

How to measure the implementation stage of the reforms

How far are these policy reforms keeping their promise of delivering greater welfare to citizens?

The reforms' impact → since 1980 many regulatory reforms have reshaped network industries in Europe. Treaty of Rome, idea of European economic community → ideological ideas → we have a theoretical approach and data analysis (what we expect from a theoretical point of view and what really happened in reality)

3 possible levels of data analysis:

- Graphical analysis
- Descriptive analysis
- Econometric analysis

DATA ANALYSIS - Empirical assessment of regulatory reforms are complex

Build empirical proxies for regulatory reforms and use them to identify casual effects of key outcomes

A wide array of indicators to "measure" the implementation stage of reforms are categorical variables

CATEGORICAL VARIABLE - Variable whose set of possible values consists of a finite number of categories.

E.g 'marital status': single, married or cohabiting, separated, divorced, widower

→ Clear definition

Regulatory policy: definition by the OECD → Regulatory policy aims at achieving government's objective through the use of regulations, laws and other instruments to deliver better economic and social outcomes and thus enhance the life of citizens and business.

(<https://www.oecd.org/regreform/regulatoryreforminoecdcountriesreportsbysubject.htm>)

<https://www.oecd.org/regreform/regulatory-policy/by-country.htm>)

EMPIRICAL ANALYSIS - Data on: • INPUT: Reforms • OUTPUT: Social Welfare • CONFOUNDING FACTORS:

Other factors that can affect social welfare besides reform

In any analysis when we want to analysis something we call it Y and we need to find x (it's the explanatory variable, the reform)

$x = \text{input} - y = \text{output}$ – however x's impact is not straightforward to y because there are many others factors that influence Y. in order to build this model we need to find the other x

REFORMS INDICATORS - Given the complexity and interconnectedness of regulatory reforms, their quantitative assessment needs creating or resorting to artificial indicators that have no natural units of measure

There're Four prominent databases: - ETCR: Energy, Transport, Communication Regulation

- MOM: Market Opening Milestone (1990-2004)

- EURI: European Union Regulatory Institutions (1997-2003)

- ICT Tracker (2007-2016)

The OECD indicators of regulation in energy, transport and communications (ETCR) summarize regulatory provisions in seven sectors:

1. Telecoms
2. Electricity
3. Gas
4. Post

5. Rail
6. Air passenger transport
7. Road freight

Reforms' definitions:

Privatization: transfer of property rights from the public to the private sector or the participation of the private sector in the management of public asset

Unbundling: separation of the network (monopoly vs competitive segment)

Liberalization: 1. Entry liberalization: removal of barriers to entry (any factor hindering entry in a market)
2. Market structure: share of the largest company

Third party access → It is one of the principles underlying European liberalization concerning, non-discriminatory access to essential infrastructures. TPA concerns both tariffs and conditions for other entities to access to the network.

Essential facilities: technical reasons due to economies of scope and scale, and the presence of sunk costs, cannot practicably be duplicated by a would-be competitor

The European directives allow each country to choose between TPA with "regulated access" or "negotiated access"

Under regulated access, an independent authority sets the prices and terms by which potential new competitors can obtain access to essential networks.

Under negotiated access, competitors must negotiate the terms of access directly with incumbents.

There's more liberalization in the negotiated access because there's a third party regulatory so it's more fair.

ECTS INDICATORS (OECD)

Available for OECD and some non-OECD countries (1975-2013)

Info is collected with a questionnaire sent to governments. Closed questions – Likert scales

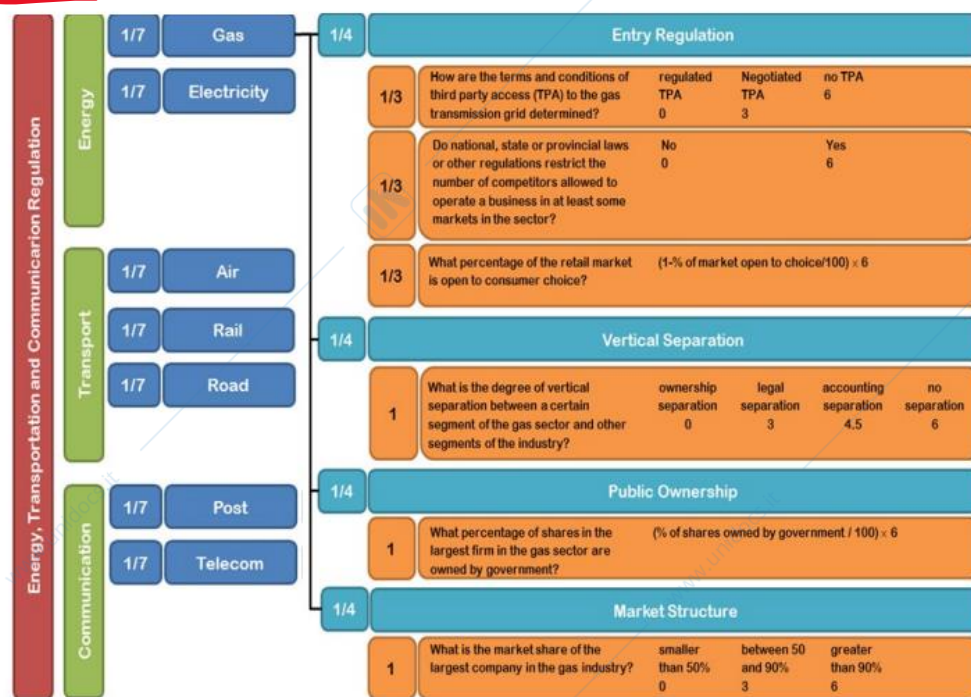
Info is complemented with publicly available data (media- laws etc.) to see how the situation is in the market, to not rely only on what the government says

