THE SINGLE MARKET 20 YEARS ON

NOTRE EUROPE
JACQUES DELORS INSTITUTE

ENJOYING A SINGLE MARKET FOR NETWORK INDUSTRIES?

Jacques Pelkmans
and Giacomo Luchetta
Foreword by Jonathan Faull

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TABLE OF CONTENTS

FOREWORD 5

EXECUTIVE SUMMARY 8

INTRODUCTION 11

1. **Towards a Single Market in Network Industries** 13

1.1. A properly functioning single market is ambitious and complex 13

1.2. What is needed to arrive at a single market for network industries? 17

1.3. A single EU market for seven network industries? 20

2. **Sectoral Success? – Telecoms and Air Transport** 23

2.1. The competitive single aviation market 23

2.2. Potential and actual shortcomings of the air transport market 27

2.3. Competitive national eCommunications markets 31

2.4. Economic gains in national eComms markets 32

2.5. Are the gains in eComms due to liberalisation? 40

2.6. Losers and shortcomings in eCommunications 40

3. The Great Transformation: Electricity and Rail Services 44

3.1. Why electricity is intrinsically difficult to transform 44

3.2. Electricity: price, quality and environmental performance 48

3.3. Freight rail liberalisation: hard, rewarding and truly European 56

3.4. European rail, much ado about freight, little about passengers 59

3.5. Losers in electricity and rail, and possible compensation? 65

CONCLUSION 69

ANNEX 1 – EU COUNTRIES ABBREVIATIONS 73

ANNEX 2 – LIST OF TABLES AND FIGURES 74

BIBLIOGRAPHY 76

ON THE SAME THEMES 80

AUTHORS 81

FOREWORD

by Jonathan Faull[1]

In its "Single Market Act II" communication issued on 3 October 2012, the European Commission emphasised the importance of developing "fully integrated networks", particularly in the transport and energy sectors.

Four key actions were identified:

1. Open domestic rail passenger services to operators from another member state to improve the quality and cost efficiency of rail passenger services.
2. Establish a true single market for maritime transport by no longer subjecting EU goods transported between EU seaports to administrative and customs formalities that apply to goods arriving from overseas ports.
3. Accelerate the implementation of the Single European Sky to improve safety, capacity, efficiency and the environmental impact of aviation.
4. Improve the implementation and enforcement of the third energy package and make cross-border markets that benefit consumers a reality.

The Commission stressed further in its "Annual Growth Survey" for 2013 issued on 28 November 2012 that "the performance of network industries across Europe (…) has a critical knock-on effect on the rest of the economy and can be significantly improved by (…) ensuring the full transposition and implementation of the third energy package, in particular unbundling networks, securing the independence and necessary powers of national regulators and phasing out gradually regulated energy prices, while protecting vulnerable consumers; accelerating the implementation of the Single European Sky by reducing the fragmentation of air traffic management and improving the organisation of airspace; opening up domestic rail passenger services to competition, in particular through equal access to infrastructure; integrating ports better into the logistic chain, by removing entry barriers to port services; removing

1. Director General for Internal Market and Services, European Commission, writing here in a personal capacity.

remaining cabotage restrictions to improve the matching of supply and demand in international transport."

It is therefore timely and welcome that *Notre Europe – Jacques Delors Institute* is publishing a Study on the single market for network industries. Two distinguished academics, Jacques Pelkmans and Giacomo Luchetta, look back on what has been achieved and forward to what still needs to be done. Their Study, rich in data and graphs, considers social and economic results and prospects, confirming some trends, dismissing a few myths and providing a firm foundation for future work.

The authors provide compelling evidence for the success of liberalisation of air transport and telecommunications, explaining the economic background, the legal techniques used and the policy imperatives pursued. Economic data are presented attractively in graphic form with accompanying commentary. The challenges of further progress and extension to other modes of transport and energy are explained with outlines of the political, economic, regulatory and legal contexts.

Pelkmans and Luchetta have made an important contribution to the debate on these issues by assembling data and arguments on the various network industries crucial to the European economy's future. They address the regulatory issues firmly, calling for an EU regulator to be set up. Recent events in a network industry not discussed by the authors, banking, show that euro area member states are willing to set up a single supervisory mechanism, but one in which the European Central Bank (ECB) supervises some banks directly, leaving others under national supervision in a system of shared responsibility in which the ECB can take over direct supervision if necessary.

Network industries require a complex system of governance involving regulators operating at various levels, themselves networked at European and sometimes global levels. In addition to the central concerns of market liberalisation and regulation, including enactment and enforcement of specific legislation and application of intellectual property, competition, social and consumer protection policies, the development of a genuine single market, giving inventors, investors, producers, distributors and consumers the continental scale they need to prosper, calls for attention to issues of data protection and security.

One particularly complex and controversial issue touched upon by the authors is the famous Meroni judgment[2] handed down by the European Court of Justice on 13 June 1958, an important legal legacy of the European Coal and Steel Community. This case created a much debated and often misunderstood constitutional doctrine.

Briefly, the Court held that the predecessor of the European Commission could not devolve discretionary powers to an equalisation fund for imported scrap metal. This may seem a long way from the challenge of 21st century governance in the EU comprising 27 countries, with a single currency shared by 17 of them and a single market which, for all its imperfections, has surpassed in size, scale and scope the hopes of the founders of the common market in the 1950s. Nevertheless, the judgment remains highly relevant because today's EU has dozens of agencies and authorities of various kinds involved in its systems of governance and administration. This is the case in the network industries discussed by the authors and in many other fields of EU activity. What tasks can EU legislation require such agencies to perform?

The "Meroni doctrine" may be summarised using the words of the Court itself as prohibiting the delegation of powers by an EU institution where that delegation involves "a discretionary power, implying a wide margin of discretion which may, according to the use which is made of it, make possible the execution of actual economic policy."[3]

The ECJ now has an opportunity to fashion a "Meroni" doctrine for the 21st century in a case[4] brought by the United Kingdom against the European Parliament and the Council of the European Union on 1 June 2012. The UK challenges as contrary to Meroni "intervention powers in exceptional circumstances" conferred by a Regulation of the European Parliament and the Council on the European Securities and Markets Authority (ESMA). Clarification of the precise scope of the doctrine would be very welcome.

2. Case 9/56, Meroni v. High Authority [1957 & 1958] ECR 133.
3. An update was provided in 1980 by the Court's judgment in Case C-98/80, Romano v. Institut national d'assurance maladie invalidité, [1981] ECR 1241. This case concerned the power of the Administrative Commission for the Social Security of Migrant Workers, an auxiliary body of the Commission, to lay down certain criteria of which national authorities had to take account. The duties of the Administrative Commission included comprehensive law-making competences, dealing inter alia with all questions of interpretation arising from a Community Regulation. The Court held that "a body such as the Administrative Commission may not be empowered by the Council to adopt acts having force of law."
4. Case C-270/12, Official Journal of the European Union C273/3, 8 September 2012.

EXECUTIVE SUMMARY

In the beginning of 2013 the EU can look back at some **25 years of efforts to develop and deepen a single market for network industries.** It is therefore worthwhile taking stock and trying to assess how far this endeavour has proceeded and what benefits and costs may be identified.

The **seven network industries today dealt with at the EU level** (broadcasting, telecoms, postal services, gas and electricity, as well as air and rail transport) **used to be strictly regulated, state-owned monopolies with overriding political influence.** In addition, they **tended to be inefficient in production and supply**, and hopelessly **unresponsive to customers and citizens preferences**, whether expressed in long waiting times, little choice or simply bad service. Taken together, these reasons made the building of the internal market a lengthy and complex process. *(pages 13-16)*

The present Study provides a **brief survey of the logic and state of the single market in network industries today**, reminding readers of the economic and EU rationales underpinning this transformation. The internal market implies a difficult simultaneous task of introducing national and cross-border competition, containing the initially overwhelming market power of dominant incumbents and preserving service obligations for consumers, including poor ones and peripheral regions. *(pages 17-20)*

Although there are **EU regimes in all seven sectors**, this **does not mean that there is a single market for the services (or the infrastructure) in these sectors.** In several sectors, national markets do not even function in a sufficiently pro-competitive manner, let alone that the EU market would have no "barriers" inside and few or no competitive distortions. These processes take a lot of time and efforts, in markets by business players and otherwise by EU and national policymakers. *(pages 20-22)*

The Study provides a **detailed analysis of two network sectors in which liberalisation is often held to be quite successful** (air transport and telecommunication), and **of two sectors where the benefit/cost ratios would seem to be more problematic** (electricity and rail services).

- **Air transport** is the only one of the four studied industries that **basically does enjoy a single market.** Air transport liberalisation was instrumental in ensuring a vibrant and growing market for both passengers and cargo. Liberalisation allowed the low-cost carriers to enter the market, which eventually conquered about one third of the passenger market in Europe, contributed **to constrain prices and to open new routes**. Extremely low profit margins suggest that the EU airline market became truly competitive, possibly coming close to cut-throat competition. At the same time, **territorial cohesion has been strengthened** by the emergence of many new routes and the safety standards have been preserved. *(pages 23-31)*

- The **liberalisation of the market for electronic communications is considered another success story.** Even though the **single market has not been achieved at all, but numerous and major economic benefits have nonetheless been acquired** thanks to increased national competition resulting from European liberalisation. The data about penetration rates, incumbents' market shares, new services and prices presented in the Study consistently points to a success story. All the benefits acquired at the national level could be larger still if a true single market was achieved. *(pages 31-43)*

- The **electricity sector has proven more difficult to liberalise** than some other network industries, **due to intrinsic features of this industry.** Today the overall picture is that of a single market split into major sub-markets. **Persisting price disparities** among these sub-markets are the clearest signal that more cross-border trade would take place if interconnection capacity were sufficient. For electricity the single market is still at some distance, although many efforts are under way to arrive there in the next five years or so. *(pages 44-55 and 65-68)*

- **Implementation of the railway liberalisation packages was slow and difficult.** EU law prescribing liberalisation is a necessary but hopelessly insufficient condition to accomplish a properly functioning EU freight rail market: one has to tackle **physical and infrastructural barriers**, a very costly undertaking and taking decades. There are still far too many and at times **severe obstacles to developing genuine European freight rail services**, despite the incredible potential gains in the sector and the potential for indirect gains inside value chains for European business. *(pages 58-68)*

We conclude that **the EU has finally become more determined to pursue the single market for network industries.** The opening up of network markets has proven to be both complex and adventurous, and the path of liberalisation is highly uneven among the different network markets discussed. The ample empirical evidence in this Study demonstrates **the EU has come a long way along this path** and that, **with sustained political, regulatory and anti-trust enforcement, investment, and entrepreneurial efforts, the single market for network industries can be perhaps achieved within a decade from now.** *(pages 69-72)*

INTRODUCTION

In the beginning of 2013 the EU can look back at some 25 years of efforts to develop and deepen a single market for network industries. Interestingly, almost nothing about network industries, let alone, the pursuit of a single market in this domain, can be found in the famous Commission White Paper of June 1985 on completing the internal market. It all began with a radical proposal to liberalise the TV market (finally enacted in 1989)[5] based on the origin (here, country of transmission) principle and highly conditioned openings of the regional air transport markets. This was followed by the breakthrough in telecoms with the 1987 Green Paper, the first stage of the opening up of the single market for air transport (in 1987) and the first Commission Paper on the idea of an internal market for gas and electricity (in 1988). Decades of painstaking technical, economic and legal elaboration of sectoral "packages", often deepened in stages via follow-up EU legislation, and combined with conspicuous efforts under EU competition policy, have brought the EU a remarkable degree of market influence in this field. At the same time, care has been taken to preserve essential elements of the public interest through EU and national regulation as well as national regulatory agencies.

It is worthwhile taking stock and trying to assess how far the single market for network industries has proceeded and what benefits and costs may be identified. Doing this in an analytically proper fashion would require a major taskforce of economists, sectoral experts, as well as consumer and business representatives. This clearly goes far beyond the nature and size of a Study designed for a wider readership. The present Study is much more modest in providing a brief survey of the logic and state of the single market in network industries today, reminding readers of the economic and EU rationales underpinning this transformation (in section 1), zooming in on two network

5. Council Directive 89/552/EEC of 3 October 1989 concerning the pursuit of television broadcasting activities, OJ L 298, 17.10.1989 (TV without frontiers).

sectors in which liberalisation is often held to be quite successful (telecoms and air transport, in section 2), contrasting them with two sectors where the benefit/cost ratios would seem to be more problematic (electricity and rail services, in section 3) and ending with a few conclusions on the prospect of "completing" the single market for network industries and its merits. The authors will refrain from elaborate descriptions of the EU regulatory, institutional and competition policy framework, as these are widely available in the literature, and emphasise empirical evidence on how markets have responded and what the economic impacts have been insofar as we know.

1. Towards a Single Market in Network Industries

1.1. A properly functioning single market is ambitious and complex

The notion of a single EU market for network industries is ambitious: it combines a properly functioning EU market in these services with clear and enforceable assurances about minimum quality for users and consumers. It covers seven network industries which have actual or potential significance across intra-EU borders, hence, need to be dealt with at EU level: broadcasting, telecoms (nowadays, eCommunications[6]), postal services, gas and electricity, as well as air and rail transport. Local network industries like water supply and regional or local transport might be relevant once intra-EU foreign direct investment comes in. What is, at least formally, irrelevant is privatisation or state ownership. EU citizens often confuse privatisation with the construction of a competitive internal market for network industries, if only because they observe the retreat of direct state intervention and have little regard for the mechanisms of doing so.

The EU treaties have always stated that ownership is not an EU competence but belongs to the powers of the member states. However, the compelling logic of the EU treaties should be understood: network industries can be state-owned, but such state ownership cannot confer or imply any special competitive or other advantages for such companies in the internal market. The only strategic reason left for member states to stick to state ownership is that one wants to be protected against unfriendly take-overs. Nevertheless, in network industries, capital needs over the medium run are often high and this means that calling on international capital markets may be much less easy for state-owned enterprises. There are also other reasons why state ownership can have drawbacks, but we shall refrain from this discussion here. The economic idea behind the internal market for network industries is simply

6. That is, transport of bits and therefore also including internet and the transport part of broadcasting.

that the competitive environment throughout the EU (helped by free movement and establishment, and by EU competition policy) is capable of disciplining as well as stimulating the performance of network industries, and that ownership therefore does not matter.

Building an internal market for network industries is a complex adventure.[7] It is an adventure because 25 years ago these sectors were usually state-owned, with overriding political influence (including parliaments, nominations of leading managers and – not seldom – employment targets), strictly regulated, monopolised domestically (protected by import and export controls, or bans) via exclusive rights and assigned universal or public service obligations (USOs and PSOs), without (dependent on the EU country) spelling these out with sufficient precision so that they could be properly "cost-based". Some sectors like rail and postal were forced into perennial loss makers. Despite the political and social rhetoric, many such monopolies were inefficient in production and supply, and hopelessly unresponsive to customers and citizens preferences, whether expressed in long waiting times, little choice or simply bad service. This also clarifies why 25-years-long building the internal market is complex.

