil, where the executive affirmed that the Brazilian hefty tax burden makes a more aggressive policy of prices difficult<sup>93</sup>, indicating that these companies are willing to provide more telecommunications services if they were demanded because of lower prices.

Thus, in light of the assumptions mentioned above, this conclusion did not consider the possible effects of an inelastic supply, where a reduction of tax loading in telecommunications services would not stimulate economic developing in case of telecommunications companies decide not to reduce the prices (*i.e, maximize profit*), or in case of these companies decide not to increase the supply of telecommunications services, creating instead, a shortage for these services.

As a result, this study does not intend to exhaust the theme, but to contribute with the analysis of relevance and impacts of tax loading in telecommunications services

*"Economy is too late when you are at the bottom of your purse."*  
Seneca

---

<sup>93</sup> According to news published in October 9th, 2012. Report available at: <http://g1.globo.com/economia/noticia/2012/10/presidente-da-oi-critica-alta-carga-tributaria-em-telecomunicacoes.html>. Access in April 10th, 2013.

## REFERENCES

BRASIL. Constituição (1988). **Constituição da República Federativa do Brasil**, Brasília, DF. Assembléia Constituinte. Available at: [http://www.planalto.gov.br/ccivil\\_03/Constituicao/Constituicao.htm](http://www.planalto.gov.br/ccivil_03/Constituicao/Constituicao.htm). Access in February 13<sup>th</sup>, 2013.

SOUZA, Rafael Mendes de. **Classificação dos tributos brasileiros**. Uma breve distinção entre as principais teorias. Jus Navigandi, Teresina, ano 14 (/revista/edicoes/2009), n. 2258 (/revista/edicoes/2009/9/6), 6 (/revista/edicoes/2009/9/6) set. (/revista/edicoes/2009/9) 2009 (/revista/edicoes/2009). Available at: <http://jus.com.br/revista/texto/13464>. Access in February 13<sup>th</sup>, 2013.

FERREIRA, Francisco Gilney Bezerra de Carvalho. **Breves comentários acerca da natureza jurídica do tributo e a competência tributária**. Jus Navigandi, Teresina, ano 17 (/revista/edicoes/2012), n. 3219 (/revista/edicoes/2012/4/24), 24 (/revista/edicoes/2012/4/24) abr. (/revista/edicoes/2012/4) 2012 (/revista/edicoes/2012). Available at: <http://jus.com.br/revista/texto/21591>. Access in February 13<sup>th</sup>, 2013.

CREPALDI, Silvio Aparecido. Princípios Constitucionais Tributários. Available at: [http://www.oab.org.br/editora/revista/Revista\\_06/mainnovo.html](http://www.oab.org.br/editora/revista/Revista_06/mainnovo.html). Access in February 13<sup>th</sup>, 2013

AMARO, Luciano da Silva. **Direito tributário brasileiro**. 4<sup>th</sup> edition. São Paulo: Saraiva, 1999.

MACHADO, Hugo de Brito. **Curso de direito tributário**. 26<sup>th</sup>. edition. São Paulo: Malheiros, 2005.

BRASIL. **Lei Complementar nº 87/96** (1996), Brasília, DF. Congresso Nacional. Available at: [http://www.planalto.gov.br/ccivil\\_03/Leis/LCP/Lcp87.htm](http://www.planalto.gov.br/ccivil_03/Leis/LCP/Lcp87.htm). Access in February 16<sup>th</sup>, 2013.

CARRAZZA, Roque Antonio. **ICMS**. 10<sup>th</sup> edition, São Paulo: Malheiros, 2005.

The Robbins Collection. **The Common Law and Civil Law Traditions**. Available at: <http://www.law.berkeley.edu/library/robbins/CommonLawCivilLawTraditions.html>. Access in February 21<sup>th</sup>, 2013.

MESSITTE, Peter J. **Common Law v. Civil Law Systems**. Available at: [http://web.ntpu.edu.tw/~markliu/common\\_v\\_civil.pdf](http://web.ntpu.edu.tw/~markliu/common_v_civil.pdf). Access in February 21<sup>th</sup>, 2013.

BEEAMAN, Richard. **The Penguin Guide to the United States Constitution**. New York: Penguin Books. 2010

RODGERS, Paul. **United States Constitutional Law: an introduction**. North Carolina: McFarland. 2011.

MAIER, Pauline. **Ratification, the people debate the Constitution, 1787-1788**. New York: Simon & Schuster. 2010.

THE HERITAGE FOUNDATION. **The Heritage Guide to the Constitution**. Available at: <http://www.heritage.org/constitution>. Access in February 24<sup>th</sup>, 2013.

BRUNORI, David. **State Tax Policy: A Political Perspective**. 3<sup>rd</sup> edition. Washington, DC: The Urban Institute. 2011.

FEDERAL REVENUE OF BRAZIL, **Taxes**. Available at: <http://www.receita.fazenda.gov.br/principal/Inglês/SistemaTributarioBR/Taxes.htm>. Access in February 28<sup>th</sup>, 2013.

PARANÁ. **Lei Estadual nº 11.580/96** (1996), Curitiba, PR. Assembléia Legislativa do Estado do Paraná. Available at: <http://www.sefanet.pr.gov.br/dados/SEFADOCUMENTOS/7199611580.pdf>. Access in February 28<sup>th</sup>, 2013.