Qualitative information is coded into quantitative measures and all answers are normalised in a range from 0 - 6

There're different types of indicators:

- Aggregated indicator (by country and sector)
- Disaggregated indicators (by country and sector)
- Values from 0 to 6
- 0: reform process completed (new paradigm) → when the ECTR is 0 we're in a new paradigm → it's totally privatised
- 6: no reform implemented (old paradigm) → when the ECTR is 6 we're in an old paradigm → it's a public sector

Structure of the OECD's Energy, Transport and Communications Regulation (ETCR) database



public ownership + market structure are indicators for the public system.

ENTRY REGULATION → we have three questions

VERTICAL SEPARATION → ownership separation – legal separation – accounting separation – no separation

PUBLIC OWNERSHIP

<http://stats.oecd.org/Index.aspx?DataSetCode=ETCR> (Link to see what the OECD looks like)¹

in the telecom industry vertical integration is not common, so there are only public ownership, market structure and entry regulation
 aggregate at 6 from 1997 to 1991 the telecom sector was completely public, then from 1991 the market started to be more open, public ownership changed and became totally private (it falls in the graph)²

→ slides with examples of telecommunication, electricity, gas industry³

There are 3 reform indicators

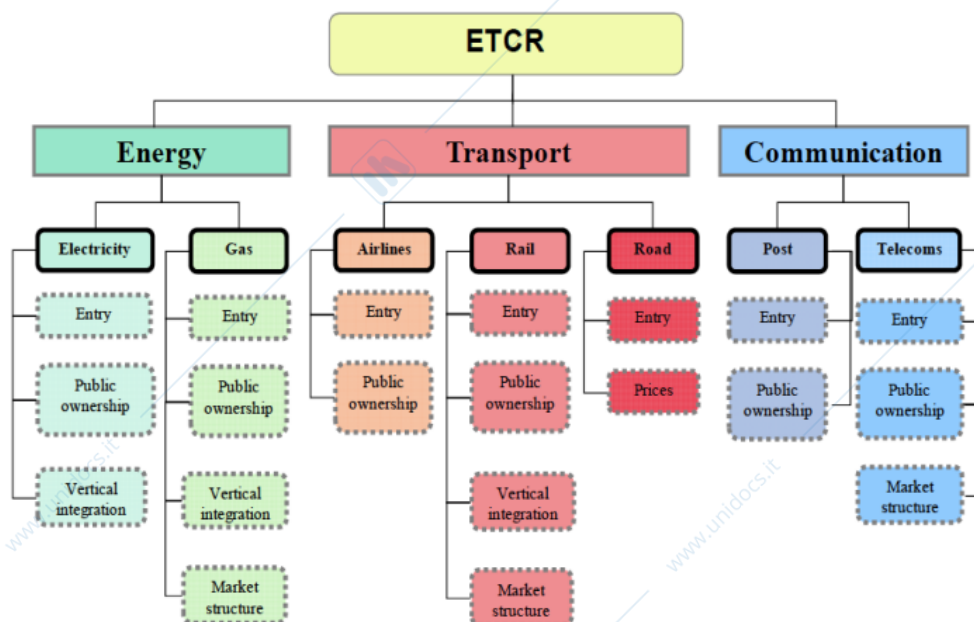
1. Privatization – ETCR «Public Ownership»
0=private ownership; 6=public ownership 2
2. Unbundling – ETCR «Vertical integration»
0=full vertical separation; 6= full integration
3. Liberalization – ETCR «Entry»
0=regulated entry>(when there's a regulator it's better for the entry into the market); 6=no entry allowed – ETCR «Market Structure»
0=largest firm < 50% mkt shares; 6= >90% mkt share

¹ Need to create a graph from this site with excel for the essay (see below for example)

² Esempio fatto in classe con Excel e il sito sopra → prende come esempio the ECTS value of the Italian telecom sector from 1997 to 2013

³ Need to do the same for the essay with my industry and country. (only for the industries written up there)

The ECTR indicators



Possible issues in evaluating the impact of regulatory reforms - The ECTR indicators provide evidence that the methodological issues involved in building scoring systems are non-trivial:

- collapsing the legislation or regulatory decisions along simplified dimensions;
- mixture of quantitative and qualitative variables involved in the measurement of reforms;
- normalizing the scoring system transforming continuous variables⁴ into discontinuous scores;
- aggregation from lower to higher level of scoring using (subjective) weights

→ Several errors may occur in measuring reforms.

