Electricity network businesses – extending the services provided by poles and wires

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Outline

Liberalization of electricity retailing

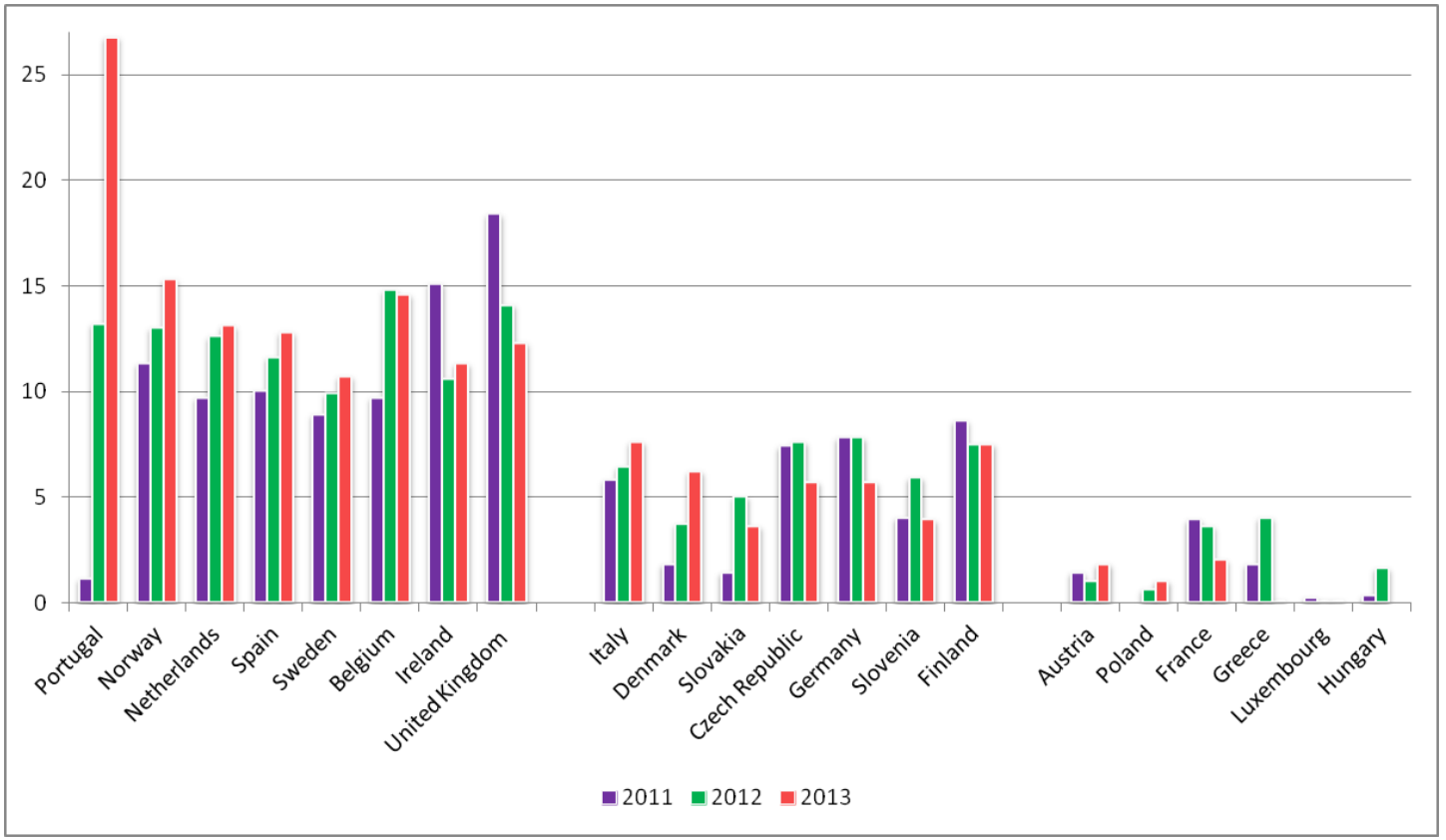
based on “Liberalization of electricity retailing in Europe: what to do next?” co-written with Silvia Concettini and published in *Energy Studies Review*, Volume 21, Issue 1, 2014

