

THE IMPACT OF TAXATION ON THE DIGITAL ECONOMY

A presentation to the ITU Regional Economic
and Financial Forum of
Telecommunications/ICT for Latin America
and the Caribbean



Telecom Advisory Services, LLC

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AGENDA

- Principles of taxation
- Current taxation approaches in the digital ecosystem
- Different digital economy taxation policies
- Distortive taxation in the digital economy
- Digital taxation policy end economic performance
- Conclusion

THE PRIMARY POLICY GOAL OF TAXATION IS TO PROVIDE A FAIR, EFFICIENT, AND PREDICTABLE WAY OF FINANCING GOVERNMENT EXPENDITURES AND DELIVERY OF PUBLIC SERVICES

Tax	Purpose	Collection Method
Income tax	<ul style="list-style-type: none"> • Raise revenues to fund government expenditures 	<ul style="list-style-type: none"> • Collected over net income at the end of fiscal year • Corporate income tax assessed either from profits or the value of net assets in balance sheet
Sales Tax	<ul style="list-style-type: none"> • Collect revenue to fund government expenditures • Sometimes considered as an alternate way to avoid income taxes 	<ul style="list-style-type: none"> • Collected at time of sale based on percentage of the sale amount • Collected at the national, state and local level
Excise tax		<ul style="list-style-type: none"> • Charged to the firm producing the good rather than the consumer, although it can be passed through
Product specific taxes	<ul style="list-style-type: none"> • Raise revenue • Discourage consumption (liquor, tobacco, etc.) • Charge as a luxury item 	<ul style="list-style-type: none"> • Collected at the time of sale based on a fixed amount or a percent of the amount
Import duties	<ul style="list-style-type: none"> • Protect domestic industries (nascent, declining, strategic) • Deter unfair competition 	<ul style="list-style-type: none"> • Imposed as a percent of the imported good • Collected from the importer but passed through to the acquirer of good
Sector specific taxes	<ul style="list-style-type: none"> • Raise for specific public purposes (e.g. improve health care service) 	<ul style="list-style-type: none"> • Added to the cost of acquisition of the good and charged at the point of sale

BEYOND POTENTIALLY MEETING THE EXPECTED OBJECTIVES, TAXES CAN HAVE ALSO AN IMPACT ON THE BEHAVIOR OF FIRMS AND CONSUMERS

FIRMS	CONSUMERS
<ul style="list-style-type: none">■ Corporate tax rate in an open economy causes a net capital outflow and a reduction in gross fixed capital formation, when controlling for economic development, unemployment and currency fluctuations■ Taxes can also affect the incentives of a company to make investments and reduce the supply of funds available to finance them■ However, investment is also, as expected, driven by past net income, cost of funds, and stock returns■ Taxes affect investment at three levels (which businesses?, which geography?, and what amount?)	<ul style="list-style-type: none">■ Sales taxes can affect the behavior of consumers if the increase in price paid raises their affordability hurdle■ In some cases (inelastic goods), behavior does not change■ Elasticity can be a function of product adoption■ Under inelastic conditions, consumers bear most of the cost of taxation■ Under tax reduction policies, consumers will only increase spending if policy becomes permanent and after they see the reduction in their take-home pay■ Alternatively, an increase in taxes immediately triggers a decline in consumption

A PRINCIPLE, TAXATION SHOULD ATTEMPT TO BE NEUTRAL AND EQUITABLE ACROSS ALL SECTORS OF THE ECONOMY

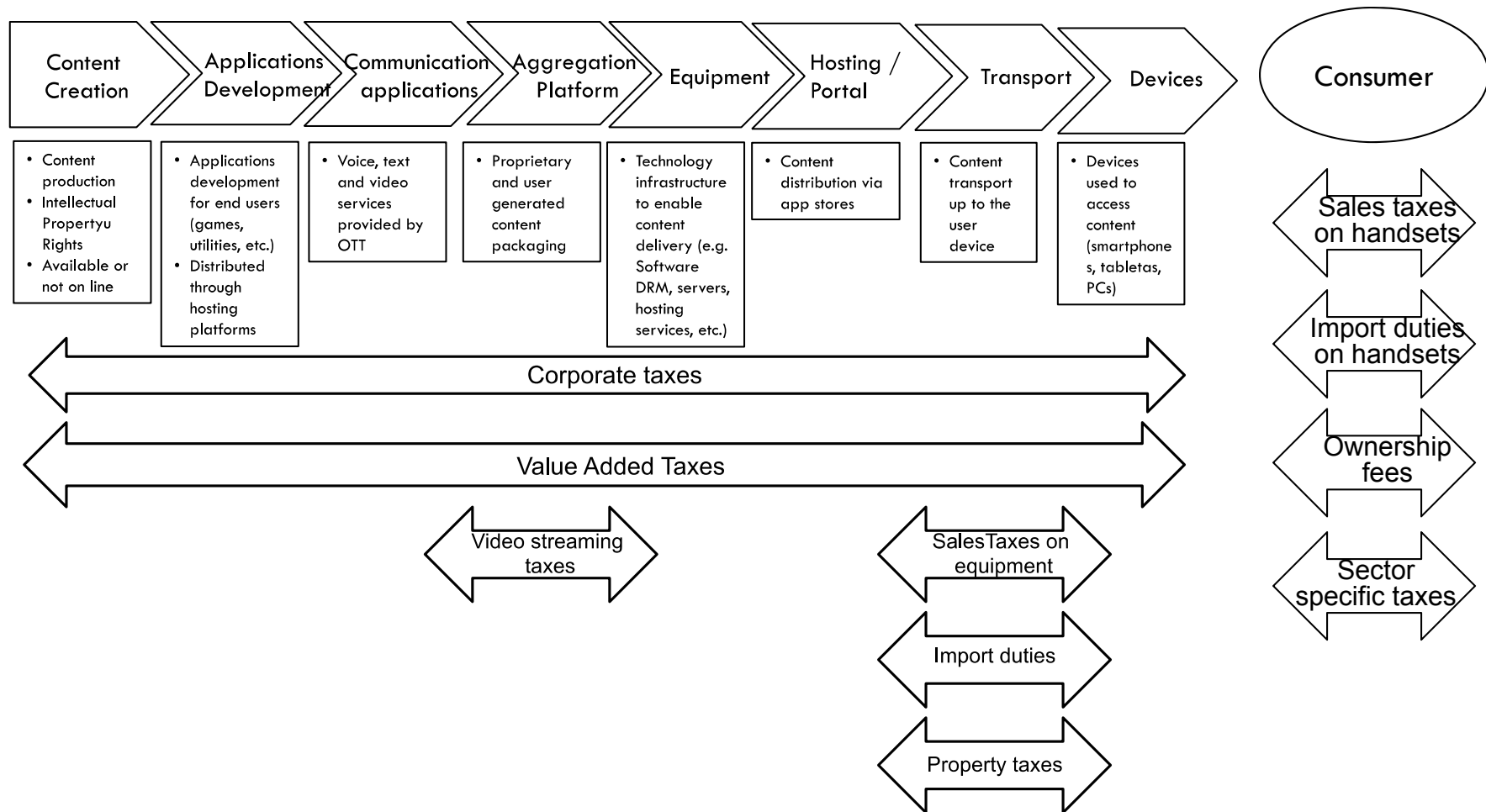
- A distortion occurs when a change in the price of a good resulting from taxation triggers different changes in supply and demand from what would occur in the absence of taxes
 - Consumers, particularly those that are price sensitive, limit the adoption of the good
 - Firms reduce their rate of investment in infrastructure
 - Firms shift their deployment footprint to minimize their tax burden
 - Different tax regimes create asymmetries
- The deviation in supply/demand equilibrium is defined as the deadweight loss (cost of taxation over and above the taxes paid to the government)
- In this sense, taxation regimes should seek to minimize discrimination for any particular choice, while considering somewhat contradictory requirements
 - Ensure proper collection of taxes for income generated at source
 - Avoid over taxation of certain activities when compared to other industries
 - Selectively provide exemptions to facilitate investment in infrastructure and promote adoption by end-users