LIMITATIONS OF ECTR

Conceptual errors:

The regulatory reform proxy does not clearly relate to a narrow theoretical description

Macroeconomic shocks (e.g. the market share has changed in response to an external technological shock)

Measurement errors:

ECTR rely on sources such as questionnaire, media coverage, legal and non-legal acts

Everything is processed with subjective judgment – misinterpretation

Scale discretization:

A discrete variable is one that can take on finitely many, or countably infinitely many values, whereas a continuous variable is one that is not discrete, i.e., "can take on uncountable infinitely many values" → Lack of common unit of measure.

Discretization is the process of transferring continuous functions, models, variables, and equations into discrete counterparts.

Aggregation errors:

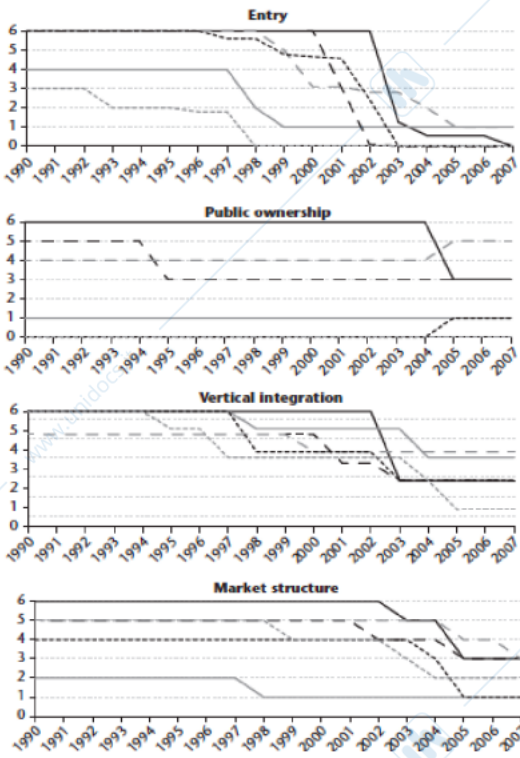
Aggregation of different items

Equal weights we lose the relative importance of each proxy) Limitations of ECTR Despite all these

⁴ It's something that's continuous, something that is happening day by day. We transform it from something continuous to something discrete.

problems, there are limited alternatives to using coded information to perform quantitative analysis of the effects of reforms.

Despite all these problems, there are limited alternatives to using coded information to perform quantitative analysis of the effects of reforms.



MEASURING CHANGES OF POLICY FRAMEWORKS - When scores are given consistently by an expert team over years and across countries, reforms can be tracked for example using figures.⁵

We can transform ordinal categorical variables to binary variables (dummies) 0 becomes the old paradigm and 1 the new paradigm. → it's different from the ordinal categorical variables.

EXAMPLES OF GRAPHICAL ANALYSIS OF THE REFORMS

PRIVATIZATION → in Germany there's no public sector⁶. In Denmark it was public until 1984-87, not it's private.

UNBUNDLING → in Germany in 1993 there was a little unbundling in the sector, it's not significant. In Denmark it's a full unbundling from 2002-05.

LIBERALIZATION (ENTRY) → in Germany before 1997 there's a free entry (score of 4), so it's not completely close kinda a

liberalization but not much; from 1997 there's a opening of free entry.

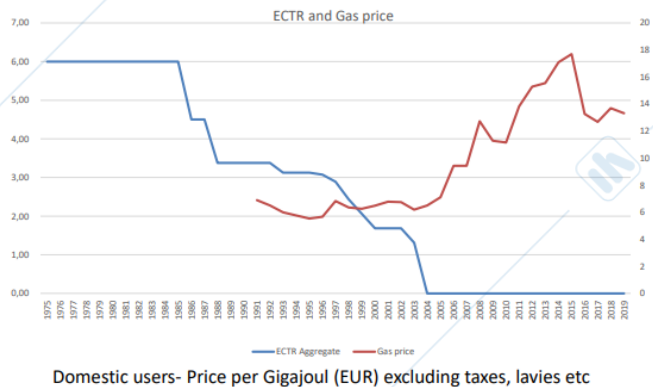
LIBERALIZATION (MARKET SHARE) → in Germany in the beginning there was a bit of competition (score level of 3), in 1996 it started to go down. In Denmark it was competitive (score of 6), then it became less and less competitive from 2005 (score of 0); there's new accessibility to the market.

→ slides graphs of the advancement of reforms⁷

GRAPHICAL ANALYSIS OF THE IMPACT OF THE REFORM - It is a preliminary step of an empirical analysis. We observe the trend over time of ECTR indicators and we compare it with the trend over time of proxies for consumers' welfare (e.g., prices, quality, consumer satisfaction etc.)

From this graph we cannot see if the reform is working properly. When we analyse the relation between 2 variables, there are many others that impact the reforms. From this chart we know that the reform is not working.

Reforms' impact: preliminary graphycal analysis



⁵ It's the only thing that we can use to estimate the reform's impacts.