- The expected **benefits** of retail competition may be summarized as follows:
  1. Efficiency (cost-reflective prices, direct gains on retail activities, more efficient procurement of upstream services)
  2. Differentiation (larger choices of services and contractual arrangements)
  3. Equipment innovation (innovative measuring devices, empowered equipment for quality services)

- **Three regulatory interventions** remain necessary after the introduction of competition:
  1. the appointment of a Last Resort Supplier
  2. the appointment of a Default Supplier
  3. the settlement of supply arrangements for vulnerable or non profitable customers (USOs)

The demand side - Household consumers

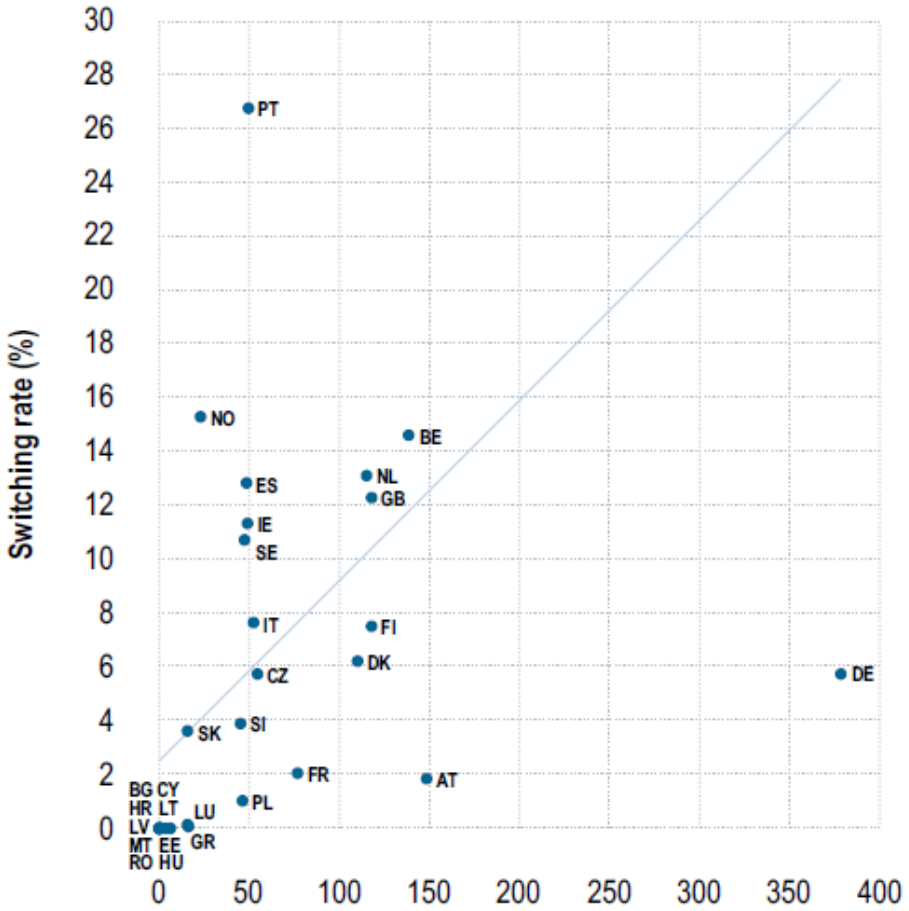
The **switching rate** is a commonly used indicator for the level of buyer commitment in a market



Source: Elaboration on ACER/CEER data (2014)
Bulgaria, Croatia, Cyprus, Estonia, Latvia, Lithuania, Malta and Romania have registered 0 switchings

Switching and potential savings

The relationship between **switching rate** and the **annual savings** available in capital cities is positive but weak, indicating that there are other factors influencing switching