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DIVERSITY OF TAXES ARE COLLECTED FROM FIRMS AND CONSUMERS OF THE DIGITAL ECOSYSTEM

DIGITAL ECOSYSTEM VALUE CHAIN



DIGITAL SECTOR FIRMS ARE IMPOSED A RANGE OF TAXES WHICH COULD HAVE AN IMPACT ON THEIR LEVEL OF INVESTMENT

Digital Good or Service		Tax Examples
Telecommunications service providers	Internet Service Providers	<ul style="list-style-type: none"> • Corporate taxes (average: 30%) • Indirect taxes on customer premise equipment (e.g. modems) • Sales tax and import duties on initial equipment purchase • Property taxes
Over-the-top		
	Digital advertisers	<ul style="list-style-type: none"> • Different approaches driven by cross-border taxation principles

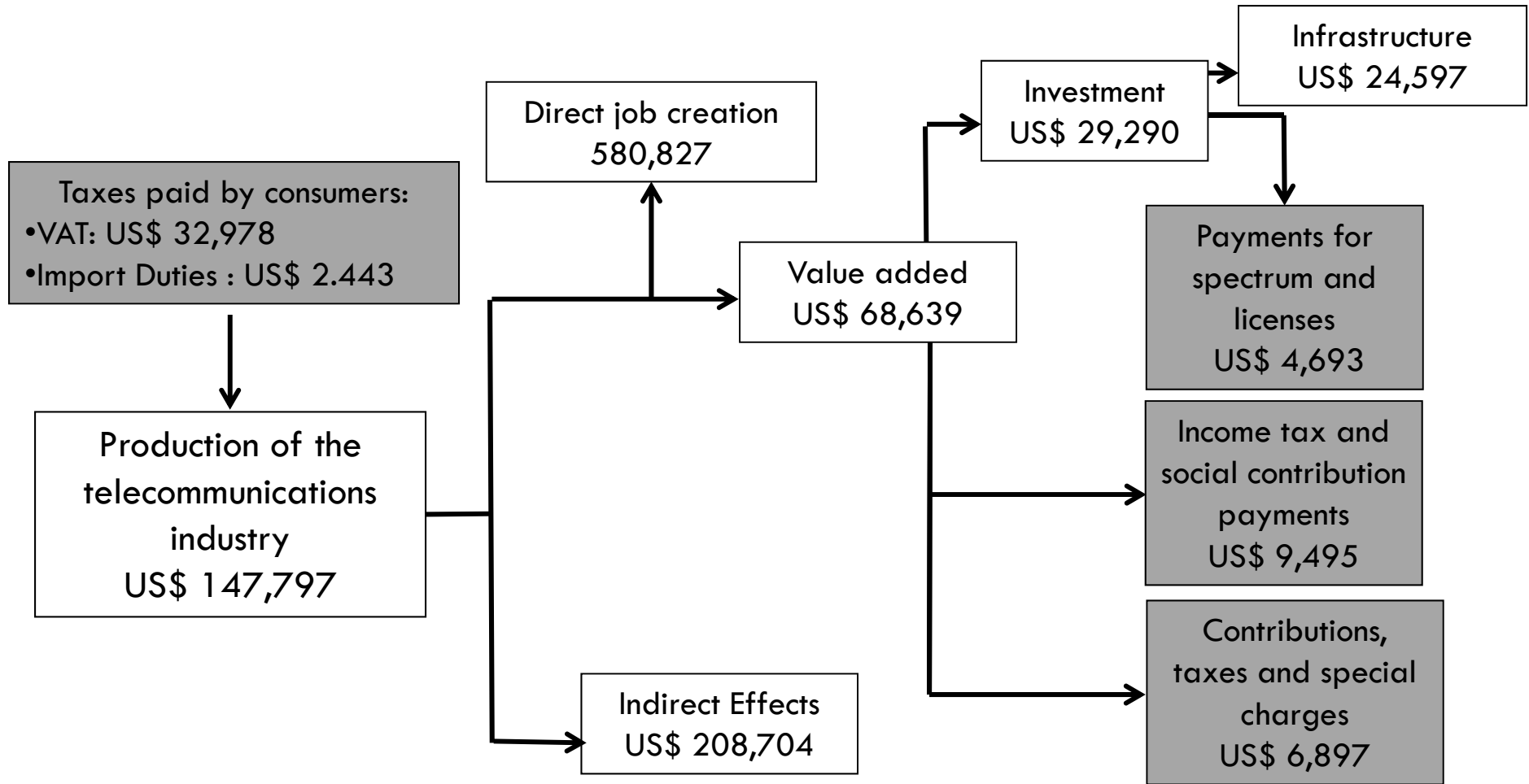
(*) These are generally passed through to consumers; however, if demand is elastic, suppliers might opt to absorb a portion of the burden by reducing prices

CONSUMERS OF DIGITAL GOODS AND SERVICES CAN BE IMPOSED A RANGE OF TAXES WHICH ULTIMATELY IMPACT THEIR COST OF TECHNOLOGY OWNERSHIP AND USE

Digital Good or Service		Tax Examples
Wireless	Service	<ul style="list-style-type: none"> • Value added or sales tax on monthly bill • Value added tax on international roaming (“double taxation”) • Telecom specific taxes (e.g. mobile broadband, m-Money) • Fixed taxes (e.g. 911 fees)
	Handsets	<ul style="list-style-type: none"> • Value added or sales tax • Import duty • Telecom specific taxes (e.g. SIM card, activation tax, discretionary spending) • Fixed taxes (e.g. ownership fees, recycling)
Broadband		<ul style="list-style-type: none"> • Internet access taxes • Value added tax on broadband subscriptions
International Long Distance		<ul style="list-style-type: none"> • Value added tax on long distance calls (“double taxation”)
PCs, tablets		<ul style="list-style-type: none"> • Value added or sales tax on purchased equipment • Customs duty on imported equipment
Digital content		<ul style="list-style-type: none"> • Value added or sales tax on digital goods (e.g. music, movies)
Electronic commerce		<ul style="list-style-type: none"> • Value added or sales tax on physical products purchased through a digital channel

MOREOVER, TAXES AND CONTRIBUTIONS REPRESENT AN IMPORTANT PART OF ECONOMIC VALUE CREATION IN LATIN AMERICAN TELECOMMUNICATIONS

LATIN AMERICA TELECOMMUNICATIONS: ECONOMIC VALUE CREATION (2014) (US\$ '000'000)



Source: 2Telecom Advisory Services

SPECIFIC EXCISE TAXES ON TELECOMMUNICATIONS ARE ASYMMETRIC IN RELATION TO LUXURY PRODUCTS OR GOODS THAT ARE HARMFUL TO HEALTH