⁶ It's all 0 we're all in the private ownership

⁷ È cosa dobbiamo fare per l'essay, come dobbiamo creare il grafico e come spiegarlo con i vari scores

POSSIBLE ISSUES IN EVALUATING THE IMPACT OF REGULATORY REFORMS - Virtually all empirical specifications omit some relevant, but possibly unobservable explanatory variables.

The inclusion of a suitable set of control variables might help mitigate such bias – **CONFOUNDING FACTORS**

Examples: what can influence prices beyond the reform? Events specific to each country, Institutional features and the quality of the political system, Events specific to each year, Demand-side factors: include proxies for the price and the demand for substitutes., Supply-side drivers, Macroeconomic shocks (e.g. technological shift), etc

Lesson 8
03/02/2023

Testing the paradigm: Overview of statistics and econometrics (Part 1)

→ Understanding whether policy reforms are contributing to increase citizen's welfare

There are 3 levels of data analysis:

- Graphical analysis⁸
- Descriptive analysis (descriptive statistics)⁹
- Econometric analysis

TEST THE PARADIGM

STATISTICS = It is science of collecting and analysing numerical data in large quantities, especially for the purpose of inferring proportions in a population from those in a representative sample.

We want information on the population, which could be anything I want to study. Usually the population is too big to analyse, interview so we'll have a sample (usually random), it'll reflect the population. If something is true for the sample, it'll be true for the population.

ECONOMETRICS = Literally means "measurement in economics".

More practically it means "the application of statistical techniques to problems in economics".

Usually, we want to explain the behaviour of a variable (Y) accounting for factors (X) that we believe might affect that behaviour.

Whatever we want to study is the variable Y that will be influenced by the factors X. Y depends on X.

ECONOMETRIC ANALYSIS

- 1) State the objective of the analysis
– E.g.: evaluate the impact of privatization of telecom industry on consumer's prices
 $Y = \text{telecom} - x = \text{privatization}$
- 2) Look at the economic theory: get ideas on what variables are relevant, how similar issues have been addressed in the past, what estimation methods have been used.
- 3) Design your econometric model of the theory.
- 4) Get the data: look at the data (summary statistics)¹⁰

⁸ see previous lecture

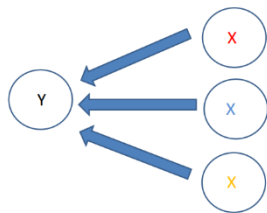
⁹ this lecture

¹⁰ We look at statistic before doing actual econometrics

Example (1)

Objective: What factors affect innovations?

- Innovation is the dependent variable 'Y'



(1) x could be technology, economic, etc → we have a model of innovation that will define our Xs.

Example (2)

- How can we measure Y?
 - For example: patents
- What factors do we include as determinants of innovations? (Independent variables or explanatory variables 'X')
 - For example:
 - Skilled workers
 - Investments in R&D
 - Access to finance
 - Institutional framework etc.
- How can we measure X?

we'll have different types of data when we get them:

- **Time-series data**¹¹ are data arranged chronologically, usually at regular intervals
- **Cross-sectional data**¹² are data on several individuals collected at a single point in time
e.g. cross-sectional survey data
- **Panel Data**¹³ has the dimensions of both time series and cross-sections.

DESCRIPTIVE STATISTICS

We start to describe the data of our Y and X.

Data Analysis - Every good analysis starts with some summary statistics of relevant variables.

Statistics about each individual variable - Statistics about relationship existing among two or more variables

SUMMARY STATISTICS

- One variable (X or Y):
 - Mean or average value
 - Minimum and Maximum value
 - Mode & Median
 - Variance and standard deviation
- Two variables (relation X & Y):
 - Cross-plot (or scatter gram or scatter plot).
 - Covariance
 - Correlation

One variable (X or Y) → SLIDES ON MEAN OR AVERAGE; MINIMUM AND MAXIMUM; MODE; MEDIAN; MEASURE OF DISPERSION¹⁴; STANDARD DEVIATION NORMAL CURVE

High standard deviation → there're lot of outliers

Low standard deviation → there's not much data dispersion

STATISTICS ON EXCEL – COMMANDS

((cross section example))

AVERAGE =media & select the results → the average will be calculated

¹¹ Look at slide 11-12 lesson 3 to see how the data is presented. The graph is usually lines

¹² Look at slide 13-14 lesson 3 to see how the data is presented. The graph is usually histograms

¹³ It's the best one we can have → Look at slide 15-16 lesson 3 to see how the data is presented.

We have many countries. For the essay use this one and compare with a few relevant countries.

¹⁴ We'll use this measure a lot in data analysis

MEDIAN =mediana(&select the numbers

MODE =moda & select the numbers

MAX =max

MIN =min

Then select all of the data and create a graph/chart

Two variables (relations X & Y) → SLIDES ON SCATTER PLOT; COVARIANCE; CORRELATION¹⁵; FROM CORRELATION TO REGRESSION

Lesson 9
09/02/2023

Testing the paradigm: Overview of statistics and econometrics (Part 2)

When we are doing an empirical analysis we are looking at data → Empirical analysis

→ positive correlation, we don't know what is causing what. Regression is necessary if we want to know what variable is causing what.