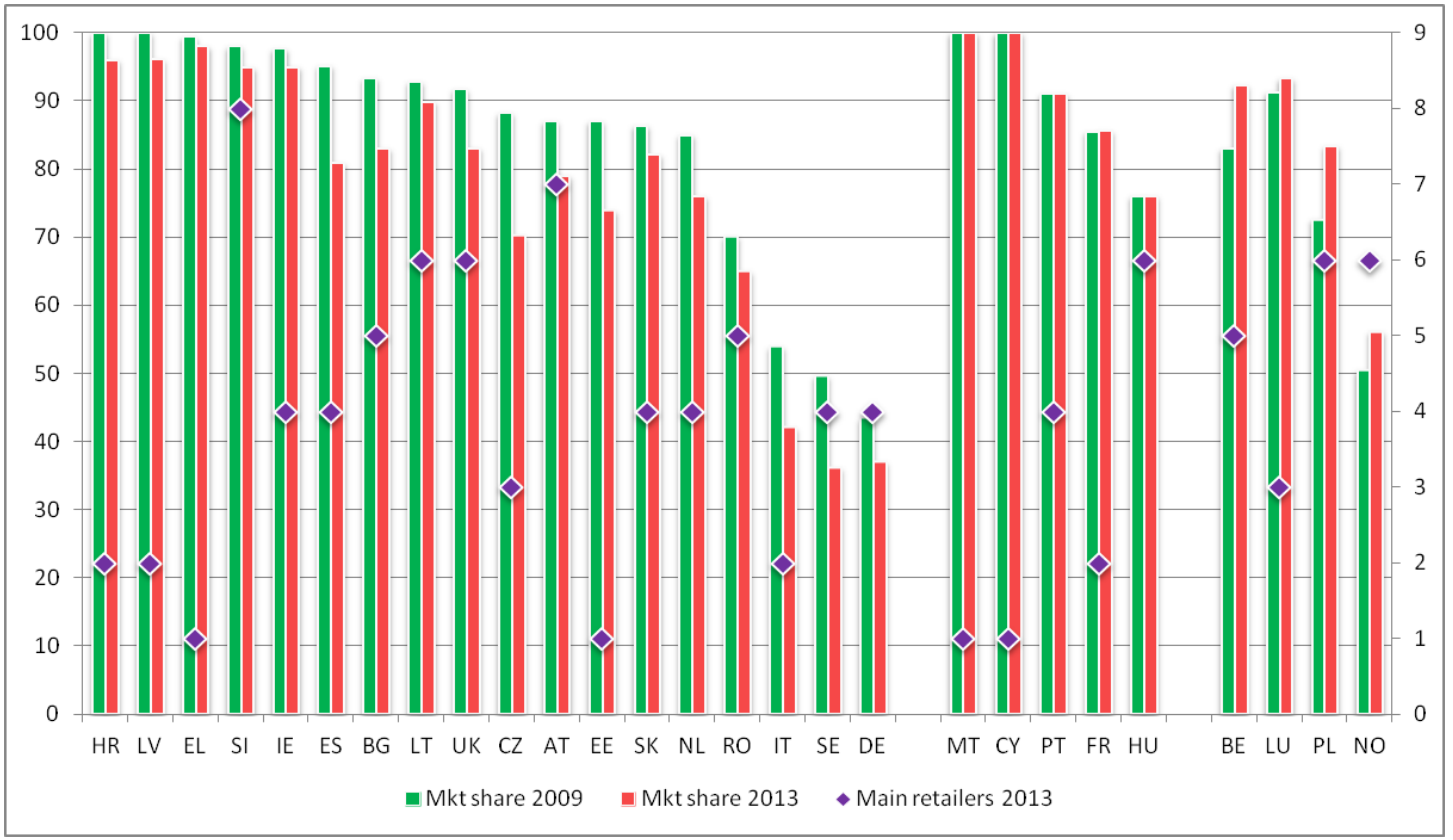


Source: ACER/CEER (2014)

Number and cumulative market share of main retailers*

*Retailers are considered as “main” if they sell at least 5% of the total national electricity consumption