Thus, the ambition of building an internal market implies addressing three aspects simultaneously. First, it consists of introducing competition via entry nationally and across intra-EU borders. Second, from the outset, it is crucial to contain the initially overwhelming market power of dominant incumbents (at EU level with regulatory precision, backed up by EU and national competition policy and enforcement), otherwise entry would simply not occur or fail and prices would not fall. Third, one ought to preserve, if not sharpen, the USOs and PSOs at EU and national level for consumers, including poor ones and peripheral regions.

Of course, there were understandable reasons for the heavy interventionism in public utilities (or, *"service public"*) after the Second World War. We mention three. First, network industries were regarded as "natural monopolies", a very special type of enterprises for which economies of scale (indeed, so-called

7. The present Study cannot develop the justification and architecture of combining regulation and competition policy in any detail. For an interim assessment, comparing six network industries, see Pelkmans, J. (2001) 'Making EU network markets competitive', *Oxford Review of Economic Policy*, Vol. 17, No. 3, pp. 432-456.

"sunk" costs) are so large that adding a second supplier would actually increase average costs for both. In the 1970s and 1980s, micro-economic research clarified that the natural monopoly argument is only valid in some network industries (and not in e.g. postal services, airlines and broadcasting). But the natural monopoly would be found mainly or only in the infrastructure that such network industries rely on: tracks, stations, marshalling yards and signalling for rail; transmission and distribution networks for electricity and gas; fixed networks (also needed for mobile) and now broadband for telecoms.

However, technological progress (e.g. in telecoms) might possibly enable a partial duplication of networks, for example, multiple international cables and modern trunk (intercity) lines do co-exist and the bottlenecks might only arise in the "last mile" to the business premise or the home. Where natural monopoly remains, infrastructure can be separated ("unbundled") from the actual services supplied and these services can be supplied by the incumbent as well as new entrants.

Given the initially overwhelming dominance of the former monopolist, one initially needs strict regulation as well as a gradually increasing importance of competition policy. In the EU practice, a national sectoral regulator is established, working under EU rules, and exercising direct powers for the achievement of a properly functioning services market – that is, pro-competitive in the short and medium run – without distorting or reducing investment incentives in infrastructure. This is far from easy to accomplish. Where infrastructure is physical (in the four sectors just mentioned), it has proven difficult to realise a truly competitive market, with appropriate investment incentives for the long run. Only in telecoms has technological progress come to the rescue to some extent. In rail, the unbundling is somewhat problematic as we shall discuss later. Where infrastructure is logistical (postal and air), it has proven to be feasible. In broadcasting, competition between delivery networks (terrestrial and satellites, for example; but also substitutes via internet) and technological progress (from analogue to digital) has facilitated the use of spectrum.

Second, the competition issues in network industries are complicated by "network externalities", working mainly on the consumer side. Without entering this intricate question, the upshot of network externalities may be

that a product or service (sub)market can become dominated by only very few players, or, in the extreme, by one superdominant company (so-called "winner-takes-all"). An extra difficulty is that the "winner" may actually be the company having innovated most or first and this might be to the benefit of the consumer. In some ICT or internet markets, this has been a concern (think of AT&T almost a century ago, IBM in the 1980s, Microsoft's Windows as off the mid-1990s, and Google today). In Europe this has originally been used as an argument for a regulated monopoly (ensuring USOs via direct influence), if not state ownership. Nowadays, proper regulation on USOs and PSOs, and/or agile competition policy can prevent undue monopolisation or one can intervene to discipline superdominance.

Third, USOs and PSOs are central to a sound design of a regime for well-functioning network markets. In a few EU countries, such obligations were reasonably well specified at the outset; in most EU countries, they were not, as parliaments could always act or revise any measure or a regulated price. In today's environment of competitive network markets, it is a prerequisite that USOs/PSOs are precisely defined in terms of what (services) and where (regions or areas where entrants would not go without such obligations). Within firms, this can lead to cross-subsidisation, or new entrants may opt to pay the incumbent for supplying these services. That is exactly the reason for such precise definitions: they need to be "costed" carefully so that no distortions of competition arise and consumers or users are well served without too high prices.

It has turned out that USOs/PSOs cost far less than was once asserted by opponents of liberalisation and that there is no problem of combining competitive network markets and sound and enforceable assurances for consumers/citizens. Of course, there is a political judgment of what does and does not belong to a USO or PSO. Take passenger rail: everybody understands that trains cannot stop in each and every village, but where do you draw the line, and at what costs? Take postal services: now that postal services are an ordinary business (which is under competitive pressures not only from new entrants, but also from substitutes like email, etc.), what should be the preferred approach to the number and regional spread of post offices? Especially for the elderly and, in less populated areas, those without cars, this is a sensitive issue. But one has learned to combine post offices with shops, or

place them inside supermarkets, or have mobile (bus) services with fixed time schedules calling on many villages, thereby dramatically cutting costs whilst maintaining core consumer services. France has a policy of "*déménagement du territoire*", ensuring that regions can count on a minimum of air services, for example. Greece needs to impose PSOs on flights to the many islands outside the tourist season. Such PSOs have now to be opened for competitive entry via EU public procurement rules, with the subsidies (for a given PSO) being minimised by bidding procedures.

1.2. What is needed to arrive at a single market for network industries?

We shall limit the presentation to a stylised guide. In short, one should begin with intra-EU cross-border liberalisation as a prerequisite: remove exclusive rights of incumbents, abolish import bans and install a specialised (national) regulator to ensure or impose basic obligations and watch carefully, notably at the outset, whether the incumbent does not frustrate or delay the arrival of new entrants. This implies that new entrants can emerge domestically or from other EU countries. This prerequisite must be accompanied by regulation, in the presence of an initially over-powerful incumbent.

Regulation may impose "unbundling", duties to support (and not frustrate) the interplay between services and the infrastructure (including the proper pricing of infrastructure access and user fees, an extremely difficult topic) and it might, certainly initially, set retail (and/or at times wholesale) prices on the basis of cost models rather than via incipient competitive rivalry. Regulation should also foresee a regime providing sufficient incentives for long run investment in (new or upgraded) infrastructure, even though such networks may be subject to what is called "third party access" (i.e. those who do not invest can still use these networks for services – this prompts a balancing act between short-run competition concerns and long run investment needs). Subsequently, competition policy comes in and the more so, the more competitive the market for services develops. Thus, network markets develop best when the appropriate combination of liberalisation, competition policy and regulation (and a regulator) is employed. This combination changes over time, with the maturing of competitive market functioning.

BOX 1 ► EU Competition Policy and Network Industries

The role of EU competition policy in opening up the single market of networking industries has been two-fold: initially that of a crowbar; and later the pursuit of competitive network markets, usually in combination with pro-competitive EU regulation. The crowbar function is made possible by an exceptional article in the treaty (now Art. 106.3 TFEU, formerly Art. 86.3 TEC), which provides a legal basis for Commission directives. In other words, the Commission can issue such a directive entirely on its own. Art. 106 is placed in a chapter called "Rules on competition". It is conceivable that, for the implementation of specific competition questions, the Commission may resort to this tool.

However, it becomes a crowbar, rather than an executive instrument as such, when the Council and the European Parliament are manifestly unwilling to liberalise and the Commission overrides (or by-passes) the EU legislator. That is what happened in the late 1980s (e.g. the telecoms directives under Art. 86.3) and remained controversial for perhaps another decade, until the liberalisation was better understood and politically legitimised via the normal legislative procedures under Art. 114 TFEU. For this reason, the Commission was seen, in some quarters, as "ideologically" predisposed to market processes and competition, with little regard for the poor or periphery (e.g. USOs) or national traditions in the "*service public*". But upon careful reading, Art. 106 refers to more than only competition, namely also to "the" treaty more generally, that is, here, the single market. The crowbar approach was a breakthrough to begin the pursuit of a single market in network industries.

The regular function of EU competition policy in network industries is more complex than for "ordinary" goods and services for two reasons: it is far more difficult to make network markets competitive, and competition policy has to work hands-in-glove with regulation to be effective. This Study cannot go into the intricacies of EU competition policy for network markets. The reader will appreciate this if one merely lists some complexities of firm conduct such as many forms of vertical leverage (refusal to deal, price and non-price issues, including "margin squeeze" – an issue hardly around before network markets came into play), horizontal leveraging and single market dominance (entry deterrence, exploitative conduct, etc.). Remember, that, especially initially but often still today, the incumbents are large if not very large. Moreover, mergers, both domestic and cross-border, are far from easy to deal with. Finally, there can be complex issues of state aids, overt or hidden via cross-subsidisation.

Moreover, this triangle exists at EU level and is mimicked at national level, with a few caveats. Cross-border liberalisation is an EU level decision (of Council and the European Parliament), following a proposal of the Commission. At national level, this is a matter of implementation. Regulation is similarly set at EU level and applied nationally. Competition policy operates at two levels. At national level, some countries assign the competition authority with network industry

competition tasks; in other EU countries, the sectoral regulator is assigned with these tasks, but it needs to be stressed that, now that the markets begin to function better, the two institutions are sometimes merged or work close together.

It is the "regulator" where national and EU levels differ sharply. The EU has no "regulator" for sectoral single markets in any of the seven network industries. This is strange, if not counterproductive. All OECD countries (and many more) have a regulator and the EU single market lacks one. The legal reason for this omission is the so-called Meroni doctrine, prohibiting the EU to establish independent regulatory agencies unless there is an explicit legal basis in the treaty. In fact, there is also the political reality that national regulators dislike to see an EU regulator in their sector emerge, with overriding policy and enforcement powers. National regulators tend to think "national" despite their legal basis in EU regulations and directives! The fully fledged internal market is scarcely in their interest as it would sooner or later undermine or weaken their significance. The Commission, serving as a watchdog for proper enforcement of EU rules and as the EU competition authority, can often rely on this combination to act as a "quasi regulator", but this is far from ideal.

The problem is greatest in the achievement of a truly single market. In the presence of 27 national regulators and no overriding power at EU level, the upshot has been a continuing fragmentation of what should be a "single" market for network services and infrastructure.

One discerns a slowly emerging awareness at EU level that an EU regulator is indispensable. Thus, in telecoms a first report to the Commission on the case for an EU regulator dates back to 1997 but it rejected the idea.[8] In 2010 BEREC was established but it does not even have legal personality, and national regulators (protected by their ministers in Council) prevent it from exercising any power, just advisory influence. In gas and electricity, ACER started in 2010, again with weak powers but at least with greater competences and legal personality. Moreover, it is closely connected with the European club of

8. See Pelkmans, J. and D. Young (1998) *TELECOMS-98*, Brussels: CEPS, chapter 10 for a strict subsidiarity test concluding that an EU regulator in telecoms was justified, be it with a limited remit. The 1997 report is NERA and Denton Hall (1997) 'Issues associated with the creation of a European Regulatory Authority for telecommunications', Report for Directorate General for Information Society of the European Commission.

infrastructure managers (ENTSO). The early plea to establish an EU regulator, without literally saying so, dates back to the Stoffaës report.[9] ACER is merely a necessary, but insufficient step. In postal, airlines or broadcasting there is probably no need for an EU regulator. In rail, a recent tightening of what was initially far too loose EU regulation brings the prospect of an EU rail freight market closer. As a result, the Commission intends to request an independent report on the desirability of an EU rail regulator in 2014.

Apart from the brake instigated by national regulators, there remains the Meroni doctrine: the EU treaties do not allow an independent EU regulator, unless the treaty is changed, a view based on a 1956 (curious) CJEU case.[10] The Commission sticks to Meroni, but it is impossible to know whether it does that in its own interest (keeping powers) or out of fear of resistance in Council. As long as Meroni is followed, the single market in network industries (in particular, those with physical infrastructure) will fail to come about.

1.3. A single EU market for seven network industries?

Although there are EU regimes in all seven sectors, this does not mean that there is a single market for the services (or the infrastructure) in these sectors. In several sectors, national markets do not even function in a sufficiently pro-competitive manner, let alone that the EU market would have no "barriers" inside and few or no competitive distortions. These processes take a lot of time and efforts, in markets by business players and otherwise by EU and national policymakers.

Table 1 provides a rough picture of today's single market in network industries. Space constraints do not allow to substantiate all the items in the table, although some can be derived from the following two sections as well. The still shaky character of the single market is shown in the first two columns:

9. See Stoffaës, C. (2003) *Vers une régulation européenne des réseaux*, Paris: Ministère des affaires européennes.
10. Cases 9/56 and 10/56, Meroni & Co, Industrie Metallurgiche SpA v. high Authority [1958] ECR 133. The doctrine's core is really one of constitutional logic and the actual case (still from the High Authority of the ECSC) is less and less the issue. See Griller, S. & A. Oratorn (2010) 'Everything under control? The 'way forward' for European agencies in the footsteps of the Meroni doctrine', *European Law Review*, Vol. 35, No. 1, p. 5; Chiti, E. (2009) 'An important part of the EU's institutional machinery: features, problems and perspective of European Agencies', *Common Market Law Review*, Vol. 46, pp. 1395-1442; and Chamon, M. (2011) 'EU, Agencies between Meroni and Romano or the devil and the deep blue sea', *Common Market Law Review*, Vol. 47, pp. 1065-1075.

only two of seven markets are "competitive" and two are merely "weakly competitive" whereas just one market (air) is "integrated" and one (postal) "nearly integrated". In four sectors, those with physical networks, the investment needs are huge. This is in itself already a problem, given the size of these sums, but the crisis tends to worsen the delays of both private and public investments. In four sectors, USOs and/or PSOs are important and they have received the attention they deserve at EU level. In passenger rail, not in Table 1 because the European share in such traffic is very small, PSOs are mainly national, with some underpinnings at EU level in terms of consumer protection.

The stylised snapshot in Table 1 will gradually change in the coming decade. In telecoms (eComms), high level broadband (for very fast internet) will spread, if current trends continue, and a range of regulatory initiatives (especially in the Digital Agenda) help to overcome the present fragmentation to some degree. In electricity, the plans are that more and more national and regional networks will be "integrated". In gas, more and better wholesale markets have to emerge and several East-West pipelines, plus a major influx of Liquified Natural Gas (LNG), will facilitate that by ensuring gas supply all over the Union. In air transport, secondary trading of slots in congested airports should alleviate somewhat the shortage of runways; and the rationalisation of air traffic controls into a single European system should help as well. The single rail freight market is crucial for getting more trucks off the roads (if not for climate, then for congestion reasons) and to drastically lower the costs and increase the reliability of rail freight more generally.

TABLE 1 ► Status of the Single Market for Network Industries

	COMPETITIVE OR MALFUNCTIONING?	FRAGMENTED OR INTEGRATED SINGLE MARKET?	INVESTMENT NEEDS	USOS/PSOS, CONSUMER PROTECTION
Broadcasting	Somewhat competitive; state aids for public services to be non-distortive	Not fully integrated	No specific problem	USOs everywhere; consumer protection rules at EU level (e.g. for minors; advertising constraints; large sports events)
Postal	Competitive	Nearly integrated	No problem	Strong USOs (EU) and quality criteria, also via Reims V Agreement
Telecoms, eComms	Quite competitive	Fragmented	Huge, in high-level broadband networks	USOs at EU and national level
Electricity	Somewhat competitive	Fragmented	Huge, in interconnectors and new power stations/grid	USOs at EU and national level
Gas	Weakly competitive	Fragmented	Huge, in pipelines to supplying countries + LNG terminals	No strict USOs (depending on substitution with electricity)
Air transport	Competitive	Integrated	Shortage of runways on congested airports, slot allocation instead	Selective PSOs (Greek islands, Strasbourg, etc), plus EU level consumer protection
Rail freight	Weakly competitive	EU freight corridors begin to allow competition	On 10 freight corridors, dedicated track noise	Not applicable

2. Sectoral Success? – Telecoms and Air Transport

Two important network industries – eComms and air transport – are characterised in Table 1 as respectively "quite competitive" and "competitive". The present chapter will analyse the performance of these two sectors in the EU internal market with the help of empirical indicators suggested by the economic literature. It will also be verified whether or not the single market in these sectors is functioning well.