If we say y and x are correlated, it means that we are treating y and x in a symmetric way.

In regression, we treat the dependent variable (y) and the independent variable(s) (x's) very differently.

Regression analysis is largely concerned with estimating the behaviour of a variable y in terms of another variable, x.

ECONOMETRICS – It means “measurement in economics”, more practically it means “the application of statistical techniques to problems in economics”.

Usually, we want to explain the behaviour of a variable (Y) accounting for factors (X) that we believe might affect that behaviour.

STEPS OF ECONOMETRIC ANALYSIS: → we can manipulate it however we want it, especially by choosing only some variables in respect to others

- 1) Objective of the analysis – Example: We want to understand what factors influence wages in Italy
- 2) Look at the economic theory - Example: Wages and education → This relationship is known in economics as the Mincer equation¹⁶. The Hypothesis is that: People that study more will earn higher wages
- 3) Design your econometric model of the theory - From Jacob Mincer's:
 1. Wage is our dependent variable
 2. Education in an independent variable
- 4) Get the data: look at the data (summary statistics) - Get the data (primary or secondary) and describe it
- 5) Estimate the econometric models
- 6) Hypothesis testing
- 7) Interpret the results
- 8) Policy recommendations

POINT 4 OF ECONOMETRICS ANALYSIS:

¹⁵ It's a measure we are going to use for our essay

¹⁶ From Jacob Mincer's famous work, published in 1974 'Schooling, experience and earnings'

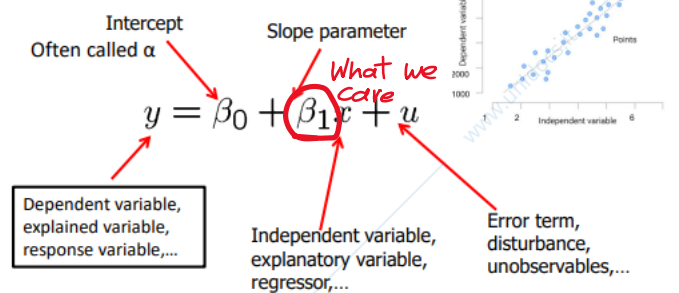
I start by doing statistic, by seeing what's going on in terms of relationships between the two variables. Then, I move on to regression.

Regression analysis is largely concerned with estimating the behavior of a variable y in terms of another variable, x . (CASUAL RELATION)

The Simple Regression Model

- Definition of the simple linear regression model

"Explains variable y in terms of variable x "



$$\text{Wage} = \alpha + \beta \text{ education} + u$$

We have our scatter plot and we're trying with regression to draw a line in it in order to see a clear relation between the variables. When we want to understand and estimate the regression we have to work with sample data and not populations data.

Population and sample

► POPULATION REGRESSION FUNCTION (PRF):

$$Y_i = \alpha + \beta X_i + u_i \quad i=1,2,\dots,n$$

Our objective is to get estimates of the unknown parameters alpha and beta, given N observations on Y and X .

► SAMPLE REGRESSION FUNCTION (SRF)

$$Y_i = \hat{\alpha} + \hat{\beta} X_i + \hat{u}_i \quad i=1,2,\dots,n$$

Statistical Inference: Drawing conclusions about the nature of the population on the basis of a random sample that has been drawn from that population.

In econometrics we use samples. Starting from a sample our aim is to draw conclusions concerning the whole population.

- Population: the whole sample space representing a phenomenon we are interested in.
- Sample: section of the sample space

slide¹⁷

OLS → Most important estimator and common estimator.

ORDINARY LEAST SQUARE - This is the most frequently used method of analysis.

An estimator is a rule (or formula) that tells how to estimate the population parameters from the information provided by the sample.

A particular numerical value obtained by the estimator is known as an estimate.

¹⁷ Look slide 24, lesson 4

OLS has some assumptions that needs to be met¹⁸, if they're not met we change estimator/model.

POINT 5 OF ECONOMETRICS ANALYSIS (Estimation of the econometric model) → slides¹⁹

if beta is positive then it has a positive impact of the variable, if it's negative then it has a negative impact. If you increase beta also the other variable will increase.

POINT 6 OF ECONOMETRICS ANALYSIS (Hypothesis testing): we need to see if beta is statistically significant, because if it's not there's no relationship.

→ slides for the other points

Lesson 10
10/02/2023

Testing the paradigm: Telephone Service

Telephone service is a natural monopoly → A natural monopoly: high infrastructural costs and other barriers to entry give the largest supplier an overwhelming advantage over potential competitors.

Main features of a natural monopoly: - Economies of scale - High capital intensity - Non-storability with fluctuating demand - Users consider the goods produced as necessities

((Need to adapt demand and supplies at any moment))

Telephone was invented by Antonio Meucci and Innocenzo Manzetti at different times, however the patent was registered by Alexander Graham Bell (1876).

For many decades stable technology environment (sound converted into an electric signal)²⁰
PSTN (Public Switched Telephone Network) or (Circuit Switching)

Local loop: a twisted copper pair laid down between the customer premises and a first node of the network, a switch which was connected to a local exchange and from there to other customers. The local loop connected your house to the central office, that will move the signal to other house.