	Telecommunications	Fuels	Tobacco	Alcoholic Drinks	Sumptuary Objects	Vehicles and aircraft	Others
Argentina	<ul style="list-style-type: none"> • Cell tax(4.17% in mobile service) • ENARD tax (1% in postpaid use) • Import Tariff Devices (21%) • Tax Device (7% assembled, 20.48 imported) 	<ul style="list-style-type: none"> • Liquid fuels (19%-62%) 	<ul style="list-style-type: none"> • Additional emergency on cigarettes 	<ul style="list-style-type: none"> • Alcoholic beverages (20%) • Beer(8%) • Champagne (12%) • Alcoholic beverages(4%-8%) 	<ul style="list-style-type: none"> • Sumptuary objects(20%) 	<ul style="list-style-type: none"> • Automotive and diesel engines (5%) • Vehicles over \$ 150,000 (10%) • Aircraft and boats (8%) 	<ul style="list-style-type: none"> • Audiovisual media services • Movie Tickets • Electronic products(17%)
Brazil	<ul style="list-style-type: none"> • Import Tariff Devices (17%-20%) • Value added tax to consumption of telecommunications at the state level (variable rate) 	<ul style="list-style-type: none"> • CIDE fuels 	<ul style="list-style-type: none"> • Cigarettes 	<ul style="list-style-type: none"> • Beverages 		<ul style="list-style-type: none"> • Automóviles 	
Colombia	<ul style="list-style-type: none"> • Import Tariff Terminal Devices (6.2%) • International traffic (16%-20%) 	<ul style="list-style-type: none"> • Gasoline, diesel (set amount per gallon) 	<ul style="list-style-type: none"> • Cigarettes and tobacco prepared (55%) 	<ul style="list-style-type: none"> • Spirits, wines, snacks (20%-40%) • Beer, siphons(20%-48%) 			
Mexico	<ul style="list-style-type: none"> • IEPS in mobile services(3%) • International traffic (3%) 	<ul style="list-style-type: none"> • Gasoline and diesel (amount per liter) 	<ul style="list-style-type: none"> • Manufactured tobacco (fixed amount per liter) 	<ul style="list-style-type: none"> • Alcoholic beverages (25%-50%) 			<ul style="list-style-type: none"> • Gambling (30%)

THIS CONTEXT, THE ONGOING DEBATE AROUND TAXATION POLICY IN THE DIGITAL ECONOMY ENTAILS MULTIPLE ISSUES

- What is the proper level of taxation for purchasing of wireless services?
- What is the appropriate level of taxation on capital equipment purchased by telecommunication operators?
- How should governments deal with double taxation of telecommunications services?
- How should Internet sales be taxed?
- How should consumption of digital goods be taxed?
- Should the consumer purchasing wireless devices and personal computers be taxed?
- Should the providers of digital platforms, such as Google and Facebook, be taxed at the country where revenues are generated, or should they benefit from international rules that allow them to take corporate tax exemptions in certain locations?
- Should ISPs pay taxes the same way as telecommunications carriers?

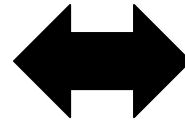
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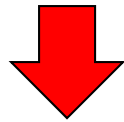
TWO OPPOSING POSITIONS CAN BE IDENTIFIED IN TERMS OF DIGITAL TAXATION POLICY

Objective

Maximize collections from flow of digital goods and services



Lower tax burden on trade of digital goods and services



Rationale

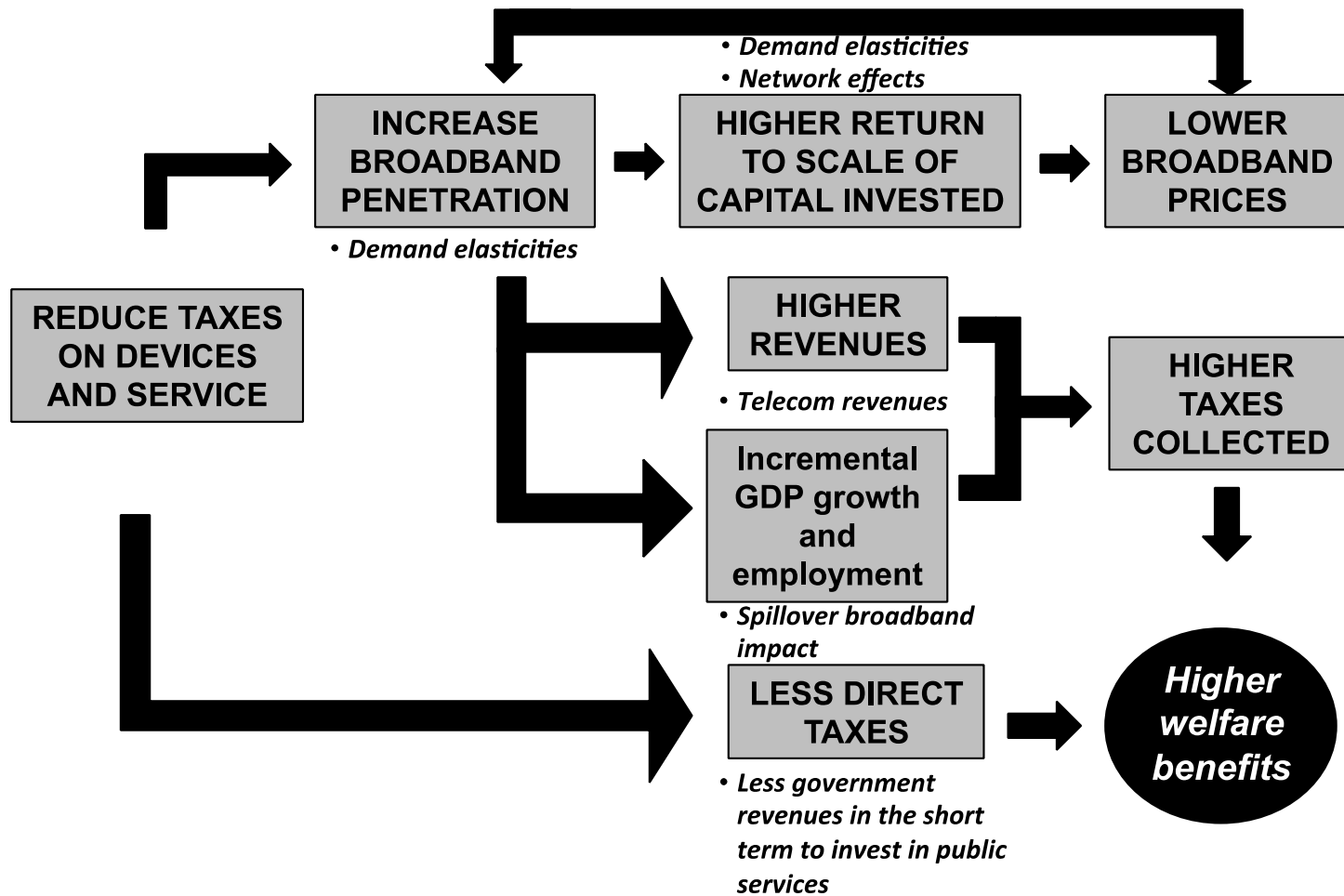
- Need to capture revenues from the exponential growth in trade of digital goods and services

- Reduce the cost of purchase and use of digital goods and services to stimulate adoption

RATIONALE FOR MAXIMIZING DIGITAL TAXATION

- Need to increase revenues for national, state, and municipal governments to support delivery of public services
- Need to address conceptual loopholes in tax policy (particularly regarding digital goods)
- Recognize that the digital economy is a growing portion of the overall economic system

VIRTUOUS CIRCLE OF TAX REDUCTION ON BROADBAND DEVICES, EQUIPMENT, AND SERVICES



TAXATION OF WIRELESS SERVICES VARIES ACROSS COUNTRIES, WHICH TEND TO FOLLOW A COMBINATION OF PRINCIPLES IN REGARD TO THE PURCHASE OF HANDSET AND SERVICES

WIRELESS HANDSETS	WIRELESS SERVICE
<ul style="list-style-type: none">▪ Sector discrimination based on the absence or moderate import duty: VAT combined with low duty▪ Sector discrimination based on high import duty but no telecom tax: high import duty and VAT but no sector specific taxes on handsets▪ Sector discrimination based on high VAT and import duty but low handset specific tax: combine high VAT with a sector specific levy▪ Handset tax revenue maximization: leverage mobile communications as a source of direct taxation, by combining high VAT, high customs duty and a high sector specific levy or low import duty and high sector specific tax	<ul style="list-style-type: none">▪ Universalization of service: reduce taxes as much as possible to stimulate wireless adoption▪ Direct taxation without sector discrimination: establish a high uniform VAT to all sales without▪ adding sector specific taxes in recognition of their distortion effect▪ Direct taxation and sector specific taxes: combine VAT with a sector specific levy▪ Service tax revenue maximization: leverage mobile communications as a source of direct taxation, by combining high VAT, high sector specific taxes and/or a fixed levy