2.1. The competitive single aviation market

The single market for air transport has been fully integrated in 1997. In that year, operators licensed in any member state were granted the right to full cabotage, that is to fly between any two airports of the EU, domestic routes included. And operators did grasp this opportunity, bringing the single market from the Official Journal into reality. The number of intra-EU connections grew exponentially. In 1992, 692 non-stop cross-border city pairs were operated in the EU. In 2005, the number grew to 1,398,[11] many new ones of them serviced by low-cost carriers. The number of city pairs, both national and cross-border, has been estimated to 8,448 in 2009. Some 72% are single carrier routes, because the market demand is too small for further entry. But the absolute numbers of city-pair routes with 2 and with 3 carriers – that is in competition – has also grown steadily. In 2009, 730 city pairs were serviced by 3 or more carriers and 1,741 by two carriers;[12] Moreover, some low-cost carriers do fly on the same routes as traditional network airlines prompting even fiercer competition.

The situation was completely different only 25 years ago. Airline markets were dominated by state-owned flag carriers. Entry on intra-EU routes was de facto impossible, as it was subject to bilateral governmental agreements. The

11. European Commission, *Evaluation of the Performance of Network Industries Providing Services of General Economic Interest 2006 Report*, Working Document, SEC(2007)1024, 12.07.2007.
12. German Aerospace Center (DLR) (2011) 'Annual analyses of the European air transport market – Annual Report 2009', Report for Directorate General for Mobility and Transport of the European Commission.

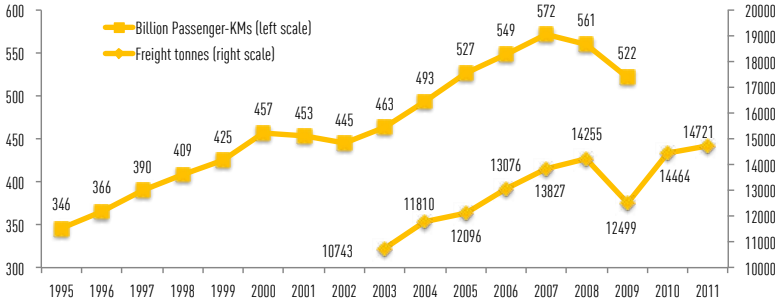
legal acts bringing about the air transport liberalisation and, consequently, the integration of the single market, were finalised in 1992. Three Council regulations set out: i) the home-country control principle and mutual recognition of national air carrier licenses; ii) full unrestricted cabotage from 1997; iii) right for member states to impose PSOs, subject to EU tendering procedures; and iv) free price setting.[13]

Economically, air transport was a relatively easy industry to liberalise. Monopolies in air transport were legal rather than "natural". The only serious problem was one of scarcity: taking-off and landing slots in congested airports. The industry features network effects and economies of density, but it is not subject to large economies of scale or barriers in the form of huge sunk investments[14] as physical network industries are. This is not to say that liberalisation was smooth and simple. On the contrary, the industry went through severe restructuring, several of the smaller national carriers went into bankruptcy (Sabena, Swiss Airlines) or were rescued last-minute by state aids (Alitalia and Iberia). Besides, each year less prominent regional or low-cost carriers go into bankruptcy. Surviving network carriers have clustered in three main worldwide alliances, generating further network and density economies in order to stay afloat and profitable.[15] Nevertheless, the complexity of the liberalisation process was clearly lower than in other industries analysed below.

Air transport liberalisation was instrumental in ensuring a vibrant and growing market for both passengers and cargo. Before the 2008 economic crisis, in the EU airlines transported additional 180 billion passenger-kms compared to 1997, an almost 50% increase in a decade. As for cargo, between 2003 and 2011 the market, measured in freight tonnes, increased by about 40%.[16] Figure 1 shows the detailed yearly figures for both markets.

13. Council Regulation (EEC) No 2407/92 of 23 July 1992 on licensing of air carriers; Council Regulation (EEC) No 2408/92 of 23 July 1992 on access for Community air carriers to intra-Community air routes; Council Regulation (EEC) No 2409/92 of 23 July 1992 on fares and rates for air services, OJ L 240, 24.8.1992, pp. 1-17.
14. Of course, airlines invest in aircraft to enter the market, but those are not sunk because they can mostly be re-sold in secondary markets, e.g. for airplanes (whether owned or leased). However, network development is costly and sunk.
15. See Meersman, H., Van de Voorde, E., and T. Vanelslander (2008) 'The Air Transport Sector after 2010: A Modified Market and Ownership Structure', *European Journal of Transport and Infrastructure Research*, Vol. 8, No. 2, pp. 71-90.
16. Cargo data are not available for Bulgaria, Lithuania and Sweden. Data for Poland, Romania and Slovakia in 2003 are missing, and 2004 values have been imputed. Data for Czech Republic, Greece and France in 2011 were missing, and 2010 values have been imputed.

FIGURE 1 ► The Market for Air Passengers and Cargo

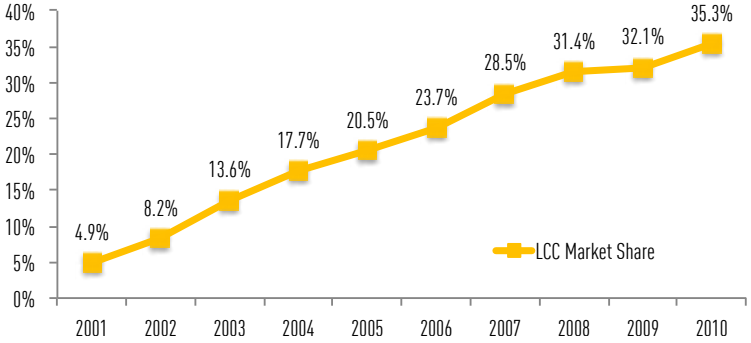


Source: Eurostat.

Liberalisation allowed a new kind of operators to enter the market, low-cost carriers (LCCs). They did not exist before the EU intervention, when entry was prevented[17] and intra-EU bilaterals controlled everything. From scratch, in the late 1990s LCCs conquered about one third of the passenger market in Europe, contributed to constrain or lower prices, to open new routes[18] and increased the density of connections between European destinations. In fact, nowadays there are essentially two business models: point-to-point airlines (LCCs and charters) and network airlines (mostly, the former flag carriers).

17. There is one huge exception: charter airlines. In Europe (unlike the rest of the world), charters used to provide about half (!) of total passenger-kms (about in the late 1980s). They supply package tours at sharp prices. They are point-to-point airlines (like LCCs) but solely focused on (sunny) tourist destinations. Once liberalisation set in, charter airlines proved incapable of transforming themselves into LCCs (except one or two). Before liberalisation, charters and scheduled air services were kept apart via regulatory restrictions.
18. Exploiting secondary airports not too far from large cities and other minor airports not previously served by large carriers.

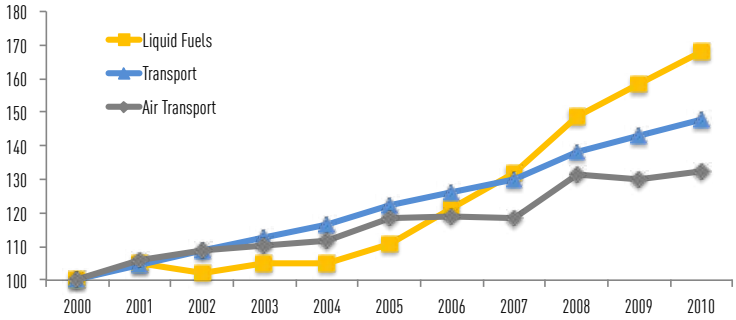
FIGURE 2 ► Low-Cost Carrier Market Share in Europe



Source: Mott MacDonald (2011) 'Annual Analyses of the EU Air Transport Market – 2010', Report for Directorate General for Mobility and Transport of the European Commission.

Prices for air transport have increased in the last decade, as shown in Figure 3 below. Nevertheless, the increase has been lower than for other transport sectors. Moreover, liquid fuels, which represent one of the most important cost factors for airlines, almost doubled in price compared to air transport fares in the same period.[19] This graph is consistent with the hypothesis that the liberalisation had a positive effect in bringing benefits for consumers in terms of lower prices.

FIGURE 3 ► Price of Air Transport Services



Source: Eurostat, EU Transport in Figures 2011.

19. Liquid Fuel series: 5-year moving average.

Compared to other industries, market shares in the air transport sector convey less information. Relevant markets are meaningful for single routes and/or airports, and not for overall passenger or cargo transport. We can nevertheless resort to another measure, that is the price-cost margin, measured by operating and net profits. Worldwide, operating profits of commercial airlines between 2001 and 2010 have peaked to 5% of total revenues, and in 6 years out of 10 have been lower than 3%. Net profits have been negative for 7 years out of ten, and never reached 3% of total revenues. Although it is not possible to disentangle margins made in the EU or by EU operators, data clearly shows that, among the different worldwide regions, Europe has been the least profitable.[20] These hints point out that the EU airline market became truly competitive, possibly coming close to cut-throat competition.

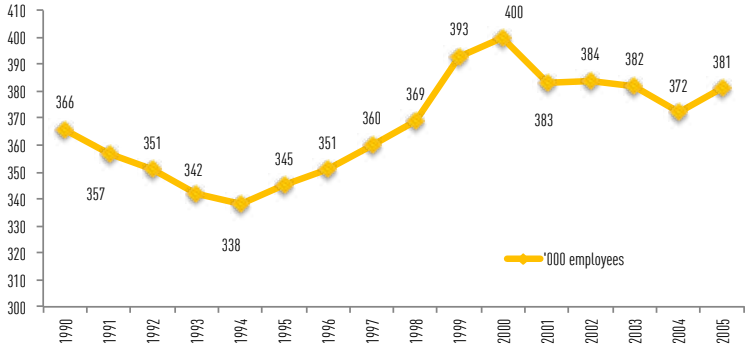
2.2. Potential and actual shortcomings of the air transport market

Other than slot allocation in congested airports, which is still somewhat biased towards network carriers, there are few shortcomings from the airlines liberalisation process inside Europe. The real losers have been smaller carriers, which could not survive in a competitive market. But no liberalisation can happen without some degree of restructuring. Liberalisation is not a win-win game: some firms gain and some other lose. However, broadly spoken, stakeholders, rather than competitors, did not lose from the liberalisation process.

The number of employees in airlines, as shown in Figure 4, increased. It can be seen that the number of employees declined before 1997, the year of market opening, signalling that legacy carriers did undergo restructuring. Nevertheless, once the single market was open, the workforce is on the rise again, a hint that new entrants more than compensated the loss of jobs in network carriers.

20. Mott MacDonald, *op. cit.*

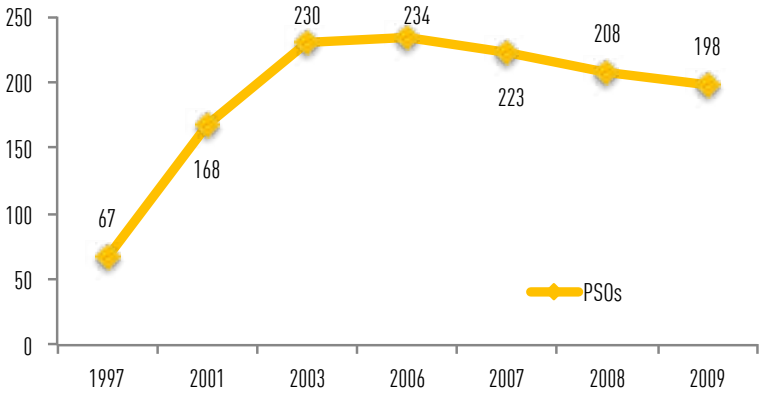
FIGURE 4 ► Number of Employees



Source: Ecorys Nederlands BV (2007) 'Social developments in the EU air transport sector – A study of developments in employment, wages and working conditions in the period', Report for Directorate General for Energy and Transport of the European Commission.

The use of PSOs by member states also proved effective, thereby preventing that certain unprofitable routes (with a public interest justification) are not served and endangering EU territorial cohesion. In a regulated quasi-monopolistic market, public carriers could cross-subsidise marginal routes. This is no longer the case under competition, where profits on major routes are eroded by new entrants. Thus, member states resorted to PSOs to ensure connections where public interest was at stake because of liberalisation. But above all, LCCs have certainly improved density of connections especially for those locations where traditional network carriers could not operate on a profitable basis.

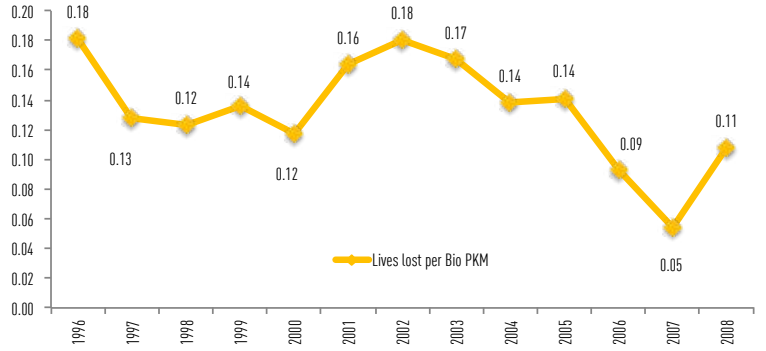
FIGURE 5 ► Number of Public Service Obligations



Source: Williams, G. (2005) 'European Experience with Direct Subsidization of Air Services', *Public Money & Management*, Vol. 25, No. 3; German Aerospace Center (DLR) (2010) *Annual analyses of the European air transport market – Annual Report 2008*, Report for Directorate General for Energy and Transport of the European Commission; German Aerospace Center (DLR) (2011), *op. cit.*

Figure 6 shows that there seems to be no reason to fear that liberalisation imperils safety. The 5-year moving average of the number of lives lost per quantity of traffic exhibits no clear downward trend, but certainly no rise subsequent to market opening. In any event, recent years show a sharp decline.