The most expensive part to build was the fili that had to be created underground.

The telephone industry, under a natural monopoly, seems unlikely to become competitive. This belief was widespread among economists. Indeed, the arrangement of network services for most of the XX century was either as: - a strictly regulated private monopoly (e.g. telephony in the US) - a public monopoly (e.g. telephony in Italy)

There was a new ideology, a shift in the paradigm: Different parallel policy and ideological trends.

- 1) the overarching goal by the European Commission in the 1980s to create a unique internal market for those services that were previously excluded by the Treaty of Rome (1957).
- 2) the UK example under the Thatcher governments (1979–97), and deregulation in the USA under the Reagan administration (1981– 89).
- 3) the collapse of the Soviet Union and of other planned economies
- 4) the advent of global financial

¹⁸ Look at slides 27-28-29, lesson 4

¹⁹ Look at slides from 31 to 36 lesson 4

²⁰ See slide pic 5 lesson 5

From an analogue electronic signal to a digital signal (content is translated into a sequence of numbers expressed in binary coding)

Standard telephone competes with other substitutes (mobiles, Internet VoIP - Voice over Internet Protocol etc.)

Many Networks: The local loop can be coaxial, optical fibre or aerial (mobiles are connected through air waves to a specific cell which is provided by an aerial or a satellite and from there to others cells)

(argument against monopoly) → the signal was now transmitted by satellite, and it became cheaper and easier to build.

Distinction between telecom and media industries has become blurred. Providers of electricity, gas etc. are also potential investors as they own a hole in the ground.

REFORMS IN THE TELEPHONE SERVICES

The telecom sector – core laboratory worldwide where reform started earliest.

Late 1980s and 1990s with Divestiture of incumbents, Privatization & price caps, Liberalization

1984:

- Divestiture of American Telephone and Telegraph Incorporated (AT&T) in US - broken up into seven companies
- Privatization of British Telecom (BT) in UK
- Other early adopter: Finland, Sweden, Denmark
- Telecom Italia: 1991-1997

REFORMS IN THE UK → it was a slow process

1981:

Communication Act (decision to reform the telecommunication sector)

1984: British Telecom (BT) was privatized

Mercury Communication enter the market for fixed telephone (regulated duopoly)

Oftel a sector regulatory authority – Ofcom

1985: 2 licences for mobile services: Racal + BT

REFORMS IN THE EU – the EU gradually removed legal barriers to market entry

1984: Common EU standard for ISDN (Integrated Services Digital Network) and other technical standard → a technology that put together all the different devices connections and transmitted them together

1987: EC Green Paper - full liberalization of the equipment sector, harmonized EU measures for network access

1990: EU Directives 387 and 388 opening the market for private networks

1994 & 1996: EC Green Paper on satellite and mobile communications

1996: Full Competition Directive for liberalization of fixed telephony The Commission checked and enforced implementation 1999: Telecommunication Regulatory Review (coordination)

((conoscere le rectives, how they were perceived in each country))

NEW WAVE OF REFORMS IN 2009

- Number portability (you can change your operator keeping the same number)
- Improved information for customers about the subscription of contracts
- Minimum quality standard for network transmission service
- Consumer protection for personal data, spam etc.
- Overseeing of EC upon national regulations

- Increasing unbundling
- Increasing competition

What was the result of this process? Every country did something different

- After the reforms many newcomers entered the market but the incumbents lost their market dominance very slowly
- Unbundling was not common with exception of the local loop
- The local loop: physical wire connection between the local exchange and the customers
- Building the peripheral part of the network is very costly (source of significant market power for the incumbent)

Reforms Indicators

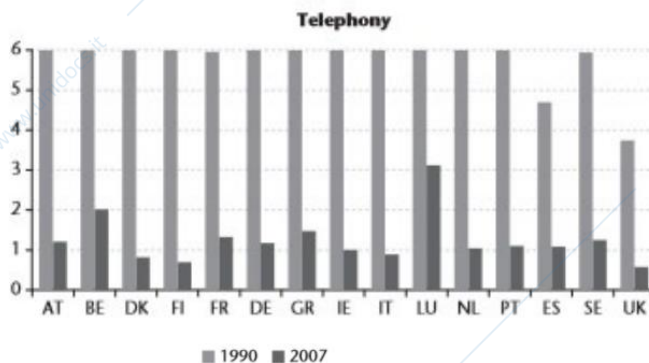


Figure 2.1. ECTR indicators, selected countries, 1990–2007

Source: own elaboration of ECTR scores.
6 = minimum reform progress
0 = maximum reform progress

→ the graph is a cross sectional data

DIFFERENCES IN EU COUNTRIES

During this process differences emerged across countries:

Degree of privatization is heterogeneous:

- Belgium & Sweden: around 50% owned by the State
- Italy, Spain, Netherlands and UK: 0%

Degree of market opening is heterogeneous:

- Spain: 21% market share of new entrants
- Finland: 60% market share of new entrants

- UK the whole industry is in private hands
- Other countries that have liberalized the most are **Denmark** and Sweden
- Sweden has not been accompanied by full divestiture of public ownership (Telia Sonera)
- UK and Sweden legal controversies and appeals related to the market position of the entrant
- France and Germany the incumbent is partly owned by the government

Telecom Italia- it's Full privatized

Holds two thirds of the market in terms of revenues of fixed telephony

78% of users need its infrastructure to access the network (fixed telephone)

The incumbent has bundled its offers with other service and it is difficult for entrants to offer better conditions at national scale → keeps the market power this way

New Paradigm: breaking up the incumbent:

privatizing it when a public corporation

forcing it to divest part of its capacity in favour of entrants

force access for competitors to their network

establish independent regulators to administrate new licenses and design price-caps and enhance competition everywhere.