THE COMBINATION OF PRINCIPLES IN TAXING HANDSETS AND SERVICES YIELDS FOUR POLICY APPROACHES TO WIRELESS COMMUNICATION

COMBINED TAXATION APPROACHES (2014)

		Service taxation			
		Universalization of service	Direct taxation without sector discrimination	Direct taxation and sector specific taxes	Service tax revenue maximization
Handset taxation	Sector discrimination based on no to moderate import duty and telecom tax	Malaysia Angola	South Africa	Mexico	Tanzania
	Sector discrimination based on high import duty but no telecom tax			China Venezuela	Brazil
	Sector discrimination based on high VAT and import duty but low handset specific tax	Indonesia	Colombia		Turkey Bangladesh
	Handset tax revenue maximization				

Universalization and protectionism

Protectionism

Sector distortion

Tax maximization and sector distortion

Source: 2014 data from the ITU ICT-Eye Tariff Policies Survey, GSMA, and Import Duty Calculator

AGENDA

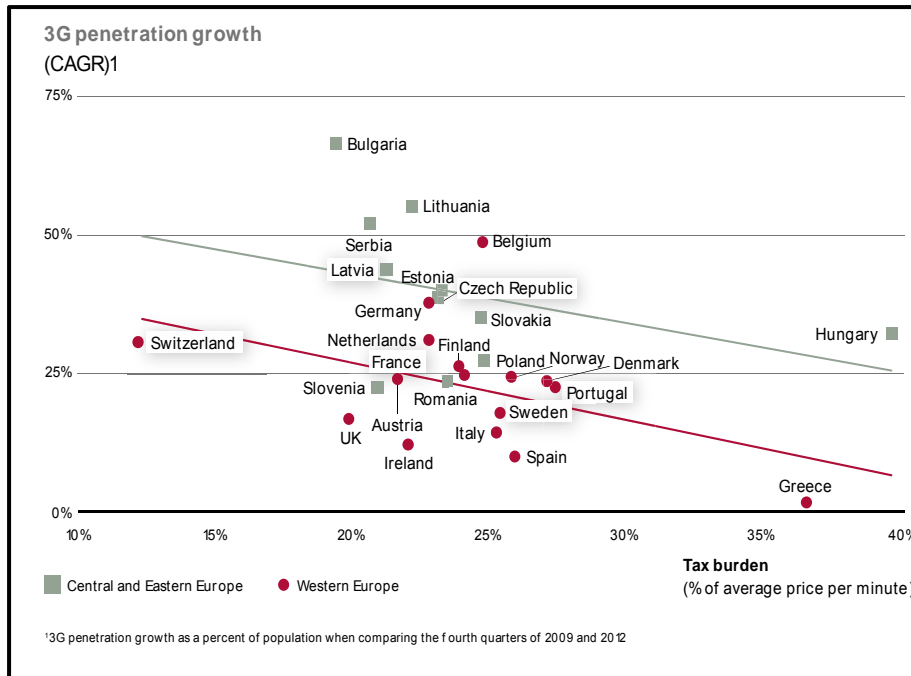
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TORTIVE TAXATION REGIMES IN THE DIGITAL ECONOMY AFFECT THE CHOICES MADE BY MARKET AGENTS

Distortion dimensions	Impact on digital economy
Consumers, particularly those that are price sensitive, limit the adoption of the good	<ul style="list-style-type: none">▪ Over-taxation of digital goods and services constraints consumer adoption by increasing affordability
Firms reduce their rate of investment in infrastructure	<ul style="list-style-type: none">▪ Taxation of broadband equipment purchasing reduces deployment and coverage
Different tax regimes create asymmetries	<ul style="list-style-type: none">▪ Global internet players have a lower effective tax rate than telecommunications operators▪ The rates at which taxes are collected in the digital sector are higher than in other sectors▪ The telecommunications sector is affected by a large number of specific taxes with the potential of greatly affecting agent behavior
Taxation of production and consumption of digital goods	<ul style="list-style-type: none">• Undefined taxation regimes for digital goods leads to substantial revenue leakage

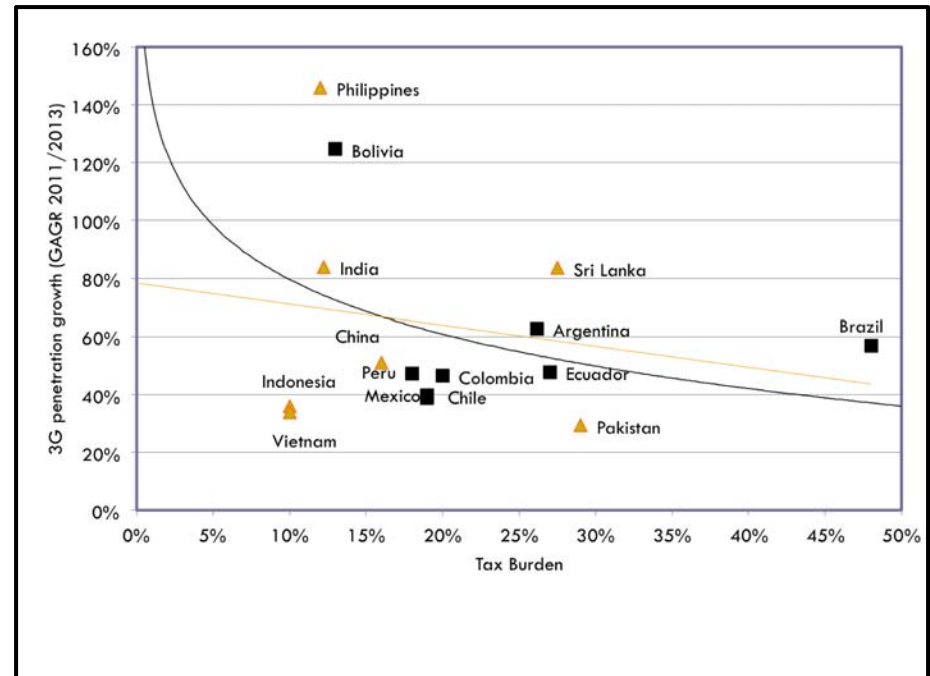
INCREASING THE TOTAL COST OF OWNERSHIP OF WIRELESS SERVICES, HIGHER WIRELESS CONSUMPTION TAXES RAISE AFFORDABILITY BARRIER AND REDUCES ADOPTION

TAX BURDEN AND 3G PENETRATION IN EUROPEAN COUNTRIES (2013)



Source: A.T. Kearney (2013)