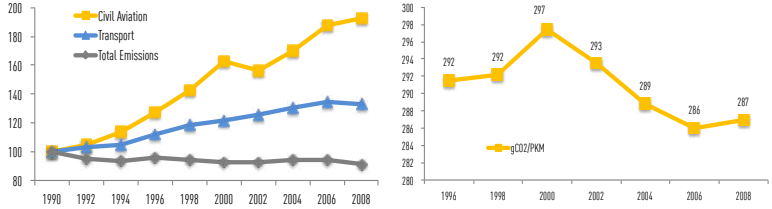
FIGURE 6 ► Lives Lost in Aviation Services



Source: Authors' Elaboration on Eurostat and German Aerospace Center (DLR) (2010), *op. cit.*

Finally, with liberalisation and fast growth of air transport, one should worry about environmental externalities, in terms of emissions of CO_2 equivalent. Aviation's emissions have nearly doubled from 1990 to 2008, whilst emissions for all transport increased by about one third and total EU emissions declined by about 10% (see Figure 7, left). The growing aviation market, in terms of passengers and goods transported, fostered by the liberalisation process, was not matched by incentives to increase energy efficiency and overall sustainability. Of course, in aircraft technology, there are at the moment only very limited options to cut CO_2 emissions. Unit CO_2 emissions, measured per passenger-km, have indeed been stable between 1996 and 2008, declining by less than 2% (Figure 7, right). The EU has recently included airlines in the Emission Trading Scheme system, thereby providing incentives for internalising environmental externalities. Whether it will only result in price increases and/or lower profits for carriers, it remains to be seen. Simulations up to 2020 show very small price increases per ticket and airlines are now experimenting with alternative fuels (from algae, etc.).

FIGURE 7 ► Total CO_2 Emissions



Source: EU Transport in Figures 2011 (left); Authors' Elaboration on Eurostat (right).

The future of the EU internal aviation market for passengers will be determined by the rivalry and complementarity of network carriers and low costs carriers (LCCs). The LCCs have a different business model which is strictly point-to-point; services beyond the bare minimum are separately priced, and, otherwise, the focus is solely on cost cutting[21] whether by using remote airports, maximising the number of hours per day of aircraft use, flexibility

21. See Pels, E. (2008) 'Airline competition: full-service airlines, low-cost airlines and long haul markets', *Research in Transportation Economics*, Vol. 24, pp. 68-74, and the special 2008 report on airline business models by DLR.

of job assignments for staff, fewer staff emolument, seating, and e-ticketing. The traditional carriers are typically network airlines and that model is better suited to intercontinental flights (with strong network effects). The European network supports the easy access inside the airline's own overall network (or, that of a partner in world alliances) and this enhances the benefits of network effects for business passengers and, to some extent, for other passengers as well. Therefore, one has to distinguish sharply whether airlines are worldwide network carriers or merely European ones.

The leading European network carriers are good performers in world air transport. The adjustment of these airlines inside the EU internal aviation market over the last two decades since the 1992 packages of liberalisation has been a rather painful one. Nowadays, however, the traditional carriers have regained competitiveness on many major intra-EU routes where three or more carriers often fly. The fierce rivalry with LCCs will force them to adjust still further. However, also amongst LCCs competition has been bloody as many entrants have exited again and only three or four major LCCs have survived. But it is good to realise that LCCs are restricted to the European market for short and medium haul precisely because of the severe constraints of their business model.

2.3. Competitive national eCommunications markets

The liberalisation of the market for electronic communications (eComms, in the European jargon) is considered another success story. In the last two decades, the EU has been able to force national monopolistic markets to liberalise and to engender, step by step, effective competition between old and new players. To a large extent, the liberalisation process proceeded as in a microeconomic textbook: the number of players increased, market shares of incumbents decreased, prices went down, quality of service did not suffer, new technologies and services successfully spread, whereas USOs and PSOs were not endangered.

The eComms market called for early and specific attention because of its importance for the overall competitiveness of the EU. Availability, costs, and quality of telecoms services represent a competitive factor in which, it has been

argued, Europe was lagging behind the United States. In telecoms equipment, especially mobile, the GSM (a digital 2G phone) enabled the EU to move ahead of the US but in services the liberalisation turned out to be more complicated.[22]

eComms require a physical network infrastructure, thereby making it a classical network industry: huge economies of scale, low or negligible replicability of the parts of the infrastructure, network effects, and high barriers to entry. Thus, it was at first a natural monopoly and subject either to public monopoly in most of EU member states, or, in some, to economic regulation. eComms is therefore different from air transport, as infrastructural bottlenecks play a more important role.

The single market for eComms is plagued by a painful weakness: there is no such a thing, as Pelkmans and Renda have shown empirically.[23] The EU was successful in opening *national* markets to competition, but it failed in creating a true single market. EComms markets are divided along national lines, where a variety of national players operate.[24] Each national market is regulated by a National Regulatory Authority, and so far any attempt to set up a pan-European regulator has failed. As a consequence and due to some other barriers (e.g. national frequencies allocation) huge price disparities still persist for all major telecom services.[25]

2.4. Economic gains in national eComms markets

The European Commission has been tracking progress over many years. It is therefore possible to approximate economic gains with the help of three economic indicators and three technologies. The indicators are:

22. See i.a. Pelkmans and Young, *op. cit.*; Cave, M. and P. Larouche (2001) *European communications at the crossroads. Report of the CEPS Working Party on electronic communications*, Brussels: Centre for European Policy Studies.; Buigues, P. and P. Rey (eds) (2004) *The economics of anti-trust and regulation in telecommunications*, Cheltenham: Edward Elgar; Dang Nguyen, G. and D. Pan, (2000) *Économie des télécommunications et de l'internet*, Paris: Economica; Pelkmans, J. (2001) 'The GSM standard; explaining a success story', *Journal of European Public Policy*, Vol. 8, No. 3.
23. Pelkmans, J. and A. Renda (2011) 'Single eComms Market? No such thing', *Communications & Strategies*, Vol. 82, pp. 21-42.
24. A partial exception is the mobile market, where the notion of incumbent is somehow unfit, as the market fully developed after the liberalisation process had started. In 2009, 4 cross-border companies represented 78% of mobile subscribers in the EU27: Telefonica/02; Vodafone; T-Mobile; and Orange. In particular, Vodafone had a fully-owned or partially owned subsidiary in 13 member states, and had agreements with companies established in additional 5 member states. Cf. SEC(2010)630, Annex 2. Nevertheless, mobile services differ enormously in price between EU countries.
25. Pelkmans and Renda, *op. cit.*

1. Penetration rate. New technologies have arisen in the eComms sector since the liberalisation was initiated. Had market conditions and regulation prevented or hampered the adoption of these technologies, it would have resulted in an economic loss for the EU in the form of foregone opportunities.

2. Market structure. For consumers and businesses to reap economic gains, the monopolistic structure of the market needs to give way to new entry. To analyse this effect, we trace incumbents' market shares in various submarkets.

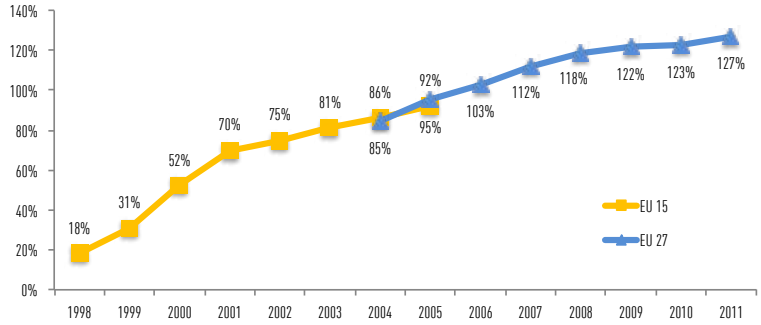
3. Prices, both retail and wholesale. A crucial test of liberalisation is whether prices have fallen. If markets are potentially made more competitive but prices do not fall, benefits for users and consumers do not materialise. Although retail prices can serve as a proxy for liberalisation benefits, we also investigate regulated wholesale price of certain inputs, such as interconnection charges and local loop unbundling.

Three major eComms technologies are taken into consideration:
1. Fixed telephony.
2. Mobile telephony.
3. Internet broadband connectivity.

Figure 8 and Figure 9 show that mobile subscriptions and broadband connections have enjoyed a steady upward trend in the EU. This penetration has been market-driven, as they have not been subject to any kind of USOs so far.[26] The liberalisation process has facilitated, certainly not hampered, the diffusion of these technologies.

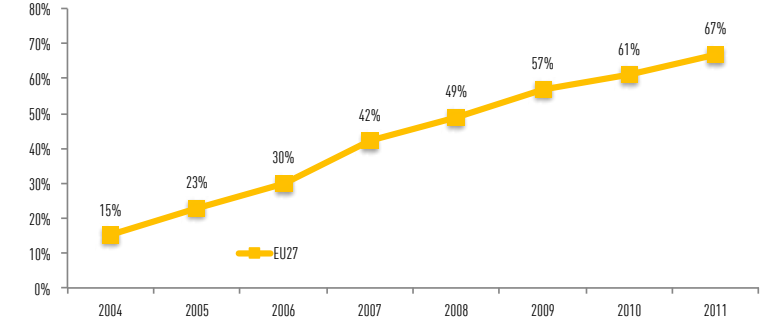
26. Only Finland considers introducing a USO for low-speed broadband.

FIGURE 8 ► Mobile Subscribers Penetration Rate



Source: European Commission (SEC(2003)1342; SEC(2006)193; SEC(2010)631; SWD(2012)180).

FIGURE 9 ► Household Broadband Penetration Rate



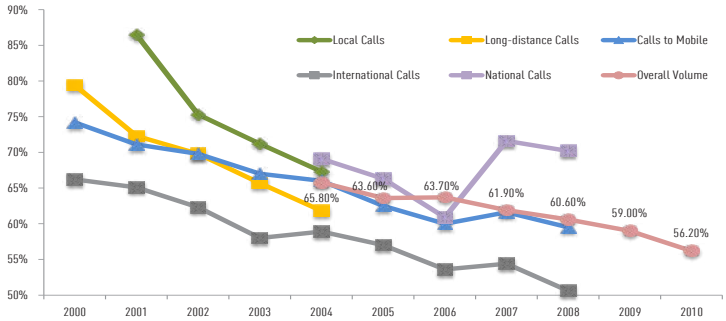
Source: Eurostat.

EU telecoms liberalisation has been a clear success in opening up the eComms markets. Whereas in the past, markets were organised as vertical integrated monopolies, now there are many hundreds of operators, possibly even too many.[27] Incumbents' market shares have effectively fallen, more than in other network industries such as electricity or gas (see section 3). Incumbents are still fairly dominant players, although in newer services markets a share higher than 50% has been snatched from incumbents. Incumbents' shares, although

27. Pelkmans and Randa, *op. cit.*

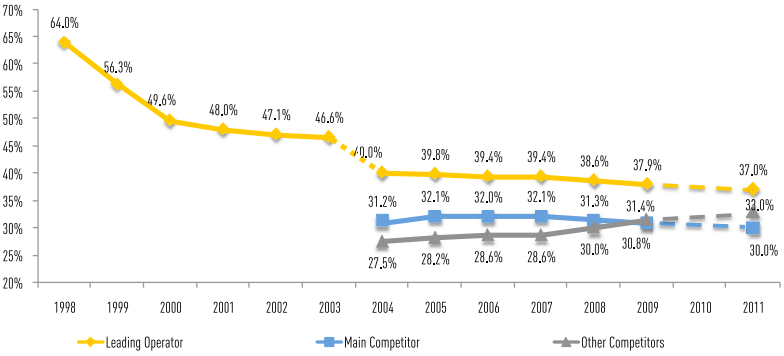
declining, remain higher for legacy technologies, such as fixed telephony[28] than for mobile and broadband connectivity where new markets have been created after new players had already entered into the eComms sector. As shown in Figure 10, Figure 11 and Figure 12, latest available data shows that incumbents' market shares are 56% for fixed telephony, 43% for broadband connectivity and 37% for mobile telephony.

FIGURE 10 ► Incumbent's Market Shares in the Fixed Voice Market



Source: European Commission (SEC(2003)1342; SEC(2006)193; SEC(2010)631; SWD(2012)180).

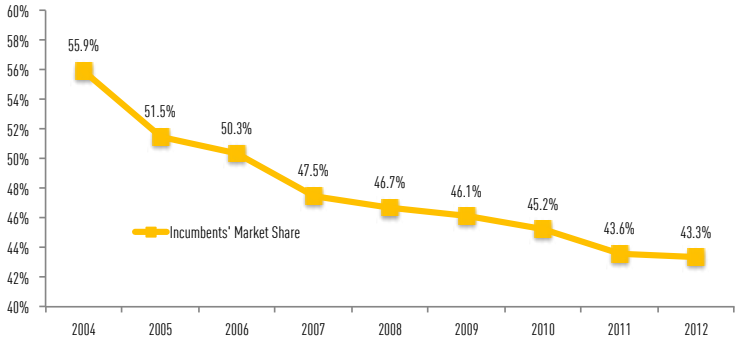
FIGURE 11 ► Market Shares in the Mobile Market



Source: European Commission (SEC(2003)1342; SEC(2006)193; SEC(2010)631; SWD(2012)180).

28. Note, however, that fixed telephony revenues fall due to substitution effects with mobile and internet.

FIGURE 12 ► Incumbent's Market Shares in the Broadband Market

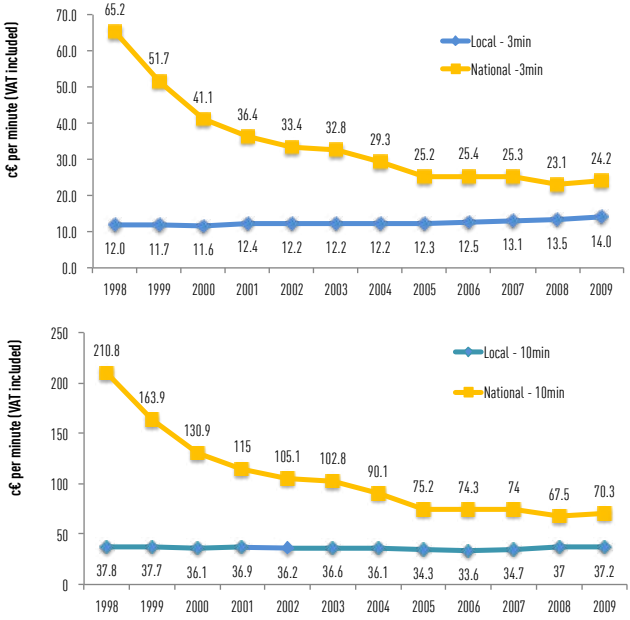


Source: European Commission (COCOM09-29; SWD(2012)180).

When it comes to retail prices, the eComms sector has experienced a steady decline in nominal terms, and therefore an even stronger decline in real terms, across all technologies.

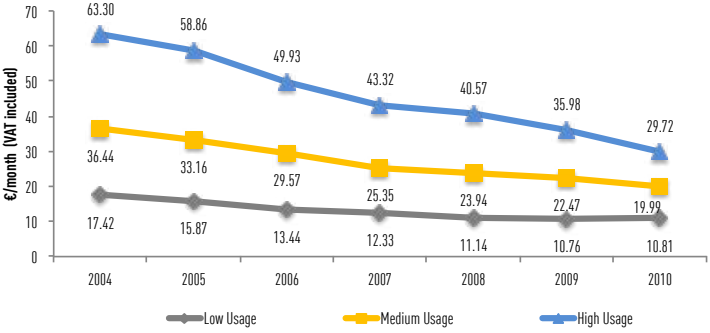
Figure 13 shows the cost of a call in fixed telephony, both local and national and both 3- and 10-minutes-long. In 12 years, prices of long-distance calls have collapsed by two thirds. Prices of local calls have instead remained the same nominally or slightly increased. Prices of mobile services, measured as the average costs of different usage baskets, have fallen by 40% to 55% from 2004 to 2010. As for broadband, it is hard to track a long-term series of prices, since types of subscriptions (e.g. flat or consumptions-based), quality (i.e. speed) or type of infrastructure (i.e. fibre vs. copper vs. satellite vs. cable) and bundles (double-, triple- and quadruple-play) have changed considerably across time and member states. Nevertheless, data from the latest Commission's Digital Agenda Scoreboard concerning the last 4 years hints at a price reduction path for broadband, steeper for higher speed connections.