Minority views: often originating from within the industry had reservation (sub-additive costs of the network argument) were paid scant attention.

The case of the decline of the natural monopoly was exaggerated: microwaves would imply much less costs than traditional network (key issue was interconnection of wireless with ADSL lines or optical fibres)

FIXED TELEPHONY → We have better data for longer periods

in spite of more than 20 years of privatization and liberalization: only national champions

Seven out of ten major global players in the industry are European companies. These include British Telecom, France Telecom, Deutsche Telekom, Telecom Italia (TIM), Telefonica (Spain), Telia Sonera (Sweden and Finland), KPN (Netherlands).

MOBILE TELEPHONY

Oligopoly: 10 operators concentrates around 90% of the market despite the internet revolution and cable TV. Most operators are subsidiaries of a fixed incumbent

How far are these policy reforms keeping their promise of delivering greater welfare to citizens?

PRICES²¹

- In spite of regulatory pressures and opening to competitors and new available technologies prices for local calls are stable or increasing
- Integration among services (packages that include fixed and mobile voice, TV etc. «horizontal bundling»)

Price for local calls → there's no much difference (almost no change)

Price for long distance calls → the price increased for long distance calls, why it did not increase for local calls? For the presence of substitutes

Price for international calls → there's a decrease in price from 1998 to 2008

For our analysis we have to start from the conceptual model, start situation of monopoly → slides²²

What happened when covid hit and everyone uses the phone? There's an increase in demand, since we are in a private monopoly → the demand curve shifts (red line) and the price stays the same.

What might happen in a positive technological shock? The c^* is lower because prices will be lower since the technology is more efficient at different prices

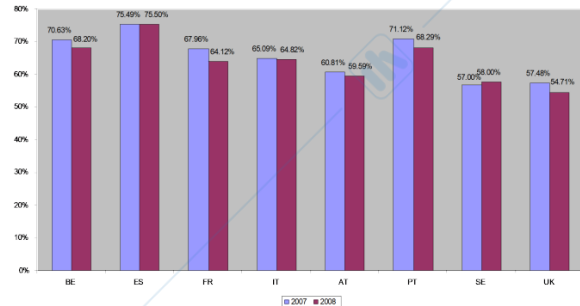
Vertically integrated private monopoly → slide²³

With an increase in demand, the curves shift to the right and the price increases. (we're in a private monopoly, so it's a different case than a public monopoly)

ECONOMETRIC ANALYSIS

Incumbents' market share

Figure 4.1 - Incumbents' market share in the fixed telephony market (all types of calls by retail revenues) (selected EU countries)



Source: own elaboration of Teligen data, 2008

²¹ See slides 27-28-29 lesson 5 for graphs

²² See slides 30-31 lesson 5 for graphs

²³ See slides 32-33 lesson 5 for graphs

Explaining telephone price dynamics

Bacchiocchi Emanuele, Massimo Florio, and Marco Gambero.
"Telecom reforms in the EU: Prices and consumers' satisfaction."
Telecommunications Policy 35.4 (2011): 382-396.

- EU 15 countries
- 1997-2003

$$p_{it} = \beta_0 + \beta_{0i} + \beta_1' x_{it} + \beta_2' r_{it} + \varepsilon_{it}$$

Where β_0 and β_{0i} are the constant term and the country fixed effects respectively, β_1 is the vector of parameters associated to the regressors, while β_2 is the vector of parameters associated to the regulatory variables, i.e. the OECD/ECTR.

The lines (=the number of fixed telecom lines over population) affects the prices by decreasing the prices the more lines exists.

Investment: the amount of investment in the telecommunication sector → affects prices because the more you invest the more efficient technology you have, and you create a better device, so lower prices.

Density: Population density → you have more users, so you have more demand and it might increase the prices.

SCHEMA SLIDE 39:

First regression: the regulation index has an impact on prices, it has a positive impact (there are ***) which means the price for consumer will increase, it's more expensive. We are in the old paradigm, which means it's worst for the consumer as the price will increase.

investment: the higher the investment the better the technology is, so the price is lower.

Lines: the higher the number of lines, the lower the price will be. → there is some kind of decreasing return of scale.

Density: it has no * so it's not a significant data.

The first regression says that the new paradigm is better for the lower price, however in the second regression we have mobile subscribers (=it means that there's in an alternative market, which makes the price goes downs) so the effect of being in the new paradigm is cheaper than being in the old one disappears.