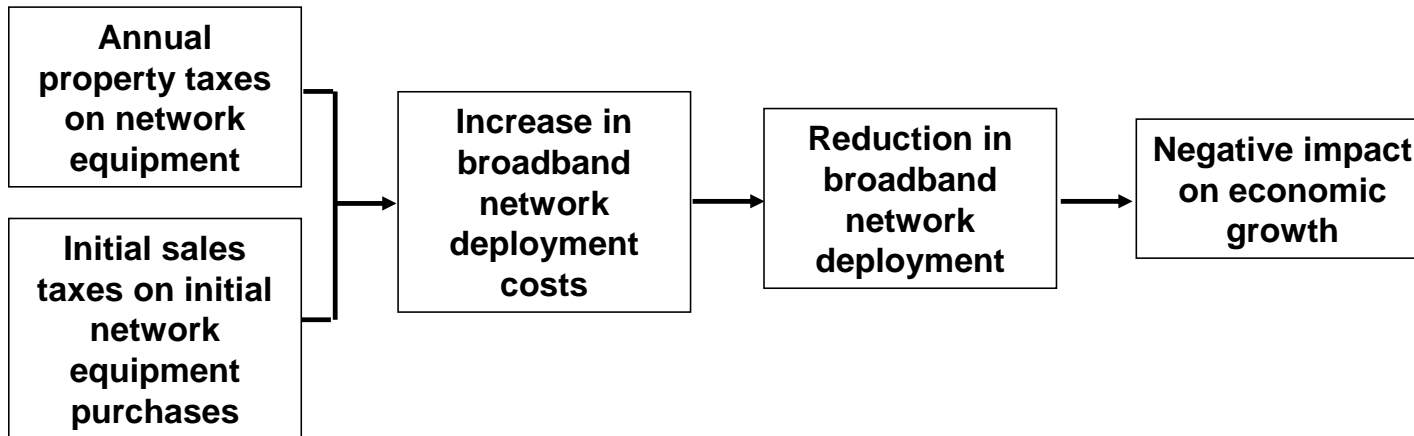
TAX BURDEN AND 3G PENETRATION IN SELECTED LATIN AMERICAN AND ASIA-PACIFIC COUNTRIES (2013)



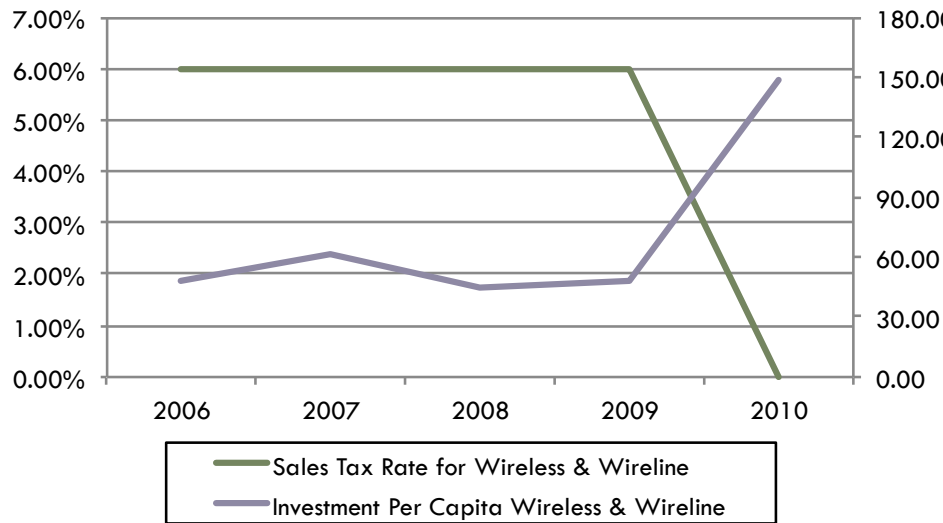
Sources: ITU; Telecom Advisory Services analysis

**RECT TAXES – ANNUAL PROPERTY LEVIES AND SALES TAXES ON EQUIPMENT PURCHASING – IMPOSED ON ISPs HAVE A
GATIVE ECONOMIC IMPACT**

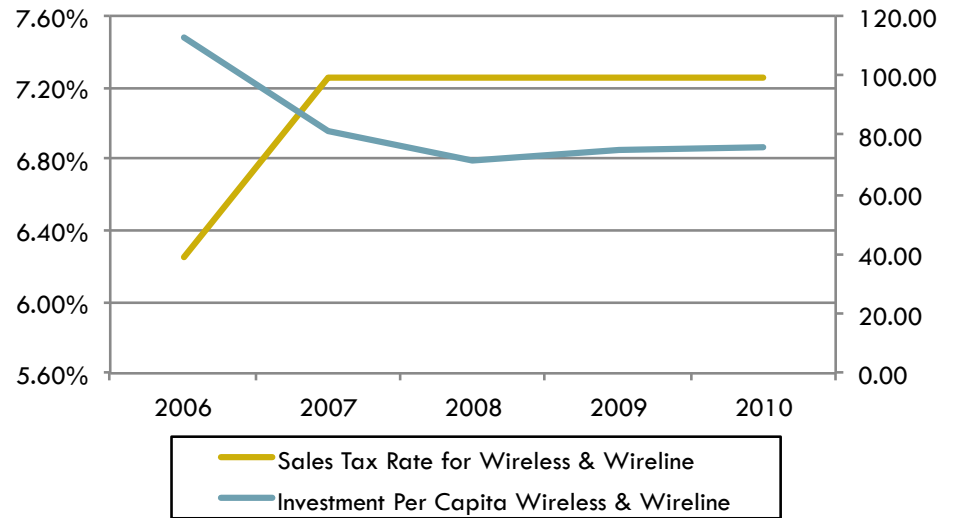
IMPACT OF TAXES ON BROADBAND NETWORK INVESTMENT



NORTH DAKOTA



SOUTH CAROLINA



TAXATION ASYMMETRY EXISTS WHEN THERE IS A DISPARITY IN FIRM CONTRIBUTION ACROSS THE DIGITAL ECOSYSTEM

TAX CONTRIBUTION (EFFECTIVE TAXATION RATE) (%) (2014)

Contribution	Digital Operators	Telecommunications Operators	Equipment Manufacturers	Terminal Manufacturers
WORLD	20.78 %	28.37 %	19.12 %	23.24 %
	<ul style="list-style-type: none"> • Facebook • Twitter • Google • Skype • Netflix 	<ul style="list-style-type: none"> • Claro • Telefónica • Millicom 	<ul style="list-style-type: none"> • Cisco • Ericsson • Alcatel-Lucent • Huawei 	<ul style="list-style-type: none"> • Apple • Samsung
LATIN AMERICA	11.78 %	33.24 %	14.14 %	15.19 %
	<ul style="list-style-type: none"> • Facebook • Twitter • Google • Skype • Netflix • Mercado Libre • Netshoes • Despegar • Taringa • B2W • Linio 	<ul style="list-style-type: none"> • Claro • Telefónica • Entel Chile • Oi Brasil • TIM Brasil • Personal • Millicom • ICE • Antel • CNT • Entel Bolivia • Digicel • CANTV 	<ul style="list-style-type: none"> • Cisco • Ericsson • Alcatel-Lucent • Huawei 	<ul style="list-style-type: none"> • Apple • Samsung • Nokia

Sources: Telecom Advisory Services analysis

KATION ASYMMETRY CAN ALSO EXIST ACROSS INDUSTRIES, AS A PRELIMINARY INDICATION OF AVERAGE ETR WOULD MONSTRATE

SECTOR COMPARATIVE AGGREGATE EFFECTIVE TAX RATE

	Digital industries	Media	Tourism
United States	26.28 %	28.93 %	21.68 %
Europe	25.19 %	32.47 %	28.79 %
Emerging markets	25.97 %	32.71 %	19.27 %

- The aggregate effective tax rate of the tourism sector is six percentage points lower than digital industries
- The lower tax rate of the tourism sector is frequently associated with policies aimed at promoting international competitiveness
- However, the difference with the digital sector introduces a distortion

SHOULD PRODUCTION AND CONSUMPTION OF DIGITAL GOODS BE TAXED?