FIGURE 13 ► Fixed Voice Call Price



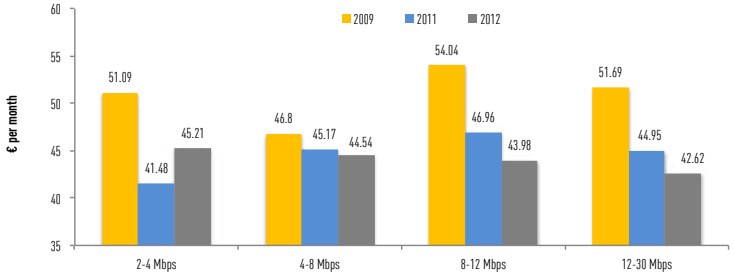
Source: European Commission (SEC(2010)631).

FIGURE 14 ► Mobile Prices – OECD Basket



Source: European Commission (SEC(2010)631; SWD(2012)180).

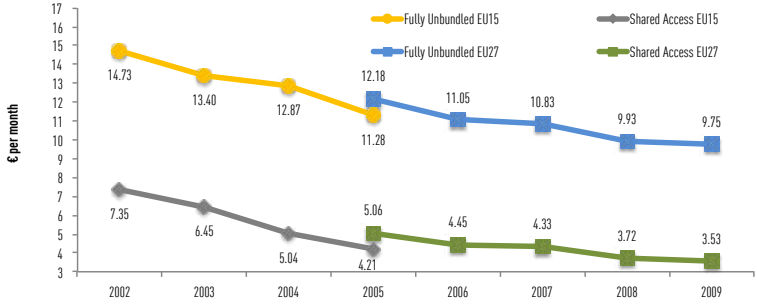
FIGURE 15 ► Broadband Price



Source: European Commission (SWD(2012)180).

Finally, Figure 16, Figure 17 and Figure 18 show the wholesale prices of three inputs: local loop unbundling[29] and fixed-fixed and fixed-mobile interconnection charges.[30] These three prices are regulated, although not in all national and product markets and not for all operators. Price regulation of these inputs is cost-oriented; therefore the decline of these tariffs is a signal that costs are effectively going down in the eComms industry, thereby increasing efficiency.

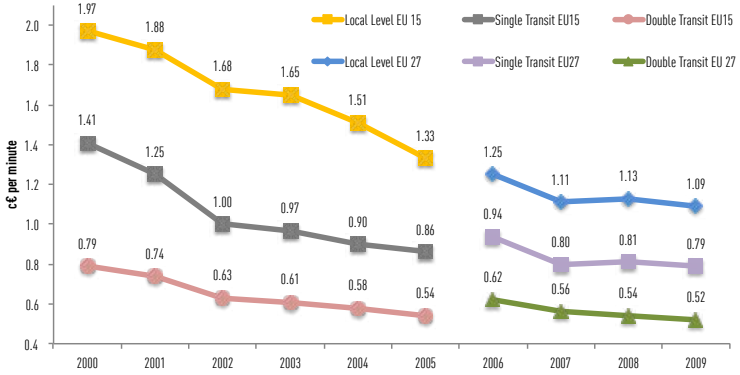
FIGURE 16 ► Local Loop Unbundling



Source: European Commission (SEC(2006)193; SEC(2010)631).

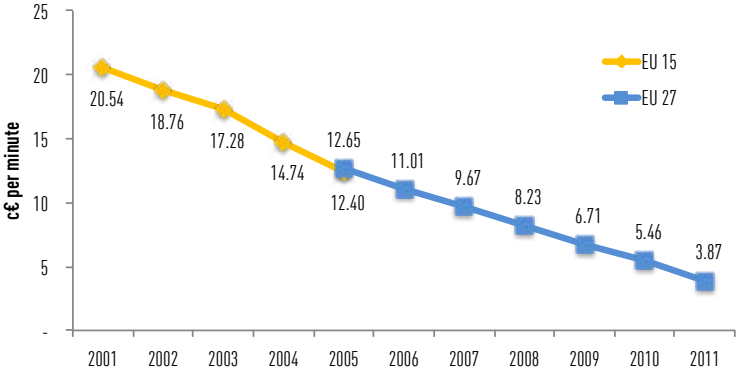
29. Local Loop Unbundling is the regulatory process allowing new entrants to access the incumbents' portion of infrastructure located between the last exchanger in the network and the user's premises, i.e. the so-called "last mile" of the phone wires.
30. Interconnection charges refer to prices paid by operator A to operator B to terminate calls originating from its network onto B's network.

FIGURE 17 ► Fixed to Fixed Interconnection Charges



Source: European Commission (SEC(2006)193; SEC(2010)631).

FIGURE 18 ► Fixed to Mobile Interconnection Charges



Source: European Commission (SEC(2003)1342; SEC(2006)193; SEC(2010)631; SWD(2012)180).

2.5. Are the gains in eComms due to liberalisation?

The data about penetration rates, incumbents' market shares, new services and prices presented above consistently points to a success story, at least in the liberalisation of national telecoms markets. However, there might be an issue of cause or co-incidence. It could be that the gains better be attributed to technological progress or demand expansion. It is easy to show that after the liberalisation process the eComms markets show high penetration rates for new technologies, more competition, and lower prices. Would the same have happened if EU markets had not been liberalised?

It can reasonably be argued that the liberalisation process had a causal role in the economic gains from eComms goods and services enjoyed by EU consumers and businesses. The reduction of market shares is a direct effect of opening the market. Liberalisation is a necessary condition for introducing competition in a formerly monopolistic sector, and in this sector it has proven to be effective. It is more difficult to say whether, and to what extent, price-reduction is attributable to the increased degree of competition or simply to the reduction of input costs and technological progress. In any event, the competition introduced by liberalisation had the positive effect of forcing companies to pass on cost-reduction, whatever its cause, to consumers in the form of radical price reductions.

2.6. Losers and shortcomings in eCommunications

Although liberalisation need not be a pure win-win situation, it is hard to identify clear-cut losers in eComms sector. We analyse three categories of possible losers: low-income consumers; workers in the eComms industry; and the level of investment for future infrastructural needs. Our analysis suggests that low-income consumers have not lost at all; workers as a group are likely to have lost in terms of total employment in the sector; whilst investment has decreased, but it is unclear whether this is due to liberalisation.

Low-income consumers have not suffered from "exclusion" as was sometimes feared when liberalisation began. Data shows that in the early period of the liberalisation process (1994-2004), the lowest-income quintile experienced a

price reduction of 22%. Low income consumers were not at all excluded from the market, increasing consumption of eComms services by a factor of about 2.5.[31] At the same time, the coverage of fixed telephony, which is one of the USOs mandated by EU law, has continued to be at a historically maximum level, reaching about 97% of EU households.[32] Lower prices, including the widespread use of handset subsidies, higher consumption and the same level of coverage for basic services imply good news for low-income consumers like the elderly and some others.

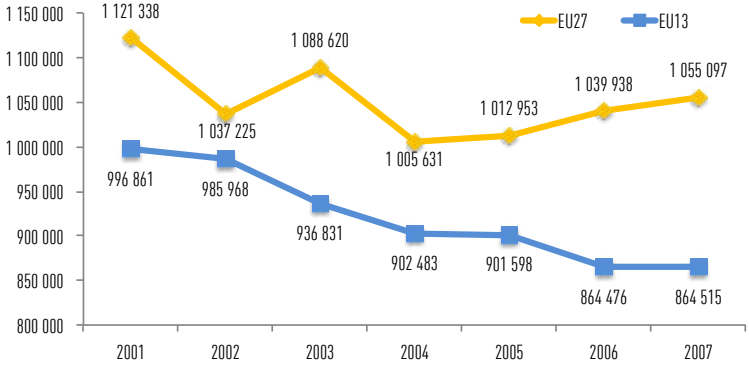
Another possible category of liberalisation losers are workers in the eComms industry. Liberalisation exposes a formerly monopolistic, inefficient and non-innovative sector to new entry, with aggressive pricing, often bringing new services and relying on other business models. Such market turbulence forces drastic cost reduction, also in overall labour costs, including secondary labour conditions (or, even lower real salaries) and/or fewer employees.

Evidence on this aspect is scarce and mixed. Employment in the eComms industry seems to have stagnated around 900,000 full time equivalents (FTEs) in the EU15 during the early period of liberalisation, i.e. 1998-2002.[33] The latest Digital Agenda Scoreboard reports, for the period 2002-2010, a decrease from about 1,200,000 to about 1,000,000 persons employed in the EU27, based on Eurostat data. However, detailed figures are not included in that report. Figure 19 below reports Eurostat figures on the number of persons employed in the NACE v.1.1 sector 64.2: Telecommunications. The number declines until 2004, and then increases up to about 1,050,000 workers for the EU27. Nevertheless, this tendency is anything but firm, as it depends on data availability: in different years different member states are covered and coverage increases in more recent years, thereby inflating the aggregate value. The light blue line in Figure 19 represents the aggregate number of persons employed in the 13 member states for which data is available with no missing values from 2001 to 2007.[34] As it can be seen,the number of persons employed declined by about 13% over 7 years. This is confirmed by another

31. European Commission, SEC(2007)1024, *op. cit.*
32. *Ibid.*
33. European Foundation for the Improvement of Living and Working Conditions (2005) 'Trends and drivers of change in the EU telecoms sector: Mapping report'.
34. Germany, Greece, Spain, France, Italy, Latvia, Lithuania, Hungary, Austria, Romania, Slovakia, Finland, United Kingdom. They represent between 82% and 95% of the total reported employment.

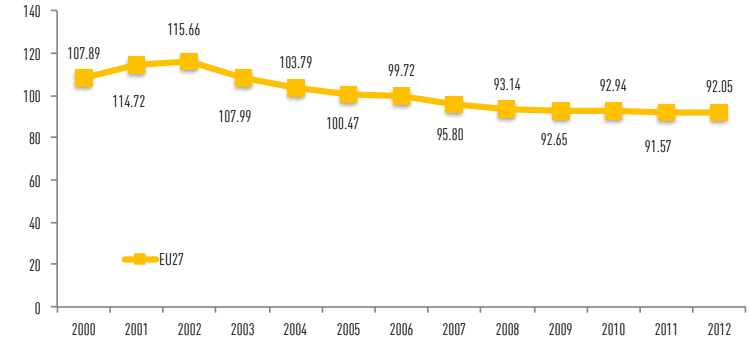
set of Eurostat data, concerning the index of the number of persons employed in the NACE v.2 sector 61: Telecommunications. Figure 20 shows that from the peak in 2002 to 2012, employment has decreased by about 23%.

FIGURE 19 ► Persons Employed in the NACE v.1.1 Sector 64.2: Telecommunications



Source: Eurostat.

FIGURE 20 ► Persons Employed in the NACE v.2 Sector 61: Telecommunications



Source: Eurostat.

As for investment, full data series are lacking, but from the information retrieved it seems clear that they have declined during the liberalisation period. The EIB

reports that in 1995 public telecom operators, i.e. the bulk of telecom operators at the time, invested about 25% of their revenues.[35] A report from London Economics shows that investments from telecommunication incumbents in Germany, Spain, France, Italy, Hungary, the Netherlands, Poland and the United Kingdom in the period 2001-2004 declined from 35% of revenues to about 15%, while investments from new entrants stagnated between 5% and 10%.[36] Commission data reports that investment in the eComms sector in the EU27 represented 14% of revenues in 2008 and 12.4% in 2010.[37] Data is scattered, but it is hard to deny a decline of the investment level.

Economic theory supports the idea that investments in high-fixed-cost industries follow a U-shaped curve as a function of competition: they increase when moving from a monopoly to a more competitive market up to a maximum, and then decrease if competition level increases beyond that point.[38] Monopolists have few incentives to invest, but at the same time fierce competition bites away extra-profits which could generate investments. Therefore, it is possible that the level of competition in the eComms sector has gone beyond the point at which it stimulates investments. This is referred to as the dilemma of services versus infrastructure competition.[39] Indeed, eComms operators, especially incumbents, have claimed that the liberalisation process was too focused on allowing third-party access to infrastructure, therefore lowering incentives for investments. The problem is regarded as acute for new generation networks delivering very fast internet (e.g. fibre). Nevertheless, it should be noted that investments have also other determinants, such as the overall economic cycle, the level of maturity of the sector and the expected future demand for eComms services.

35. Gerard J. and Gruber G. (1996) 'Access Regulation and Infrastructure Investment in the European Union', European Investment Bank.
36. London Economics in association with PriceWaterhouseCoopers (2006) 'Assessment of the Regulatory Framework for Electronic Communications – Growth and Investment in the EU e-Communications Sector', Report for Directorate General for Information Society of the European Commission.
37. European Commission, *Progress report on the single European electronic communications market (15th report)*, Working document, SEC(2010)630 Part 1 and Part 2, 25.8.2012; and European Commission, *Types and uses of nanomaterials, including safety aspects*, Working document, SWD(2012)180, 3.10.2012.
38. Scherer, F. (1987) 'Antitrust, Efficiency and Progress', *New York University Law Review*, Vol. 62, pp. 998-1020.
39. There is a large body of literature on this dilemma. See e.g. Cave, M. (2006) 'Encouraging infrastructure competition via the ladder of investment', *Telecommunications Policy*, Vol. 30., No. 3-4, pp. 223-237; Vogelsang, I., (2003) 'Price regulation of access to telecommunications networks', *Journal of Economic Literature*, Vol. 41, No. 3, pp. 830-862; London Economics in association with PriceWaterhouseCoopers (2006), *op. cit.*; Renda, A. (2008) *Achieving the internal market for eCommunications in the EU. CEPS Task Force report*, Brussels: Centre for European Policy Studies; Friederiszick, H., L. Roeller and M. Grajek (2007) 'Analysing the relationship between regulation and investment in the telecoms sector', Berlin, *ESMT Working Paper* No. 108-01; Huigen, J. and M. Cave (2008) 'Regulation and the promotion in next generation networks – a European dilemma', *Telecommunications Policy*, Vol. 32, No. 11, pp. 713-721; Soria, B. and F. Hernandez-Gil (2010) 'Do NGAN economics allow for network competition?', *Communications & Strategies*, No. 78, pp. 23-44.

3. The Great Transformation: Electricity and Rail Services

This section will analyse the liberalisation of two sectors which have "natural monopoly" characteristics caused by huge sunk costs in physical infrastructure. In both sectors, liberalisation has gone in stages over nearly two decades but market functioning leaves much to be desired. In Table 1, electricity markets are typified as "somewhat competitive" and the rail freight sector as "weakly competitive". The analysis will emphasise empirical indicators.