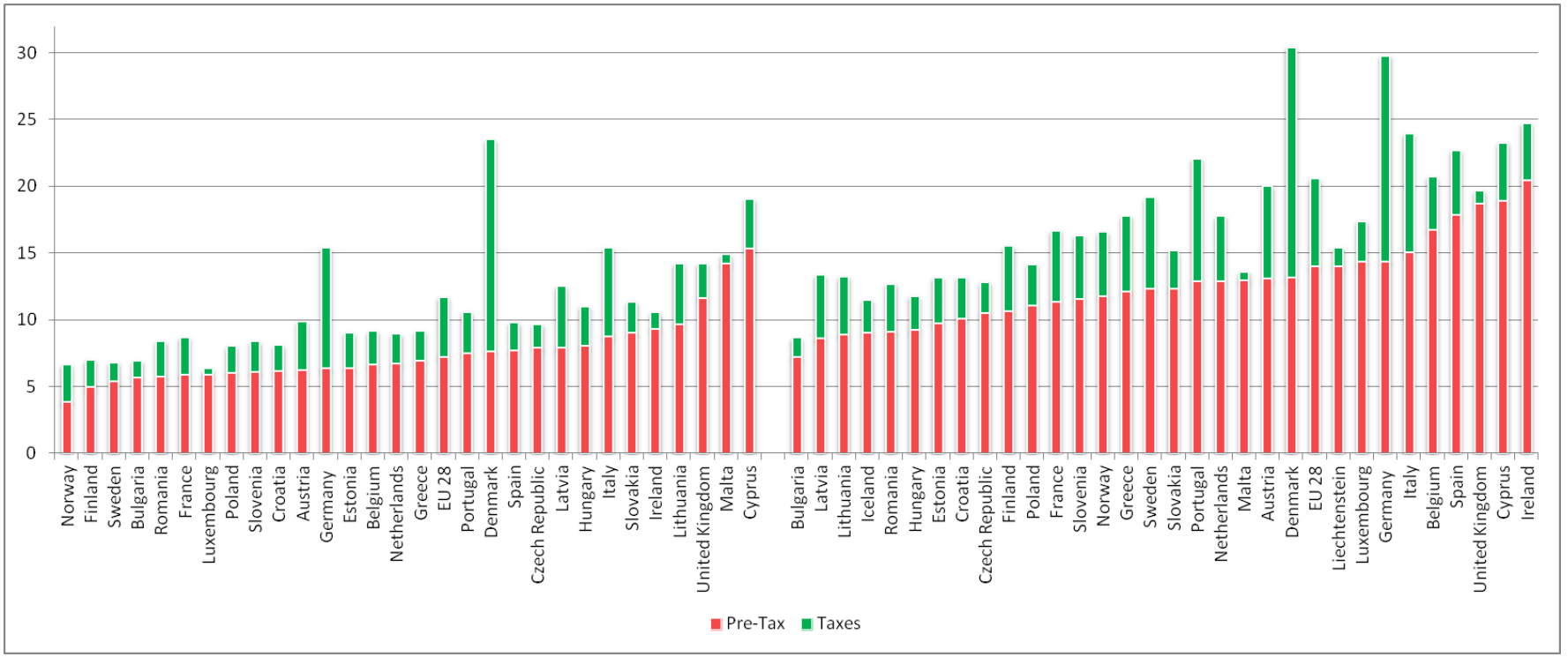
Electricity retail markets have an **oligopolistic structure** rather than a competitive one



Source: Elaboration on Eurostat data

Residential versus industrial prices

On average the pre-tax **price for households** is almost the **double** of the price for the industry; the taxes for households are about **1.5 times** the taxes on industrial customers



Source: Elaboration on Eurostat data, 2014 (s1 and s2)
Consumption bands: 2.500-5.000 kWh (households) and 20.000 MWh-70000 MWh (industry)

Household versus industry behavior

1. The contestable components represent only a part of the **pre-tax price** which **includes**:
   - Commodity price (energy component)
   - Regulated transmission and distribution charges
   - Retail component (billing, metering, customer service and a fair margin on these services)
2. The taxes represent on average **1/3 of the final price** for households (but network charges are not contestable too) and they have increased in last years due mainly to RES support schemes
3. The difference between **residential and industrial prices** may be justified:
   - For the pre-tax price, by the larger consumption and the stronger bargaining power of industries which reduce the price of electricity per kwh
   - On the tax component, by the Ramsey-Boiteux rule when consumer groups have different elasticities (the lower the elasticity the higher the taxes)
   - By a more developed competition in the industrial segment?
4. Do the potential **gains** (in terms of lower prices) stemming from increased competition outweigh the **costs** for residential customers?