PARANÁ. **Regulamento do ICMS do Estado do Paraná – Decreto 6.080/12** (2012), Curitiba, PR. Secretaria de Estado da Fazenda. Available at: <http://www.sefanet.pr.gov.br/dados/SEFADOCUMENTOS/106201206080.pdf>. Access in March 25<sup>th</sup>, 2013.

BRUNORI, David. **Local Tax Policy: A Federalist Perspective**. 2<sup>nd</sup> edition. Washington, DC: The Urban Institute. 2007.

MELO, José Eduardo Soares de. **ICMS Teoria e Prática**. 4<sup>th</sup> edition. São Paulo. Dialética, 2000, p. 110

HARADA, Kiyoshi. COFINS: controvérsias sobre a sua base de cálculo. Available at: <http://jus.com.br/revista/texto/23402/cofins-controversias-sobre-a-sua-base-de-calculo>. Access in March 18<sup>th</sup>, 2013.

THE HEARTLAND INSTITUTE. **Taxes and Fees on Communication Services**. #113 – May 2007 rev. June 2007. Available at: [http://heartland.org/sites/all/modules/custom/heartland\\_migration/files/pdfs/21104.pdf](http://heartland.org/sites/all/modules/custom/heartland_migration/files/pdfs/21104.pdf). Access in March 23<sup>th</sup>, 2013.

HENCHMAN, Joseph. **States Target Cell Phones for Stealth, Burdensome Taxes**. Available at: <http://taxfoundation.org/article/states-target-cell-phones-stealth-burdensome-taxes>. Access in March 23<sup>th</sup>, 2013.

MACKEY, Scott. **A Growing Burden: Taxes and Fees on Wireless Service.** Available at: <http://www.ksefocus.com/wordpress-content/uploads/2011/02/2010-Tax-Study-Final-Tax-Notes-PDF.pdf>. Access in March 23<sup>th</sup>, 2013.

MAGUIRE, Steve; NOTO, Nonna A. **Internet Taxation: Issues and Legislation.** Available at: [http://www.ipmall.info/hosted\\_resources/crs/RL33261\\_080707.pdf](http://www.ipmall.info/hosted_resources/crs/RL33261_080707.pdf). Access in March 23<sup>th</sup>, 2013.

GSM ASSOCIATION; DELOITTE. **Global Mobile Tax Review 2011.** Available at: <http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/gsmaglobaltaxreviewnovember2011.pdf>. Access in March 25<sup>th</sup>, 2013.

HENCHMAN, Joseph; DRENKARD, Scott. **States and Local Governments Impose Hefty Taxes on Cell Phone Consumers.** Available at: <http://taxfoundation.org/article/state-and-local-governments-impose-hefty-taxes-cell-phone-consumers>. Access in March 27<sup>th</sup>, 2013.

THE COUNCIL ON STATE TAXATION (COST). **2004 Telecommunications Tax Study.** Available at: <http://www.cost.org/WorkArea/DownloadAsset.aspx?id=75397>. Access in March 30<sup>th</sup>, 2013.

QIANG, Christine Zhen-Wei. **Mobile Telephony: A Transformational Tool for Growth and Development.** Available at: [http://www.proparco.fr/webdav/site/proparco/shared/PORTAILS/Secteur\\_privé\\_developpement/PDF/SPD4/SPD4\\_Christine\\_Zhen\\_Wei\\_Qiang\\_uk.pdf](http://www.proparco.fr/webdav/site/proparco/shared/PORTAILS/Secteur_privé_developpement/PDF/SPD4/SPD4_Christine_Zhen_Wei_Qiang_uk.pdf). Access in March 30<sup>th</sup>, 2013.

KHALIL, Mohsen; DONGIER, Philippe; QIANG, Christine Zhen-Wei. **Information and Communications for Development (IC4D).** Available at: [http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D\\_2009\\_Overview.pdf](http://siteresources.worldbank.org/EXTIC4D/Resources/5870635-1242066347456/IC4D_2009_Overview.pdf). Access in March 30<sup>th</sup>, 2013.

INTERNATIONAL TELECOMMUNICATION UNION – ITU. **Impact of Broadband on the Economy.** Available at: [http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports\\_Impact-of-Broadband-on-the-Economy.pdf](http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf). Access in April, 3<sup>rd</sup>, 2013.

BAIGORRI, Carlos M.; MALDONADO, Wilfredo F. L.; **IMPACTS OF CHANGES IN THE BRAZILIAN MOBILE TERMINATION RATES.** Available at: [www.anpec.org.br/encontro2010/inscricao/arquivos/000-24fe4cc46cda6b45c23f925ae784f02f](http://www.anpec.org.br/encontro2010/inscricao/arquivos/000-24fe4cc46cda6b45c23f925ae784f02f). Access in April 9<sup>th</sup>, 2013.

MACEDO, Hildebrando Rodrigues; CARVALHO, Alexandre Xavier Ywata de. **ANÁLISE DE POSSÍVEIS DETERMINANTES DA PENETRAÇÃO DO SERVIÇO DE ACESSO À INTERNET EM BANDA LARGA NOS MUNICÍPIOS BRASILEIROS.** Available at: [https://ipea.gov.br/agencia/images/stories/PDFs/TDs/td\\_1503.pdf](https://ipea.gov.br/agencia/images/stories/PDFs/TDs/td_1503.pdf). Access in April 9<sup>th</sup>, 2013.