3.1. Why electricity is intrinsically difficult to transform

The electricity sector has proven more difficult to liberalise than some other network industries, due to intrinsic industry features. First of all, it is a strategic sector, as any community must ensure its security of supply. Security of supply has been used as an argument to protect national champions, which clashes with the objective of a competitive market with more and smaller, thus less powerful, firms, at least at the national level. Effective divesture or unbundling are still *de facto* unacceptable in some European capitals, if only so as not to hamper European bargaining powers *vis-à-vis* primary energy suppliers (read Russia).

Second, capital expenditures for electric power generation are huge and have a very long amortisation period, although it is longer for nuclear than for coal-fired plants and even less for gas turbines. The higher the need to protect the value of existing capital and to ensure sufficient incentives for future investments, the smaller the room to reduce tariffs.

Third, electricity is a peculiar good, subject to numerous technical constraints. It cannot be stored, physical supply and demand must be in exact equilibrium at every second, and competition among different operators located in different areas depends on the availability of transmission networks and not only on liberalisation policies.

Moreover, trading in electricity went through a learning process in Europe. The early electricity pools (e.g. in Great Britain)[40] turned out to be subject to anti-competitive manipulation and occasional, quite extreme volatility. Cross-border trading in order to utilise scarce interconnector capacity was first executed with highly inefficient practices. It is only since the emergence of specialised power exchanges with implicit auctions that the use of interconnectors has been optimised. As a consequence, since a few years, wholesale prices in Belgium and France are identical some 270 days of the year due to power exchanges. Of course, these are only the spot prices[41] but it is known that contract pricing has begun to follow trends in spot pricing. Altogether, it cannot be surprising that the EU liberalisation process has been slower and moved in modest steps.

Before the liberalisation process was initiated, the electric power sector was organised around national vertically integrated monopolists, just like the telecommunication industry. The same company controlled all the stages of the value chain: generation, dispatch, transmission, distribution, and retailing and billing. Entry was forbidden and the establishment of a single market was impossible. The liberalisation process changed the rules of the game, creating a legal framework under which national barriers would melt away. Nowadays, power companies can (and do) enter other national markets, usually by acquiring existing capacity – although governments may resist.[42] New entrants as well as incumbents may invest in new capacity and its licensing has to be strictly based on objective criteria. Companies can freely import or export electricity over existing interconnectors based on price and/or longer run contracts and not only when peak use or black outs would require it.

Availability of interconnector capacity is still a serious bottleneck in the creation of a single market for electricity. As electricity flows over transmission networks, the shortage of interconnector capacity reduces possibilities to trade power cross-border. Whilst some national markets are quite well integrated, e.g. the Scandinavian region, or the France-Belgium-Netherlands area by now,

40. Newbery, D. (2002) 'Problems of liberalising the electricity industry', *European Economic Review*, Vol. 46, No. 4/5.
41. Literally, there are no spot prices in electricity (as it travels with the speed of light). Trading is based on "day-ahead" commitments with half-hourly or 15-minutes intervals.
42. As in the case of the ENEL-Suez-GDF failed merger.

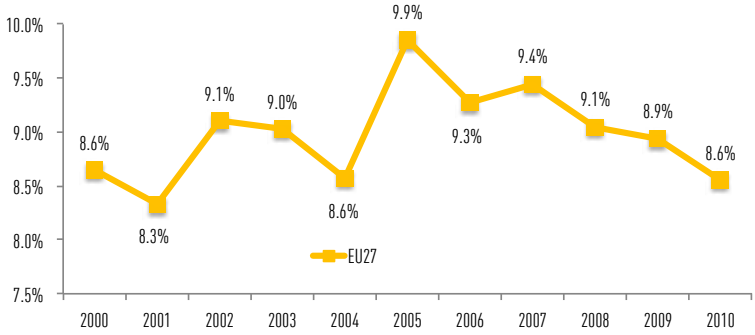
interconnectors are well below demanded capacity in other parts, e.g. towards the Iberian Peninsula, Italy, or the Baltic States.[43]

The overall picture is that of a single market split into major sub-markets. Persisting price disparities among these sub-markets are the clearest signal that more cross-border trade would take place if interconnection capacity were sufficient. Although the EU has the firm intention to remedy the situation, the missing links are not likely to be built so easily, as the current regulatory framework and market situation do not provide the right incentives to industry players.[44] The Commission estimates an increase in interconnector capacity by one third in the coming years, but also that 70% more investment would be needed.[45]

Figure 21 shows the share of imports over total generation, implying that liberalisation did not go hand-in-hand with deeper integration: the share of imports in 2010 is exactly the same it was 10 years earlier. Figure 22 and Figure 23 show the persisting price disparities notwithstanding the progress towards the single electricity market. On Figure 22, the coefficient of variation is shown, hovering around 0.25 for households (which is considerable for a homogeneous good travelling so fast) and around 0.2 for industrial clients.[46] On Figure 23, the average EU ratio between the maximum and the minimum prices is depicted; such an average does not reflect the full range of bilateral disparities, but even the average ratio hovers around 250% for households and only a little less for industrial users (but with wide fluctuations). In the EU27, from 2007 onwards there is a modest downward trend, but large discrepancies still persist. These figures show that the single electricity market is still a promise to come.

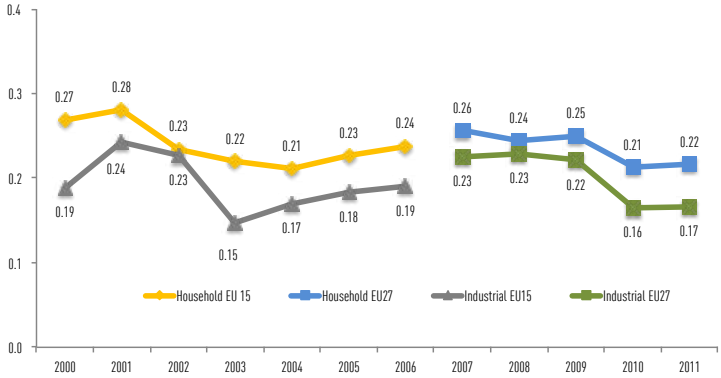
43. Kappf L. and J. Pelkmans (2010) 'Interconnector Investment for a Well-functioning Internal Market. What EU regime of regulatory incentives?' *Bruges European Economic Research Papers*.
44. *Idem.*
45. SWD(2012)367, *op. cit.*
46. The coefficient of variation is the ratio between the standard deviation, i.e. the dispersion, of a data series and the mean.

FIGURE 21 ► Share of Imports over Total Generation



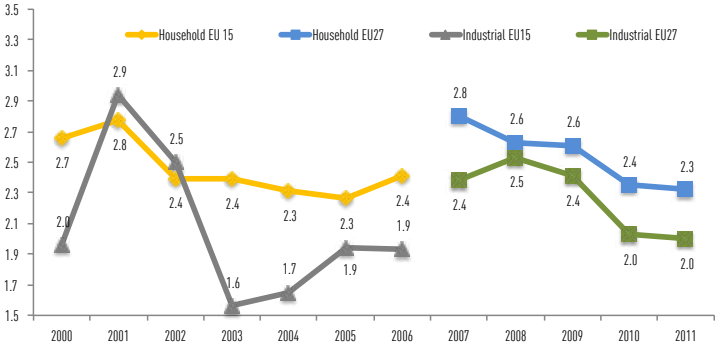
Source: Authors' Calculations on Eurostat Data.

FIGURE 22 ► Price Disparities – Coefficient of Variation



Source: Authors' Calculations on Eurostat Data.

FIGURE 23 ► Price Disparities – Max/Min Ratio



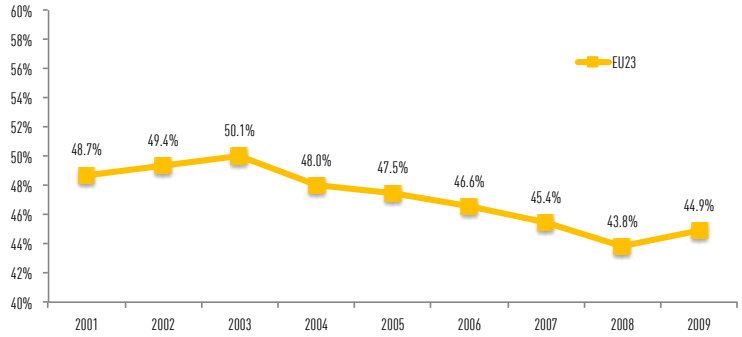
Source: Authors' Calculations on Eurostat Data.

3.2. Electricity: price, quality and environmental performance

The difficulties of electricity liberalisation are still largely reflected in national market structures with dominant players. Decrease of incumbents' market share is slow, with huge discrepancies across member states.[47] The largest players are even increasing their collective dominance. Figure 24 shows the EU-weighted average incumbent market shares in terms of generation capacity.[48] From 2003 onwards, market shares have been declining at the very slow pace of about 1% per year. Data on the market shares of the three largest generators in terms of capacity, as shown in Figure 25,[49] concurs with the hypothesis that only little competition has been introduced in the market for power generation. Indeed, from 2006 to 2009, the 3 largest operators increased their market shares. The retail market was less concentrated, as the three largest retailers[50] in 2006 had about 60% of the markets, 13% less than in terms of generation. Nevertheless, in the following years the share increased, reaching 72% in 2009.

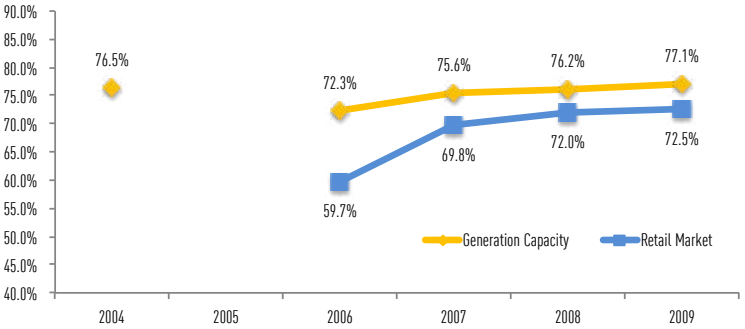
47. In 2010, the standard deviation of incumbents' market share is 25.8%, more than 60% of the average value. In 8 member states the incumbents still controlled more than 70% of the generating capacity (BE, CZ, EE, FR, GR, LV, LU, SK).
48. MT and CY not included. Values missing for NL and BG. Weights: electricity generation in TWh per country in 2010.
49. MT and CY not included. Weights: electricity generation in TWh per country in 2010.
50. MT and CY not included. Values missing for FR and DK. Weights: electricity generation in TWh per country in 2010.

FIGURE 24 ► Largest Generator Market Share



Source: Eurostat.

FIGURE 25 ► Three Largest Players Market Share



Source: European Commission (SEC(2005)1448, SEC(2008)460, SEC(2009)287, SEC(2010)251).

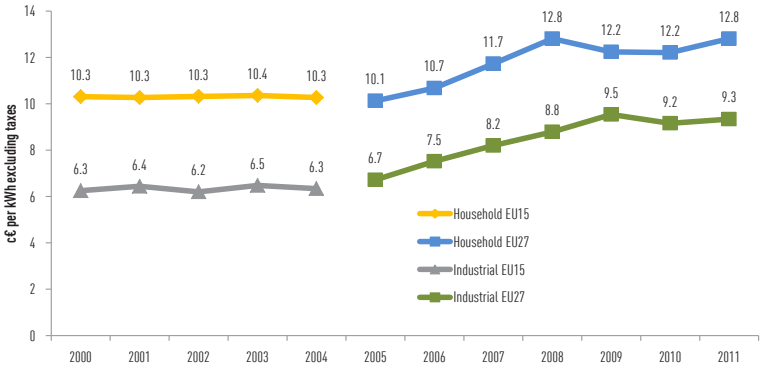
The lower degree of competition compared to e.g. the eComms industry is mirrored by the price development, shown in Figure 26.[51] Nominal prices first stabilised in the early 2000's, and then climbed between 2005 and 2008,

51. Prices excluding taxes. Household: from 2000 to 2007 Band DC (annual consumption: 3,500 kWh of which night 1,300); from 2007 onwards, Band DC (2500kWh < actual consumption < 5,000 kWh). Industrial from to 2000 to 2007 Band IE (annual consumption: 2,000 MWh; maximum demand: 500 kW; annual load: 4,000 hours); from 2007 onwards, Band ID (500MWh < actual consumption < 2,000 MWh).

before stagnating again. The increase for industrial users has been steeper than for households.

The major driver of electricity prices is the cost of fuels. Conventional thermal generation represents more than 55% of total electricity generation in the EU, with natural gas generating two fifths of that. Therefore, a more useful comparison is reported in Figure 27, where the prices of electricity and of natural gas are compared.[52] Household prices closely tracked the 5-year moving average of natural gas price until 2008, and then stabilised, whilst world gas prices (in euros) plummeted by about 35%. The price of electricity for industrial customers has diverged from natural gas price since 2005, and in 2011 the ratio between the two prices skyrocketed by about 60% compared to the year 2000. All in all, electricity prices, excluding taxes, especially for industrial customers, have increased relative to the costs of fuel, signalling that liberalisation was not successful in increasing efficiency and/or in passing on gains to final users.

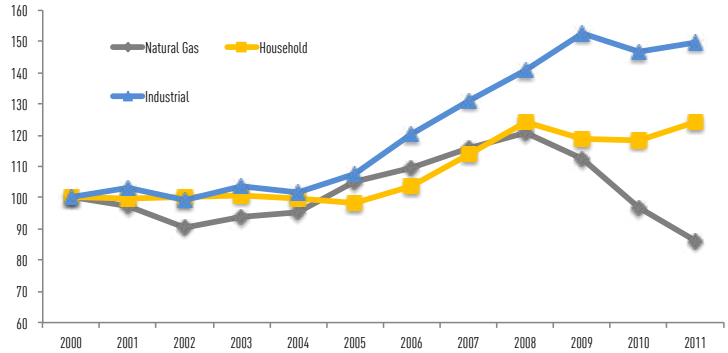
FIGURE 26 ► Electricity Price – Households and Industrial Users



Source: Eurostat.

52. Electricity prices: *ibidem.* Natural gas price: moving average over 5 observations [t; t-4] of the price of the Henry Hub Natural Gas Spot Price in $/MMBtu, as reported by the US Energy Information Administration. EUR/USD annual rate of change as reported by the ECB. Note that Figure 25 is in euros whereas Figure 26 uses indices.

FIGURE 27 ► Price Indices: Electricity for Household, Industry, and Natural Gas

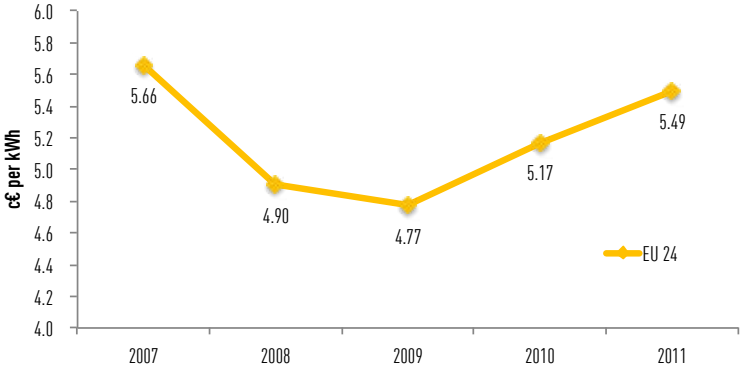


Source: Authors' Elaboration on Eurostat, U.S. Energy Information Administration, ECB.