***=more confidence than this paradigm is captured in the population.

**- *=they're still significant data, however you are simply less confident

Third regression: we use Entry regulation and public ownership, and market structure which is positive and significant which means that there is a strong market power (prices will go up) → it's the old paradigm (it brings higher prices) → HOWEVER if we put mobile subscribers (substitutes) this effect disappears again.

The presence of substitute is the most impactful event in international calls

SLIDE 40 → national calls

Third reform: market structure increases → there's a big market share → national prices will increase.

ISDN channels: if they grow up we have lower prices.

Density: higher number of density, so the NATIONAL prices will decrease

SLIDE 41 → Local calls

Fourth reform: there's still some effect from the mobile subscribers.

If I increase public ownership → we go towards a public monopoly, it's not good for consumers → it's better to be privatised.

→ they created a model.

We have different dependent variables: International prices, National prices, Local prices, Connection charges (EUROSTAT).

Independent variables: Regulatory Indicators: OECD/ECTR (red square in the formula) & Control Variables (confounding factors) ((blue circle in the formula)) ((in communication there's no unbundling))

The higher the entry regulation, the lower the prices. If we're in the old paradigm.

Results:

Ownership change plays very limited role in explaining telephone price

Technology substitution with mobile telephony and other demand factors combined with unidentified country features have much more explanatory power than regulatory variables

Vertical disintegration has so far been limited in telephony (except in the local loop).

From a consumer perspective the privatization of the fixed telephony has been less beneficial than expected

The reform has underestimated the new challenges of the industry in a socio-economic perspective (e.g broadband lines cover 22% of the EU population)

Two important concerns for consumer's welfare:

Trade-off between investment in the upgrading of existing network and the creation of new networks. Low access price to the network increases competition but disrupted investment in the network

The sustainability in rural areas: weak legal obligations, technological barriers, lack of profitability

DISCUSS ISSUE OF INTEGRABILITY

→ read digital agenda for Europe

Lesson 11
16/02/2023

Testing the paradigm: Gas Service

Introduction essay → gas consumption can support our argument. How the economy is valid.

REFERENCE DOPO TUTTE LE FRASI.

TITOLO DELLE FIGURE

INFORMATION TAKEN FROM COMPANIES IS NOT REALIABLE

Discuss everything that is important to discuss our work, how the country is dealing with the sector

2- I prefer the oecd indicator in the reforms, why increase are relevant + explain how the ectr evolves overtime → MUST CITE WITH THE EUROPEAN SOURCE

3- Monopily → explained the Competition → exolained

4- find price data that are old → analizali comunque MA DEVI TROVARE INFORMAZIONI SUI PREZZI DI OGGI E INFORMAZIONI DI OGGI

Confounding factor → other factors that have intervened once a find the relation between my etcr e prices

Conclusions: what our idea about the impact of the reforms, how better the reforms is implemented?

Critical judgement

the more we are in the old paradigm, the more increased the probability of being satisfied → lez9
telephone slide

if x increases the probability of being dissatisfied increases → it's better of being in the old paradigm

Lesson 09/03/2023

→ important the message I want to convey (conclusion) – justify everything

Quality of the service → if the reforms have had an impact on the quality of the service, not only of the prices.

There's an objective quality and a subjective one → measure quality in a subjective way or find survey on quality (subjective)

When two compete on the service I try to offer a better price or a better service (improve quality) → differentiation advantages.

Telecommunications Universal Service Obligation (**USO**) is defined as the minimum set of services to which all end-users have access, at an affordable price in the light of the specific national conditions, without distorting competition”

If there's a negative correlation public ownership increases the level of satisfaction decreases

Lesson 12

10/03/2023

Territorial cohesion is important for telecommunications → difference between rural and urban areas.
There's a link between, affordability, cohesion and policy interventions

ESSAY absolute poverty in my country → will affect the affordability of the service. In Europe is usuallu relative poverty

Eu wants to liberalize, open the market however at the same time it wants the operators to include and support people who cannot afford the service (Relative poverty 2018: 16.8% of the EU population had an income - after transfers - below 60% of equalized median* income in their country (poverty risk)- Eurostat, 2018 → it is higher after covid

Absolute poverty people cannot afford telephone (including mobile)

Cross subsidization: is the practice of charging higher prices to one group of consumers to artificially lower prices for another group. Ex.

Aggregate social welfare is the sum of the 4 types of consumers.

Find data on utility poverty.

Ratio =1 (they pay the same price) → ratio > 1 low users pay more than the high users, if you buy more you pay less.

Ratio between the price of low users and the price of high users

[Analytical Publications \(itu.int\)](http://itu.int)

→ something related to time (confounding factors, particular situation that may have risen in the country and issues related to the time) → Country and time effects

Dependent variable is the regression (deprived or not) → if we are testing the new reforms as the positive impact of deprivation, we have no evidence as there's the probability that the higher the share of public ownership the less deprived we'll be. So the reforms are not working.

How the reforms overtime impacts the regional disparities

Inflation
employment

Has the reform been implemented properly? Yes (credo) totally liberalized but there are few companies dominating the sector

IEA TELIGEN ITU EUROSTAT