- A country has a right to tax income by way of where the good is generated (source-based) or where it is being consumed (residency-based)
 - Digital advertising: determining the source of the income remains a critical taxation issue
 - E-commerce: a provider does not pay taxes in a country if it does not fulfill the “permanent establishment” condition
 - Video-streaming: some countries are moving to collect a tax on video-streaming services to protect local cable-TV industries
- Arguments for and against taxation of production and consumption of digital goods
 - Digital advertising: loss of tax revenues <-> erosion of spill-over
 - E-commerce: unfair advantage <-> enforcement difficulty
 - Sales tax on digital goods: cultural protectionism <-> lack of harmonization

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DEFINITIONS OF TAX POLICY IN THE DIGITAL ECONOMY NEED TO BE MADE BASED ON AN ASSESSMENT OF POTENTIAL ECONOMIC AND SOCIAL IMPACT: A CASE OF CONSUMER TAX

FIRST POSTULATE

- Adoption of digital technologies has an economic impact beyond what is implied by the standard direct effects (e.g. contribution of value added – sales-expenses -- of digital firms)
- This implies the existence of a spill-over mechanism which covers part or all of the economy (e.g. productivity, new business creation, etc.)
- If this is the case, the policy objective is to maximize adoption of digital technologies in order to yield the largest economic benefit possible

SECOND POSTULATE

- Adoption of digital technologies is a function of three factors – affordability, digital literacy, and content relevance
- To reduce the affordability barrier prices of purchasing digital technologies need to decline as much as possible
- Competition is one of the key levers to drive price decline, but taxes could be another

THIRD POSTULATE

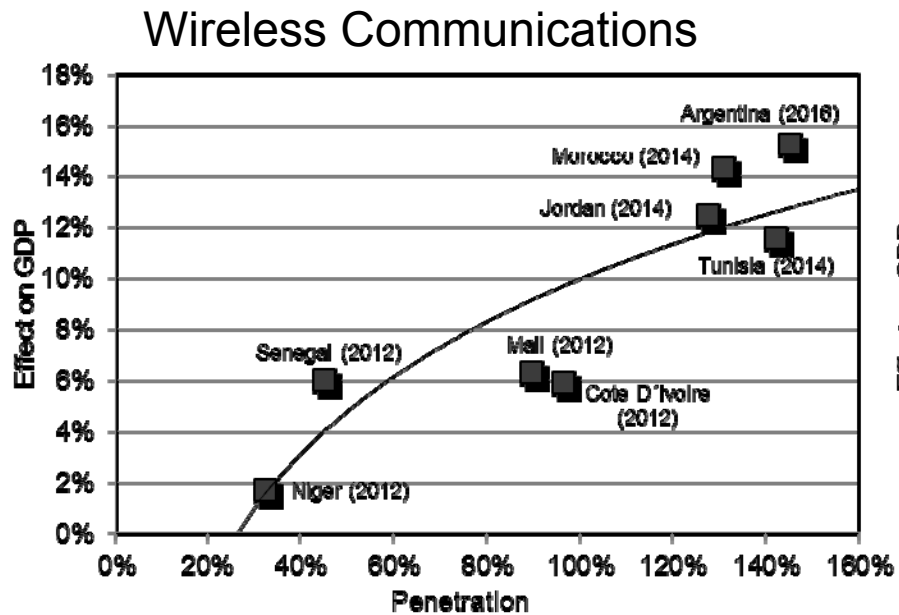
- Affordability is a function of total cost of ownership of digital technology (cost of handset acquisition/activation, monthly recurring price, and taxes)
- A reduction in taxes yields an increase in affordability, which ultimately increases adoption, thereby maximizing economic impact
- The foregone taxes are outweighed by the overall growth of the economy
- However, the growth effect takes more time than the conventional budget collection cycle

ST POSTULATE: DIGITAL TECHNOLOGIES HAVE AN OVERALL ECONOMIC CONTRIBUTION BEYOND ITS STANDARD DIRECT I

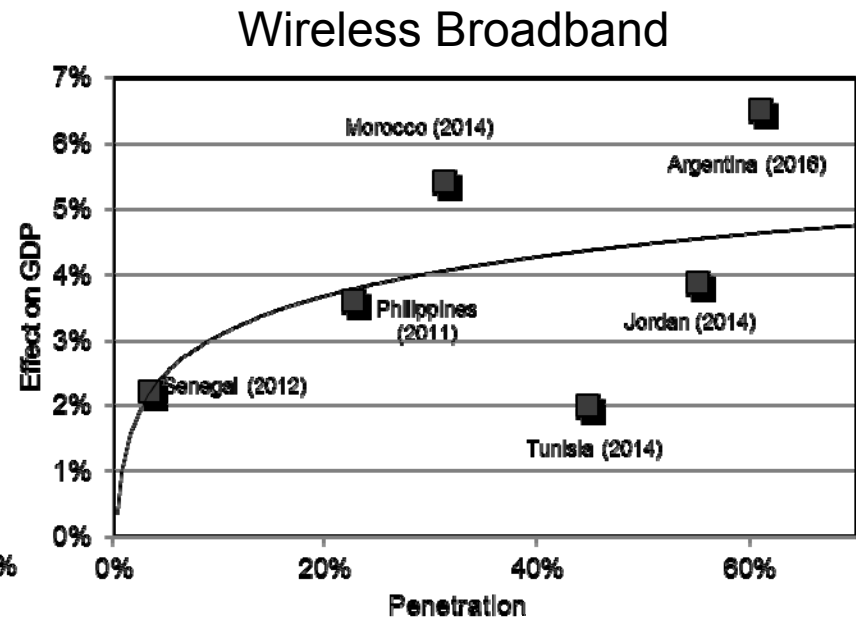
- Productivity gains in industries, such as tourism, exports, manufacturing, as well as social services, such as education and public administration
- Innovation incentives, leading to the creation of new businesses in the digital economy (applications, software platforms, local content)
- Integration of isolated regions, leading to further development of economic activities
- Better coordination among economic agents through improved knowledge of inputs market prices (agriculture), resulting in lower transaction costs among industries' value chain firms, enhanced ability to negotiate selling prices, inventory management and delivery tracking
- Improvement and extension of domestic economic exchanges, both at the regional and global scale
- This is supported by macro (e.g. Senegal, Cote d'Ivoire, Morocco) and micro research (e.g. drop in grain input prices in Niger; cost of crop marketing in banana farms in Uganda)
- In addition, macro evidence is calculated by estimating an equation for a sample of countries for a given technology:
 - $GDP = f(\text{digital technology penetration, other variables})$
 - Example: If the estimated coefficient of the penetration term of the equation is 0.1, this means that an increase in penetration from 30% to 30.3% increases GDP by 0.1%

1ST POSTULATE: MACRO EVIDENCE POINTS TO A CONTRIBUTION TO ECONOMIC GROWTH THAT INCREASES WITH TECHNOLOGICAL PENETRATION (AN EFFECT CALLED “RETURN TO SCALE”)

IMPACT ON GDP GROWTH OF AN INCREASE IN PENETRATION OF 10% (*)



Source: Telecom Advisory Services analysis



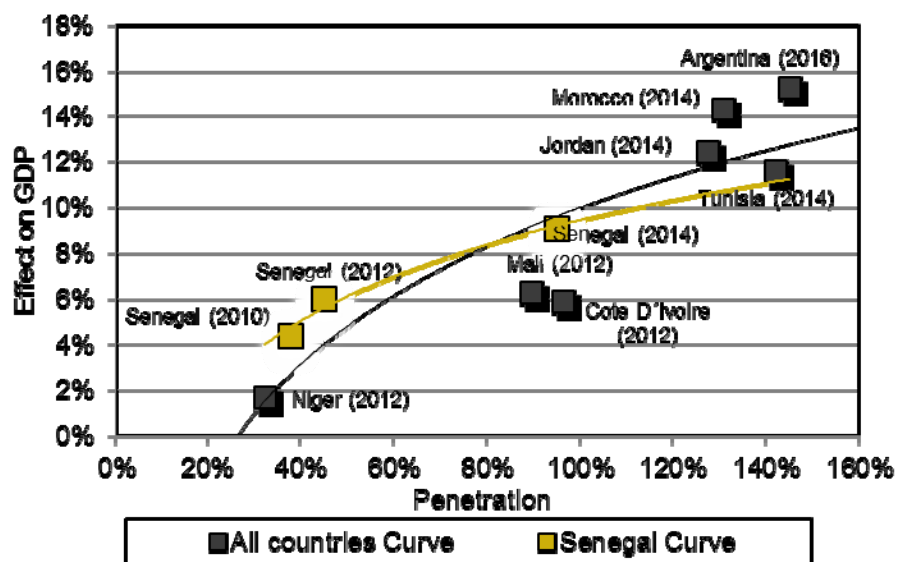
Source: Telecom Advisory Services analysis