Data on tariffs is scarce and available only for a few years. Nevertheless, especially if compared to the eComms sector, the retrieved data does not signal a liberalisation success. Figure 28 shows the EU weighted average of network costs per kWh for households.[53] Network prices imposed by Transmission and Distribution System Operators are subject to regulation, and should reflect the underlying cost structure. But the EU weighted average of network costs shows no sign of decline. The data for 2006, the highest, is hardly comparable to the following years, due to discrepancies in data coverage. From 2007 onwards, when data coverage becomes homogeneous, network costs are shown to increase, by more than 12% in 3 years.

53. MT and CY not included. Missing values for FR. Weights: electricity generation in TWh per country in 2010.

FIGURE 28 ► Network Costs for Household



Source: European Commission (SEC(2005)1448, SEC(2008)460, SEC(2009)287, SEC(2010)251).

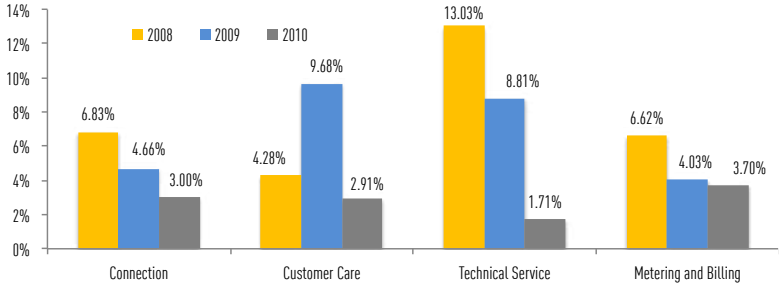
On the other hand, liberalisation of electricity markets has been successful at maintaining quality. Quality in the electric sector is defined along PSOs and USOs included in art. 3 of the third electricity directive.[54] PSOs, which member states may impose in transparent, non-discriminatory and verifiable terms on all operators, may relate to i) security of supply; ii) regularity of supply; iii) quality and price of supplies; and iv) environmental protection, with regards to energy efficiency, use of renewable sources and climate protection. On the contrary, USOs are directly mandated by the directive, and concern the right for households and SMEs to be supplied with electricity of a specified quality at reasonable, comparable, transparent and non-discriminatory prices.

Figure 29 shows the rate of non-compliance of operators with certain quality criteria from 2008 to 2010 in 9 member states.[55] Quality is defined as regularity of supply and quality of certain technical services ancillary to the provision of electricity, such as connection, metering or technical assistance. Four dimensions are assessed: connection, customer care, technical service, and metering and billing. In all these, non-compliance is steadily decreasing. Also

54. Directive 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, OJ 2009 L 211/55 of 14.08.2009.
55. CZ, EE, FR, GR, HU, IE, IT, PT, SK, UK.

total duration of unplanned long interruptions, a good proxy for regularity of supplies, witnessed a steady reduction from 1999 onwards. Only new member states still show significant levels of long interruption.[56]

FIGURE 29 ► Quality-of-Services Failure Decrease

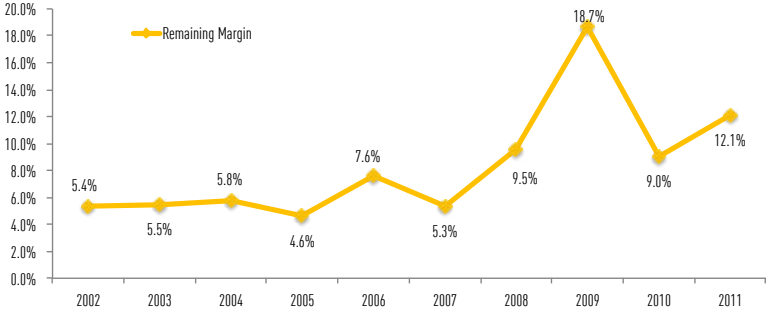


Source: Council of European Energy Regulators (2011) '5th CEER Benchmarking Report on the Quality of Electricity Supply 2011'.

As for the security of supply, Figure 30 shows the remaining margin over net capacity, that is, the buffer of available electricity generation capacity at the yearly peak, excluding planned and unplanned outages.[57] The graph shows that this security buffer has increased; hence, there is no shortage of generation capacity.

56. Council of European Energy Regulators (2011) '5th CEER Benchmarking Report on the Quality of Electricity Supply 2011'.
57. Data concerns "continental" Europe, that is 17 member states (AT, BE, BG, CZ, DE, ES, FR, GR, HU, IT, LU, NL, PL, PT, RO, SI, SK) and other 7 minor grid systems (Switzerland, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Macedonia, and a small area of Western Ukraine).

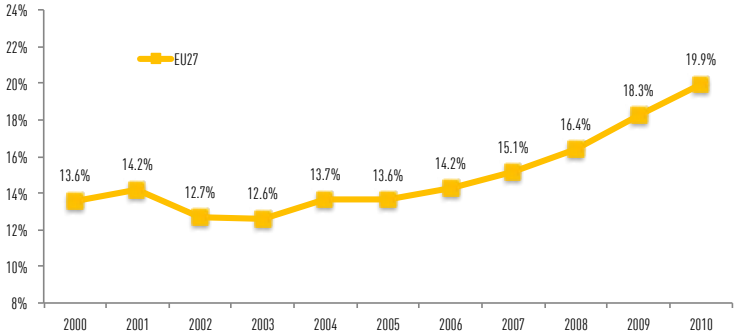
FIGURE 30 ► Remaining Margin over Net Generating Capacity



Source: UCTE (2008) *System Adequacy Retrospect 2008*.

Finally, another dimension of quality included in PSOs for electricity generation is environmental protection. One indicator is the share of electricity from renewable sources over total generation. Data in Figure 31 shows that this share is increasing. From 2003 onwards, renewable sources have generated an additional 0.5% of EU electricity per year.

FIGURE 31 ► Share of Renewable Over Total Generation



Source: Eurostat.

Nevertheless, one should be aware that the ETS (critical for CO_2-intensive coal) and the introduction of renewables "fuelling" electric power generation

have complicated the system both nationally and EU-wide. The fact that this trend coincides with liberalisation and market integration tends to make it less easy to "read" the benefits of liberalisation and of the single market to come. Renewables tend to be more expensive than traditional fuels (especially off-shore wind and solar) and this costs money (subsidies) or forces higher electricity prices (other things equal). This effect is augmented by maintaining or building so-called back-up power plants with traditional fuels for the roughly 75% of the time when wind power is not available. Not only is this costly, it is hard to attract investors for plants which are, by definition, underutilised. The upshot is that liberalisation, after a spell of a few years when prices were declining, no longer leads visibly to falling prices. Users and consumers observe the opposite. This problem is aggravated by the higher world prices for primary energy since about 2005.

Data on USOs is more scattered. The European Commission reported data for low income consumers up to 2004. It is not satisfactory to analyse the effects of the liberalisation process on poor consumers, as the household market was fully open to competition only in 2007. Anyway, what the data tells us is not clear. Prices for the low-income quintile have moved almost randomly in the decade 1994-2004 across the member states. Most importantly, in 10 member states of the then EU-15 high-income consumers have benefited more than low-income consumers.[58] As to affordability, in the period 2003-2005 the share of income spent on electricity by the low-income quintile has been shrinking in the majority of member states, although with notable exceptions.[59] In absolute terms, it amounted to about 0.9% in the EU15 and to about 1.9% in new member states.[60]

58. Commission staff working document – Technical Annex to the Report from the Commission to the Council and the European Parliament on Progress in Creating the Internal Gas and Electricity Market, SEC(2005)1448, 15.311.2005; European Commission, 'Annex to the Communication on European electronic communications regulation and markets 2005 (11th report)', SEC(2006)193, 20.2.2006.
59. I.e. SK, DE, NL, SI, AT, FR, IE, CY, IT.
60. SEC(2006)193, *op. cit.*

3.3. Freight rail liberalisation: hard, rewarding and truly European

The railways has three critical characteristics: i) very high share of fixed and sunk costs, up to 90% of total costs; ii) strong economies of density; and iii) multiproduct nature, meaning that the same railway infrastructure connects various origins and destinations for both freight and passenger transport.[61] Similar to the electricity sector, the higher the need to protect the value of existing capital and to ensure sufficient incentives for future investments, the smaller the room to reduce tariffs. Strong economies of density can also mean that a single service monopolist operating all the routes turns out to be more cost-efficient than a multitude of competitive players. In other words, entry need not be efficient, in particular in passenger rail.[62]

Economies of density are more relevant than for air transport, due to the impracticality of the point-to-point business model. However, the rail freight business is radically different from passenger rail: the former is truly European (minimum distances higher than 500 km, usually crossing several borders), it requires intermodal transfer terminals and full European interoperability for the costs of using an entire "freight corridor" to be kept low (and the speed relatively high). The costs of European freight rail will never be as low as that in the US with its open spaces (no population density, no noise problems, private ownership of tracks) and infrastructure competition, but today EU rail freight is unnecessarily costly, slow and below the quality that shippers (i.e. the business customers) insist on. The gains of accomplishing an efficient European rail freight system are enormous, both direct and indirect, whether pecuniary (and hence, for business competitiveness), safety, lower road congestion or in environmental terms (less CO_2).

61. Preston, J. (2012) 'Issue paper # 2 Competition and cooperation, organisations and markets: how to deal with barriers to entry and market power?', Centre on Regulation in Europe, Beyond the quiet life of a natural monopoly: Regulatory challenges ahead for Europe's rail sector.
62. This can be illustrated with an example. If strong demand on (say) key routes would make entry possible, the single service provider might also increase frequency and/or introduce double-deck trains, probably at much lower costs than entrants. Much depends on timely investment decisions, incentives for cost minimisation (technical efficiency, difficult for a monopolist) and responding to consumer needs. Therefore, at the margin, competitive entry can be very useful.

The EU liberalisation process in the railway industry dates back to 1991, with Directive 1991/440/EEC.[63] It required member states to impose accounting separation between infrastructure managers and railway undertakings, and to ensure fair and non-discriminatory access subject to cost-oriented charges. Three legislative packages followed in the 2000s. The first rail package, in 2001, provided for liberalisation of international rail freight services, initially focusing on Trans European Networks.[64] In 2004, the second rail package extended the scope to the entire freight market, both cross-border and national, to be fully liberalised from 1st January 2007 onwards.[65] The third rail package, in 2007, liberalised international passenger services, also granting cabotage rights on national route sections, effective from 1st January 2010.[66] A legislative proposal for the fourth railway package was announced in the Commission White Paper on Transport in March 2011 and is expected anytime soon.

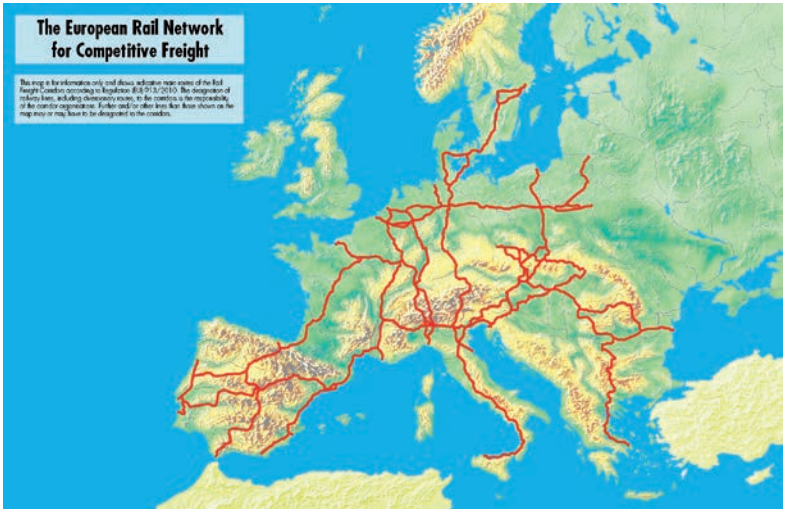
Implementation of the liberalisation packages was slow and difficult. EU law prescribing liberalisation is a necessary but hopelessly insufficient condition to accomplish a properly functioning EU freight rail market: one has to tackle physical and infrastructural barriers, a very costly undertaking and taking decades.[67] These barriers are much more significant for railways compared to other transport industries such air or road. Across Europe, railways still have different gauges, electrification and voltages, signalling, and loading gauge, just to name a few obstacles.[68] Unlike for the electricity sector, there are many

63. Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways. OJ L 237, 24.8.1991, pp. 25-28. There were two follow-up directives in 1995 (e.g. the licensing directive 95/18/EC).
64. Directive 2001/12/EC of 26 February 2001 on the development of the Community's railways; Directive 2001/13/EC of 26 February 2001 on the licensing of railway undertakings; Directive 2001/14/EC of 26 February 2001 on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification. OJ L 75, 15.3.2001, pp. 1-46. The first railway package has been recast and consolidated by COM(2010)475, enacted 29 October 2012 (not yet published).
65. Directive 2004/49/EC of 29 April 2004 on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive); Directive 2004/50/EC of 29 April 2004 amending Council Directive 96/48/EC on the interoperability of the trans-European high-speed rail system and Directive 2001/16/EC of the European Parliament and of the Council on the interoperability of the trans-European conventional rail system; Directive 2004/51/EC of 29 April 2004 amending Council Directive 91/440/EEC. OJ L 164, 30.4.2004, pp. 44-172.
66. Directive 2007/58/EC of 23 October 2007 (amending earlier directives) and Directive 2007/59/EC of 23 October 2007 on the certification of train drivers operating locomotives and trains on the railway system in the Community. OJ L 315, 3.12.2007, p. 44-78; Regulation (EC) No 1371/2007 of 23 October 2007 on rail passengers' rights and obligations. OJ L 315, 3.12.2007, pp. 14-41.
67. Pietrantonio, L. di and J. Pelkmans (2004) 'The economics of EU railway reform', *Journal of Network Industries*, Vol. 5, No. 3-4, pp. 295-346.
68. The Commission is tackling this problem through the European Railway Traffic Management System – ERMTS. This will ensure greater, albeit not full, interoperability of railways across member states. 4,000 km of lines were covered by ERMTS at the end of 2011, and additional 4,000 km are scheduled before the end of 2013. According to the European Deployment Plan, the key axes will have to be equipped with ERTMS by 2012 (European Commission, SWD(2012)246, *op. cit.*). See also NEA, University of Leeds, PriceWaterhouseCoopers, Significance (2010) 'Situation and Perspectives of the Rail Market', Report for Directorate General for Mobility and Transport of the European Commission.

cross-border connections. Still, they connect non interoperable systems, and this creates costs and delays for European business as shippers using rail for their value chain. This is the principal reason why the EU began to focus on specific rail freight corridors throughout the continent.