Consumer participation

- Only a bunch of countries (8/29) have developed a **sufficient level of competition**:
  - Defined in the literature as a switching rate>10% (Littlechild, 2009)
- Limited consumer participation may be attributed to the presence of **market imperfections**:
  - Switching costs
  - Informational complexities
  - Consumer preference not to choose
- A **lack of consumer awareness** may result in:
  - Customers' segmentation (active versus passive customers)
  - Asymmetric speed and rate of cost pass through in case of negative and positive shocks
- To **boost consumer participation**, both ACER (2014) and OFGEM (2013) recommend to:
  - reduce the number of available contracts (a limitation for differentiation?)
  - to simplify tariff structure (e.g. two part tariffs)
  - to ease the communication from suppliers to consumers
- May **collective switching initiatives** help?

Supply structure

- The market for **"minor competitors"** remains below 20% in 15 out of 27 Countries in 2013
- **Small and independent retailers** have often experienced:
  - unsuccessful entry attempts
  - horizontal consolidations
  - acquisitions by larger and vertically integrated firms
- Some of the **difficulties** faced by small companies in running a retail business are:
  - limited profitability of entry (especially in residential markets) and high cost of credit cover
  - excessive regulatory and compliance burdens
  - scarce quality of data and metering services
  - low liquidity of wholesale markets and large exposure to spot price volatility
- The analysis of **demand and supply structures** suggests that there is still a need for DS at least for residential customers

Last Resort and Default Supplier

- Despite their very **different role** it is common that the terms Last Resort and Default Supplier are employed synonymously:
  - Last Resort Supplier: a temporary supplier for customers whose competitive retailer has exit the market
  - Default Supplier: a retailer responsible for the withdrawals of customer who have not chosen a competitive supplier
- Their **characteristics** differ as well:

Relevant issues	**LRS**	**DS**
Continuity of supply (with remote disconnection)	✓	✓
Flow balances (without remote disconnection)	✓	✓
Service duration		✓
Implementation (non-distortive)	✓	✓

- If LR service mainly aims at ensuring customer **confidence in the market**, D service embeds some elements of **customer protection** from exploitation

A focus on default service

- Liberalizing a market does not mean that that a sound competition will **automatically be developed**
- The structure and the behavior of both **sellers and buyers** determine the level of competition and the outcome of liberalization
- In principle as competition expands the demand for the Default service should fall and nearly **disappear in the long run**, but what is happening in reality?

Countries	A	B	C	Countries	A	B	C
Austria	X	X		**Italy**	X	X	X
Belgium	X	X		**Latvia**		X	
Bulgaria	X	X	X	**Lithuania**	X	X	X
Cyprus	X	X	X	**Luxembourg**		X	X
Czech Republic		X		**Netherlands**		X	
Denmark	X		X	**Norway**	X	X	X
Estonia	X	X	X	**Poland**		X	X
Finland	X	X		**Portugal**	X	X	
France			NO LRS	**Romania**	X	X	X
Germany	X	X	X	**Slovakia**		X	
Great Britain		X		**Slovenia**		X	
Greece		X	X	**Spain**	X	X	X
Hungary		X		**Sweden**		X	X
Ireland		X					

Source: ACER/CEER (2014)

A: Supporting customers with payment difficulties

B: Replacing failing retailer/DSO

C: Supplying passive customers

LRS and DS design

- A wide array of **implementation patterns** of DS and LRS are feasible:

Responsible subject	Price for electricity	Price formation	Focus
Transmission system operator	Imbalance payment	Real time	Supply continuity
Local distributor	Regulated tariff or price cap	Historic (cost)	Consumer protection
	Freely set price	Real time	Supply continuity
Retailer	All retailers (or only the incumbent) offer a tariff	Historic (cost)	Consumer protection
	Supplier resulting from auction	Real time	Supply continuity