(*) The coefficients for GDP growth were all calculated through structural models, and published in several papers: Katz and Koutroumpis (2013, 2014a, 2014b), Katz and Callorda (2015a, 2015b); they can be retrieved in Telecom Advisory Services website: www.teleadvs.com)

ST POSTULATE: THE RETURNS TO SCALE CAN ALSO BE DETECTED IN TRACKING STUDIES CONDUCTED AT A COUNTRY LEVEL

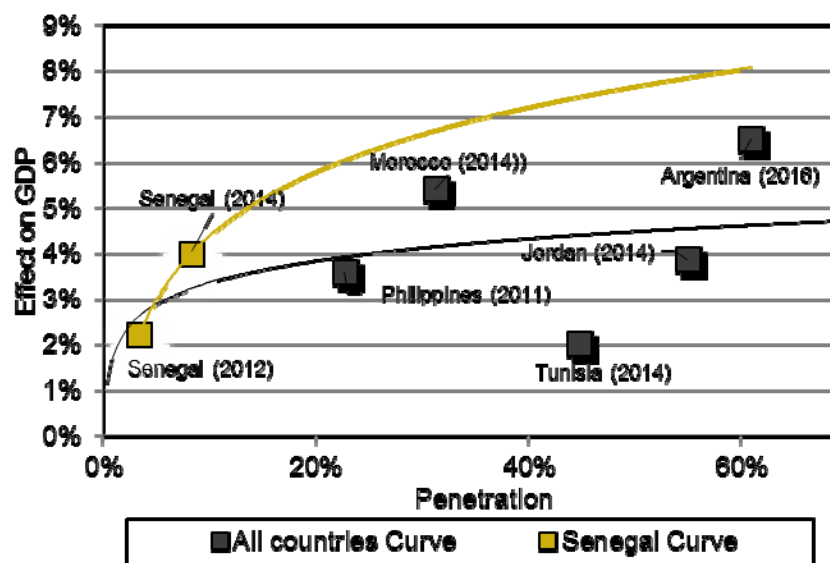
IMPACT ON GDP GROWTH OF AN INCREASE IN PENETRATION OF 10%

Wireless Communications



Source: Telecom Advisory Services analysis

Wireless Broadband



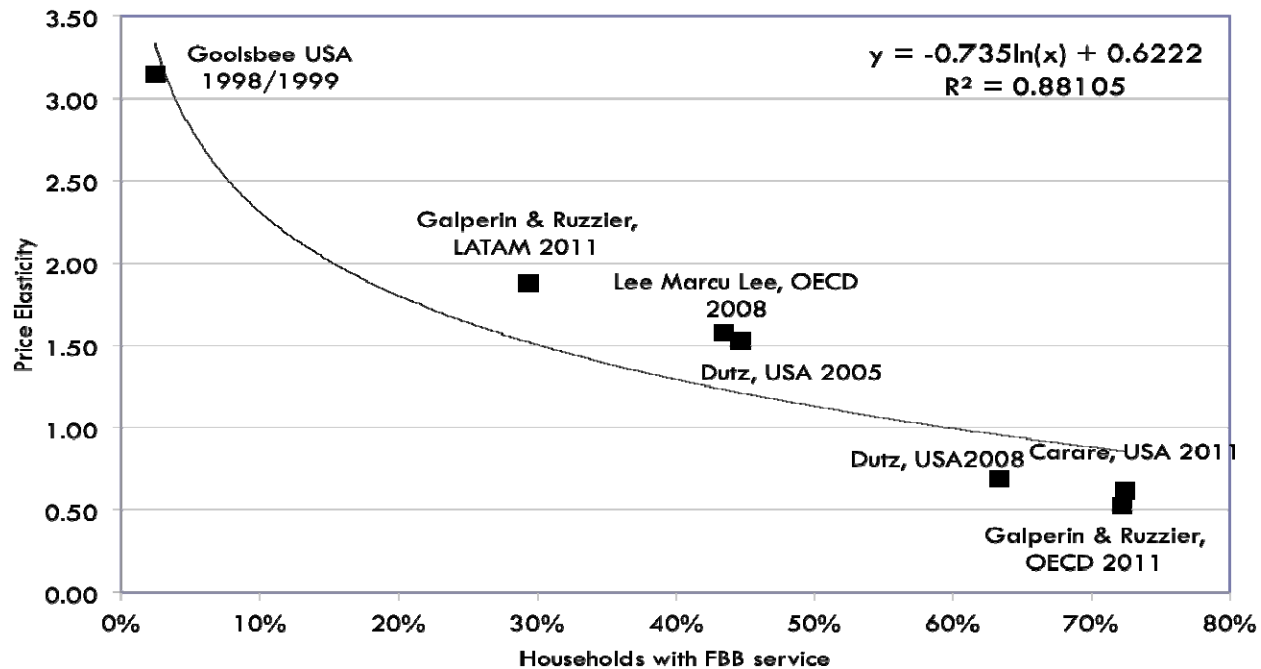
Source: Telecom Advisory Services analysis

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COND POSTULATE: TELECOMMUNICATIONS SERVICES HAVE NEGATIVE ELASTICITIES (HIGHER PRICES IMPLY LOWER DEMAND)
AT HIGH PENETRATION YIELDS LOWER PRICE ELASTICITY

- Model based on seven fixed broadband elasticity studies

CORRELATION BETWEEN FIXED BROADBAND PENETRATION AND PRICE ELASTICITY



Source: Telecom Advisory Services analysis

- Expected penetration = $(1 + ((0.735 * \text{Log}(\text{current penetration}/100) + 0.622)/100) * \% \text{ price change}) * \text{current penetration}$

COND POSTULATE: THIS MODEL ALLOWS ESTIMATING THE INCREASE IN PENETRATION RESULTING FROM A PRICE REDUC

IMPACT ON WEIGHTED AVERAGE HOUSEHOLD PENETRATION LEVEL OF FIXED BROADBAND OF A PRICE REDUCTION (2013)

Region	2013 Household Penetration	5% Price Reduction	10% Price Reduction	15% Price Reduction	20% Price Reduction	25% Price Reduction
Africa	3.12%	3.62%	4.11%	4.61%	5.10%	5.60%
Americas	54.87%	57.79%	60.70%	63.62%	66.54%	69.45%
Arab States	27.93%	30.10%	32.28%	34.46%	36.64%	38.82%
Asia & Pacific	31.05%	33.35%	35.65%	37.95%	40.25%	42.55%
Europe	72.02%	75.13%	78.24%	81.35%	84.46%	87.57%
CIS	36.94%	39.44%	41.94%	44.45%	46.95%	49.45%

Source: Estimates by the author based on ITU 2013 data

IRD POSTULATE: AN ELIMINATION OF TAX ON DIGITAL TECHNOLOGY USE COULD PROVE ECONOMICALLY BENEFICIAL – SENEGAL

■ Assumptions:

- Impact of fixed broadband on GDP growth in Senegal: 0.050% for each 1% increase in penetration (source: Katz and Callorda, 2015)
- Fixed broadband monthly retail price in Senegal: US\$ 36.41 (source: ITU)
- Overall taxes to be added to the retail price in Senegal: 18% VAT on General Goods and Services (source: ITU)
- Fixed broadband household penetration in Senegal: 6.23% (source: ITU)
- Fixed Broadband price elasticity in Senegal: 2.66 (source: Telecom Advisory Services analysis from model in prior pages)

■ Current situation:

- Annual tax collection per subscription borne by consumers: US\$ 78.65 (calculated: $US\$36.41 * 18\% * 12$)
- Total fixed broadband subscribers: 103,362 (source: ITU)
- Total annual tax collection from fixed broadband: US\$ 8,128,966 (calculated)

■ Impact of eliminating taxes on broadband

- Total taxes lost to the Treasury: US\$ 8,128,966 yearly (US\$ 162,579,320 in perpetuity value with a 5% discount rate)
- Reduction of total cost of ownership: US\$ 6.55 monthly per household
- Increased household penetration: From 6.23% to 9.22%
- Impact on GDP growth: 2.40% (US\$ 354,960,000)

DEFINITIONS OF TAX POLICY IN THE DIGITAL ECONOMY NEED TO BE MADE BASED ON AN ASSESSMENT OF POTENTIAL ECONOMIC AND SOCIAL IMPACT: A CASE OF SUPPLIER TAX

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- Adoption of digital technologies has an economic impact beyond what is implied by the standard direct effects (e.g. contribution of value added – sales-expenses -- of digital firms)
- This implies the existence of a spill-over mechanism which covers part or all of the economy (e.g. productivity, new business creation, etc.)
- If this is the case, the policy objective is to maximize adoption of digital technologies in order to yield the largest economic benefit possible

SECOND POSTULATE

- Adoption of digital technologies needs to be based on service coverage
- Since taxes impacting equipment acquisition increase deployment costs, a reduction of said taxes has a positive impact on service coverage
- Taxes is just one of the variables impacting deployment of digital technologies

THIRD POSTULATE

- A reduction in taxes yields an increase in deployment, which ultimately increases adoption, thereby maximizing economic impact
- The foregone taxes are outweighed by the overall growth of the economy
- However, the growth effect takes more time than the conventional budget collection cycle

COND POSTULATE: TELECOMMUNICATIONS INVESTMENT IS SENSITIVE TO TAXATION ON PURCHASED EQUIPMENT

- Every decrease of 1 % in the average sales tax rate on purchased equipment results in an increase in total wireline and wireless investment per capita of \$ 0.85

<i>Dependent Variable</i>	Wireless & Wireline Investment	
Sales Tax Rate	-0.8529	*
	(0.5142)	
Median Income (2010 Dollars)	0.5817	*
	(0.3524)	
Population	-0.3662	
	(0.2690)	
Human Capital	0.2689	
	(0.5602)	
Rural Population	-0.0620	
	(0.1461)	
Investment the last year	0.4375	***
	(0.0408)	
60 years or more	-8.7256	
	(6.3690)	
Between 20/34 years	-3.8209	
	(6.7247)	
Between 5/19 years	-6.9562	*
	(3.5852)	
Constant	434.7922	
	(301.4056)	

R²	0.4808
F (9,190)	37.61
Prob > F	0.0000
Number of Observations	200

IRRD POSTULATE: AN ELIMINATION OF TAXES ON PURCHASING OF BROADBAND EQUIPMENT USE COULD ALSO PROVE TO BE ECONOMICALLY BENEFICIAL – UNITED STATES CASE

■ **Assumptions:**

- Impact of sales tax rate on network investment in US: every decrease of 1 % in the average sales tax rate on purchased equipment results in an increase in total telecommunications investment per capita of \$ 0.85 (source: model in prior page)
- Economic Impact of network investment in US: each 1% increase in penetration yields 0.014% in GDP growth, and -0.075 in unemployment growth (source: Katz, Flores-Roux and Callorda, 2015)
- Annual telecommunications network investment in US: US\$ 31.8 billion; US\$ 20.97 billion subject to sales tax of an average of 4.02% (source: FCC)

■ **Current situation:**

- Total annual collection from sales taxes on purchased equipment in US: US\$ 1.39 billion (calculated)

■ **Impact of eliminating taxes on broadband equipment purchase**

- Total taxes lost to the States Treasuries: US\$ 1.39 billion
- Investment increase in network deployment: US\$ 1.48 billion in the first year and \$ 3.13 billion annually in subsequent years (“stimulus multiplier effect”)
- Increased broadband deployment: 634,000 new broadband lines
- Impact on US GDP growth: US\$ 7.24 billion in the first year after the investment increase and US\$ 33.13 billion of output over three years (direct and indirect)
- Job creation: 53,000 new jobs in the first year after the investment increase and 243,000 over three years (direct and indirect)

SET OF ANSWERS TO THE ISSUE QUESTIONS RAISED ABOVE CAN BE FORMULATED BASED ON THE EVIDENCE PROVIDED

Issue	Conclusion
What is the proper level of taxation for purchasing of wireless services?	<ul style="list-style-type: none"> ▪ If the purpose is to maximize penetration, the lowest possible tax rate; tax exemptions generate more economic benefits and ultimately revenues than losses
What is the appropriate level of taxation on capital equipment purchased by telecommunication operators?	<ul style="list-style-type: none"> ▪ Sales taxes on purchased equipment have a negative impact on network deployment and, therefore, on broadband economic impact ▪ Governments should carefully consider the enactment of tax exemptions similar to those considered for development of critical industries
How should Internet sales be taxed?	<ul style="list-style-type: none"> ▪ No easy answers in this area ▪ Taxation of goods sold over the Internet should be considered in light of the benefits to consumers implied in a tax-free environment ▪ On the other hand, no taxes for goods purchased over the Internet have a potential distortion vis-à-vis physical distribution channels
How should consumption of digital goods be taxed?	<ul style="list-style-type: none"> ▪ This is an evolving policy domain ▪ However, if the objective is to protect national digital industries, no taxation of global players offering digital goods has a potential distortionary effect
Should the consumer purchasing wireless devices and personal computers be taxed?	<ul style="list-style-type: none"> ▪ If the objective is to maximize adoption of digital access devices, the evidence points out that tax minimization fosters increased adoption, which in turn results in large economic gains, which compensate for the foregone tax revenues.
Should the providers of digital platforms be taxed at the country where revenues are generated, or should they be allowed to take corporate tax exemptions in certain locations?	<ul style="list-style-type: none"> ▪ Global platforms have been the preeminent drivers of Internet adoption throughout the world, with significant indirect contributions to the development of the digital economy ▪ While the current tax regime might be a source of asymmetry within the digital sector (particularly vis-à-vis telecommunication operators), governments in countries with emerging market economies need to carefully assess the convenience of moving into this domain, which might entail a risk in hampering growth of local demand and usage

AGENDA

- Principles of taxation
- Current taxation approaches in the digital ecosystem
- Different digital economy taxation policies
- Distortive taxation in the digital economy
- Digital taxation policy end economic performance
- Conclusion

TAXATION OF DIGITAL GOODS AND SERVICES SHOULD BE APPROACHED PREVENTING ANY EROSION OF THEIR ECONOMIC I

- Taxation can have a detrimental impact on digitization growth and ultimately on economic development
 - On consumption of digital goods
 - On equipment and other production inputs
- Balance short-term revenue generation and long term support of innovation and economic growth
 - Imposing “luxury taxes” on smartphones and tablets does not have any redistributive impact
 - Import duties have no clear impact in protecting domestic industries
 - Sector specific policies may be distortive
- The design of an efficient tax structure in the digital space needs to consider three requirements
 - Ensure proper collection of taxes for income generated at source
 - Avoid over taxation of digital activities when compared to other industries
 - Provide selective exemptions to facilitate investment in infrastructure and promote adoption by end-users

TAILS OF THIS PRESENTATION INCLUDED IN THIS RECENT ITU PUBLICATION

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Telecommunication Development Sector



TELECOM ADVISORY SERVICES, LLC

Nueva York – Buenos Aires – México D.F. – Bogotá

For more information, please contact:

Raul Katz, raul.katz@teleadvs.com, +1 (845) 868-1653

Telecom Advisory Services LLC
182 Stissing Road
Stanfordville, New York 12581 USA