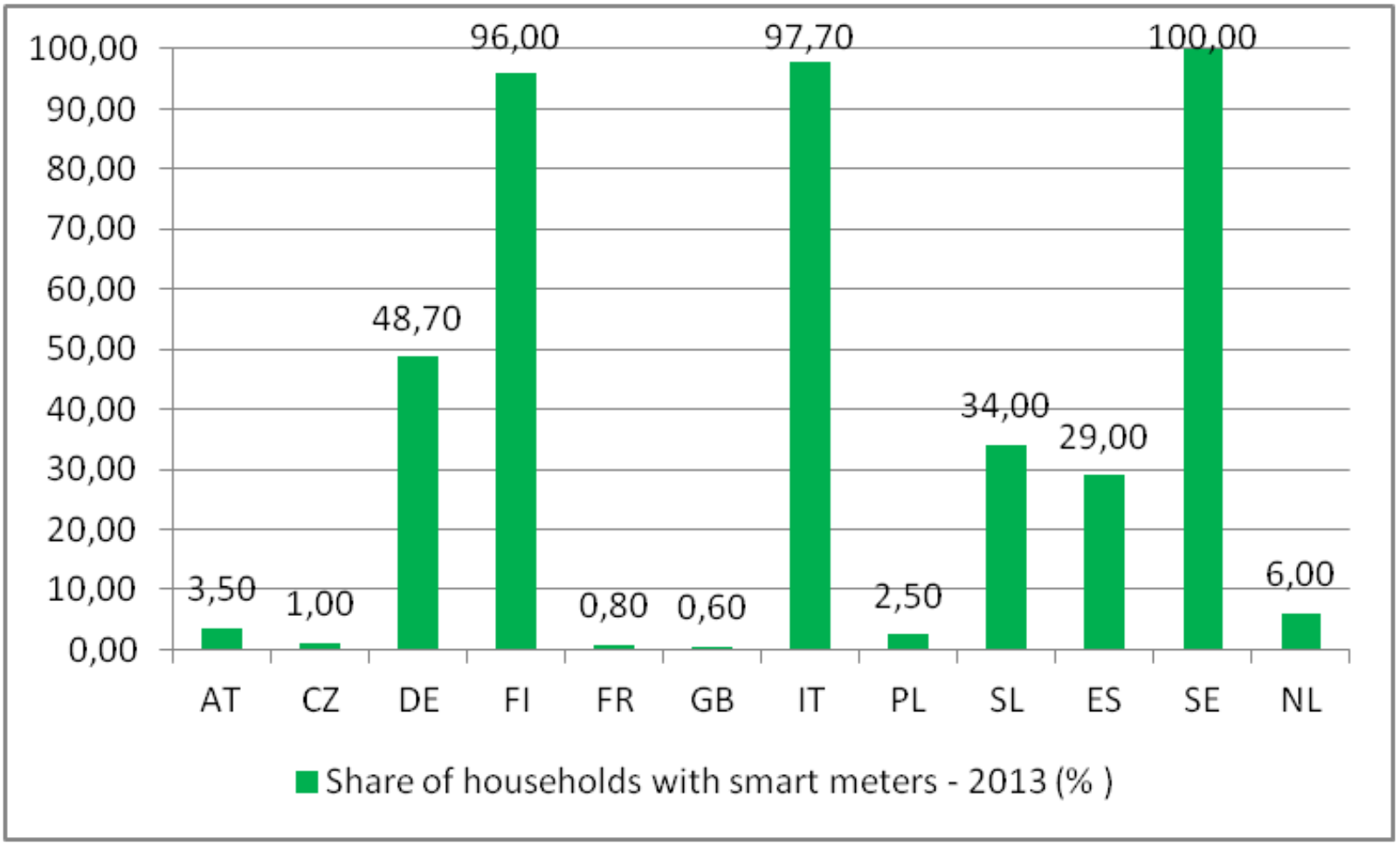
- **Three procedures** are available to assign these services to a retailer:
  1. a direct “ex ante” entitlement, typically granted to the incumbent firm
  2. a periodic rotating obligation imposed on competitive suppliers
  3. a bidding process based on the competitive selection of the provider
- The assignation of the DS and LRS through an **auction** mechanism:
  - reduces market distortions and may favor both the development of upstream and downstream competition
  - avoids the problem of deterring customer migration to the market since the tariff is cost-reflective

Competition and innovation

- Product innovation presupposes that consumers have **heterogeneous preferences** with varying willingness-to-pay for product characteristics (level of reliability, time of use, environmental impact, etc.)
- The potential for product innovation largely relies upon:
  1. the **financial viability** of the product
  2. the availability of **advanced metering infrastructures** (AMI)
  3. the level of **consumer engagement**
- The debate often **focuses on the financial viability** but the availability of sophisticated metering devices and active customer participation are fundamental elements
- It is often maintained that the best market structure for developing innovation is **retail competition** (incentives for innovation, availability of price information)
- **Regulation** seem to play a fundamental role especially for the second and third aspects

Roll-out of smart meters for households

The Directive 2009/72/EC has established that **80% of consumers** should be equipped with an intelligent metering system by 2020, unless the result of a CBA is negative (Belgium, Portugal and Lithuania)



Source: Elaboration on ACER/CEER (2014)

Smart meters and regulation

- The roll-out smart meters has achieved the best results in terms of penetration in Countries where the installation has been financed through **a regulated tariff** for the DSO (e.g. Italy and Sweden)
- Smart meters provide opportunities for services targeted to users' specific consumption profiles coupled with personalized pricing: what will be the effect of such **price discrimination**?
  - Increased efficiency
  - Redistribution effects (the seller gets all consumer surplus)
- Price discrimination is forbidden by Articles 101 and 102 of the Treaty on the Functioning of the European Union; but **UK experience (2009)** in prohibiting spatial price discrimination has resulted in a failure and regulation has been withdrawn
- Regulation should intervene also to define rules for the **privacy, availability and non-discriminatory access to consumer data**

Demand Response

- **Flexibility services** such as Demand Response constitute a form of innovation
- **All market players** may benefit from DR:
  - DSO (Reduction or postponement of investments, decrease in charges)
  - Generators (Less need for investing in peaking units or back-up capacity for RES)
  - Retailers (reduced procurement cost volatility, reduction in total expenditure)
  - Consumers (more efficient usage of electricity and reduced bills)
- Several studies estimate **possible gains** for market participants using different methodologies and Country datasets:
  - Feuerriegel and Neumann (2014) find that by implementing DR an electricity retailer gain an average savings per person of 11.6 euros per year (see the Appendix)
- However it remains to be established which **market structure** may boost the market for flexibility product:
  - Competitive retailers chosen by customers on the basis of their needs, risk propensity, etc.
  - Regulation

A market structure for DR

1. **Large/medium businesses**
   - Assessable price elasticities
   - Active market participation and awareness
   - Provided with smart infrastructures

   ⇒ **Competitive market** would deliver a positive balance between costs and benefits (enhanced through aggregation)

2. **Households (small businesses)**
   - Low price elasticity
   - Scarce market participation and awareness
   - Provided with smart infrastructures in the future (maybe more useful smart appliances?)

   ⇒ **Regulation** would deliver a positive balance between costs and benefits if mechanisms such as Green Default Tariffs and Bill regulation may work for DR as well

Regulation and virtuous behaviors

1. **The Default rule** establishes what happens if people do nothing at all
   - **Green Default Tariff** (see Sunstein and Reisch, 2014)
     - Suppose that people are asked to make an active choice between “green” and “gray” electricity; it may happen that all people will be choosing “gray” electricity because it is a cheaper option
     - However, it is possible to imagine a setting in which regulator sets a default rule in one direction or another, while allowing people to depart from it
     - Active consumers may decide to switch, passive consumers will stick to the Default supplier serving regulator objective; the outcome might be automatically green
   - **Default Tariffs with peak/off peak rates**
2. **Bill regulation** (see Grubb, 2015)
   - Bill-shock regulation requires firms to disclose information that substitutes for attention
   - If some consumers are attentive while others naively fail to anticipate their own inattention bill-shock regulation increases social welfare and can benefit consumers

Conclusions

- The analysis of EU retail electricity markets reveal that consumer involvement in the market is still very low (especially for residential customers) while the supply structure remains highly concentrated
- A scarce consumer participation may be attributed to:
  - the presence of switching costs, informational complexities or consumer preference not to choose
  - to the relative contestability of of final market given the small energy component in end-user prices
- There seem to still be a need for a Default Service; however it is possible to design it in a less-distortive way
- Another tool to develop retail markets is innovation
- The technological requirements (installation of smart meters) and an active consumer participation are fundamental to reach this objective
- The debate is open about the best market structure to deliver this result according to final consumer dimension

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