Recently, a new class of freight corridors has been established by Regulation 913/2010. Building upon the experience with TEN-T and RNE corridors, the Commission proposes 9 Rail Freight Corridors, which form the European Rail Network for Competitive Freight, as represented in Figure 32 below.

FIGURE 32 ► The European Rail Network for Competitive Freight



Source: European Commission (COM(2011)144).

For each corridor, the Commission mandates the establishment of a governance structure, articulated in an Executive Board, Management Board and Advisory Groups. Once the governance structure has been set up, lines and terminals belonging to the corridor must be identified; a One-Stop-Shop for railways undertakings must be created; and an Implementation Plan needs to be agreed upon and enforced. Investments, capacity allocation, and traffic management should be integrated across the whole corridor. 6 out of 9 Rail

Freight Corridors should be operational as early as November 2013 onwards, while the others from November 2011.[69]

Implementation of the EU legislative framework has not been much smoother than physical implementation. When in 2007 the European Commission assessed the degree of implementation of Directive 91/440 and the first railway package, it had to issue a letter of formal notice to 24 countries, that is all the then member states except for the Netherlands. Even today, 12 cases are pending before the Court of Justice of the European Union.

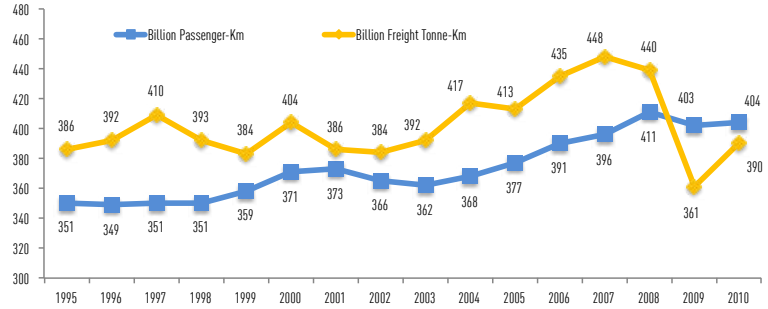
3.4. European rail, much ado about freight, little about passengers

The railway sector is a multiproduct industry, and not all products are equally relevant from an internal market perspective. Passenger services are largely a national issue, whilst freight services are inherently European (although for larger countries like Sweden, France, Germany, Italy, the UK, Poland, Spain and Romania, national freight may be profitable too). In 2010, 49.5% of freight transport was cross-border, compared to only 6.3% for passengers.[70] There is no doubt that, once effective freight liberalisation will have proceeded further, that the share of cross-border freight will rise to 70% or more.

As shown in Figure 33, the railway sector is a stable and mature industry. From 1995 to 2007, i.e. before the current economic crisis, overall freight services, that is including both cross-border and domestic, expressed in tonne-kms have grown by 16%, that is less than 1.3% per year. Taking into account the decline attributable to the crisis, the amount of Freight-Tonne-km is currently at the early 2000s levels. Passenger services, again both cross-border and domestic, measured in passenger-km, showed a slow but steady increase and were only slightly hit by the economic crisis. In passenger services, the growth of high-speed services is conspicuous, as shown in Figure 34.

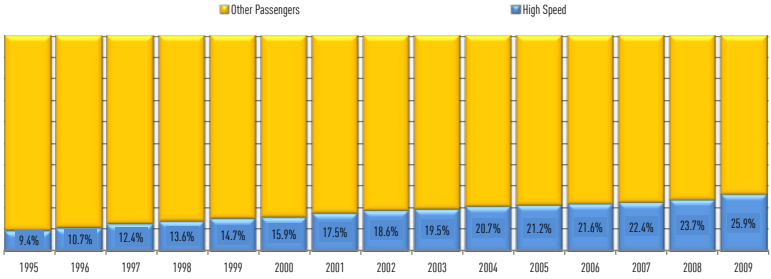
69. European Commission, COM(2011)144, *op. cit.*
70. European Commission, SWD(2012)246, *op. cit.* MT and CY excluded, as there is no railway service therein. For passengers, IT excluded; data for AT, DK, FR, SI, SK refers to 2008.

FIGURE 33 ► The EU Market for Freight and Passenger Services



Source: Eurostat.

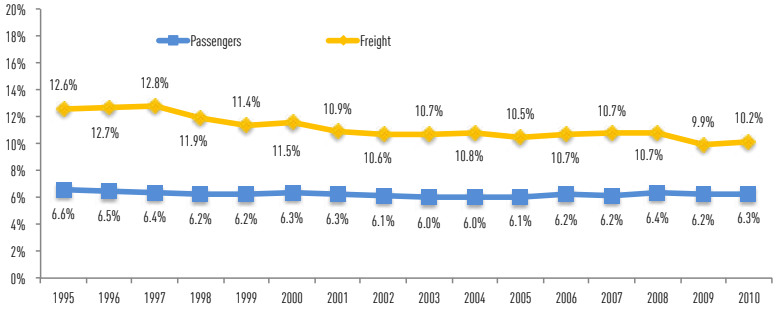
FIGURE 34 ► Share of Passengers on High-Speed Lines over Total Passenger Services



Source: Eurostat.

Figure 35 shows the share of rail transport in total transport of goods and passengers. While for passengers the share is stable over the 16-year period, rail freight transport has lost about 3% of market share until 2003 and seems to stabilise from then onwards, possibly due to the early liberalisation. The aims of rail freight liberalisation, however, are to regain market share and serve shippers (hence, European business input costs and quality), reduce congestion and improve CO_2 records. As recognised in the "Transport 2050" White Paper, deeper structural change and larger, sustained investments would be needed to transform freight rail into an attractive mode of transport.

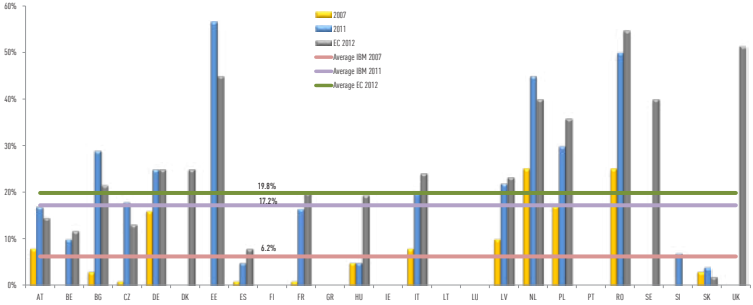
FIGURE 35 ► Modal Split: Share of Railways in Total Transport



Source: Eurostat.

It is hard to assess how far markets are opening. Are such markets really "national"? Market shares of incumbents in the freight sector are on average higher than 80%, compared to lower than 50% for electricity (not an easy sector to free up) and eComms, a successful sector for liberalisation. As shown in Figure 36, in a limited number of member states, a single operator still monopolises the market. Only in Estonia, the Netherlands, Romania, Sweden and the United Kingdom the share of new entrants is around or above 40% but in e.g. Germany and Italy shares of entrants around 25% are also interesting.

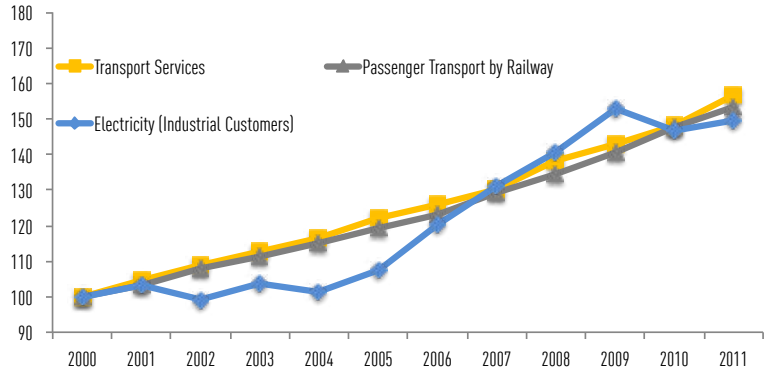
FIGURE 36 ► New Entrants Market Share in the Market for Freight Services



Source: European Commission (IBM 2007; IBM 2011; SWD(2012)246).

When it comes to price, the situation seems much better than market opening. As shown in Figure 37, prices for rail passengers have been closely aligned to prices of transport services as well as with the price of electricity, the most common energy source for rail. Unfortunately, data on freight contracts pricing could not be retrieved, most likely because trade secrets on differential pricing along corridors.

FIGURE 37 ► Price Indices: Railway Passenger Transport, Transport Services, and Electricity

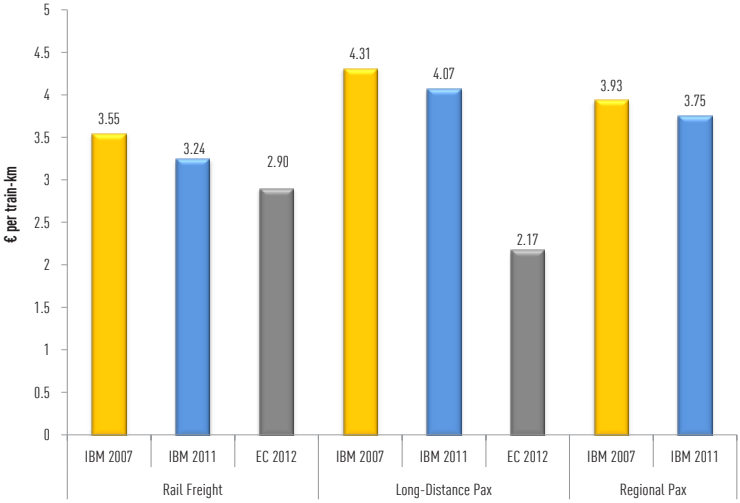


Source: Eurostat.

Apart from infrastructure and interoperability issues, European rail freight services cannot develop easily due to an incredible jungle with respect to national track access charges. National traditions of access charging are extremely divergent, given "dual use" (i.e. track is used for both passenger and freight rail, which is anyway adding some 40% in infrastructural and slot allocation costs of services compared to dedicated track of similar quality). With dual use, the sensitivity of domestic passenger rail prices comes into play and freight has often suffered in the past, especially via biased slot allocation. Moreover, the allocators mind-set, being "national" on passenger services, is not helpful, indeed, very distortive for market incentives in European rail freight:[71] in €c per train-km, charges can vary by a factor of almost 18, depending on whether infrastructure managers aim (or, are obliged by law) at covering only (small) marginal costs or (huge) fixed costs and whether (costly) maintenance and renewal is also included, and depending on the amount of public subsidies.[72] But there is also good news about access charges, as shown in Figure 38. Data, again, are scattered, time-series do not exist and there are large discrepancies among different sources. That said, signals show that in recent years access charges have decreased, and also become more transparent. Whilst the comparison between IBM and Commission data is hard given different coverage and data sources, the IBM data for 2007 and 2011 are in principle consistent and show a decline for both freight and passenger services.[73]

71. Note that this is hardly an issue for passenger rail as it is mostly national or operated on dedicated fast rail networks. The remainder in cross-border is agreed route by route.
72. Not much has changed since the 2005 report by C. Nash et al., 'Railway reform and charges for the use of infrastructure', Paris, ECMT.
73. IBM (2007 and 2011) 'Rail Liberalisation Index – Market opening: comparison of the rail markets of the member states of the European Union, Switzerland and Norway', Rail Freight: BG, GR, IE, LT, LV and RO missing. IBM (2007 and 2011), *op. cit.*, Long-Distance Pax: BG, DK, EE, GR, IE, LT, LV and RO missing; Regional Pax: BG, EE, GR, IE, LT, and LV missing; European Commission, SWD(2012)246, *op. cit.*: GR and DK missing.

FIGURE 38 ► Access Charges in the Railway Sector



Source: European Commission (IBM 2007; IBM 2011; SWD(2012)246) and OECD – International Transport Forum (2008) 'Charges for the Use of Rail Infrastructure 2008'.

Finally, we call attention to a fundamental issue in rail liberalisation, the verdict of which is less clear than for other network industries: unbundling of the network infrastructure from the services supplied on the network. The separation of the two can be executed in various degrees, the clearest one being full ownership separation. Experience has shown that in several countries (e.g. the UK and the Netherlands) this has turned out to be quite problematic. In rail the coordination between the network company and the services companies is extremely sensitive, both in the hourly management and in terms of long-run investment and maintenance signals. This problem is most severe for scheduled passenger rail. Unlike in other network industries, where ownership unbundling is regarded as an unambiguous signal for investors and managers, the economic performance in rail has probably deteriorated for passengers due to unbundling, whilst for freight it might be neutral.[74] The reason why the EU

74. Laabsch, C. and H. Sanner (2012) 'The impact of vertical separation on the success of the railways', *Intereconomics*, Vol. 47, No. 2, pp. 120-128.

insists on unbundling is to obtain and maintain undistorted competition (hard to ensure with vertically integrated companies). Nevertheless, it would seem that some kind of tighter coordination will have to be allowed or arranged for the EU single rail market to function properly.

3.5. Losers in electricity and rail, and possible compensation?

For electricity, the focus is on workers and low-price member states. The former are possible losers from the liberalisation process *as such* whilst the latter (at least, their users and consumers) may lose the more the EU succeeds in moving from a set of liberalised national markets into a true single market for electricity. As for railways, the focus is on investments and, again, workers.

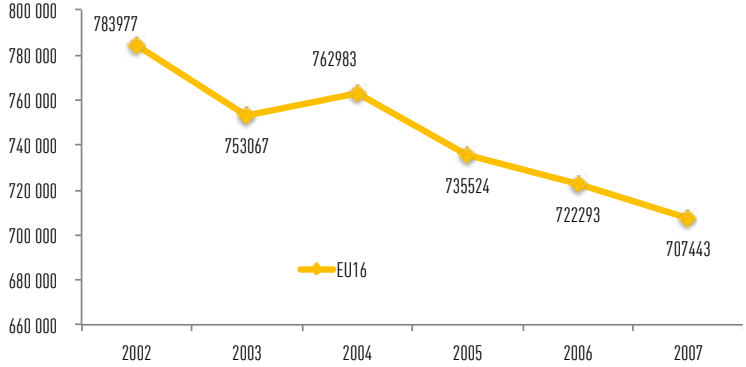
Employment in the power sector is in steady decline since the liberalisation process was initiated. It may be the case that public incumbents were over-manned for non-economic reasons and that the liberalisation, spurring efficiencies, forced former-public behemoths to size down. One wonders where the cost reduction from fewer workers is found: in higher profits (like in the U.K. at first), in lower prices (only in the early period of liberalisation), in wages or secondary conditions, or in new investments.

We leave this question open, and focus on absolute numbers. Figure 39 and Figure 40 consistently point to a reduction of the workforce in the electricity sector. The former focuses narrowly on the electricity industry, but coverage is limited to the period 2002-2007 and to 16 member states.[75] Data shows that almost 10% of the 2002-workforce has exited in 5 years. Figure 40 shows the employment index for the whole EU27 from 2000 to 2012 for all firms producing and distributing electricity, gas, steam or air conditioning. In this sector, where electricity represents by far the most important industry, the number of persons employed declined by about 25% from 2000 to 2008, and then stabilised around this level up to 2011. This is consistent with the

75. AT, BG, CZ, DK, DE, ES, FR, HU, IT, LT, PL, PT, RO, SI, FI, SE. For PT and CZ, 2006 value has been imputed to 2007 due to lack of data.

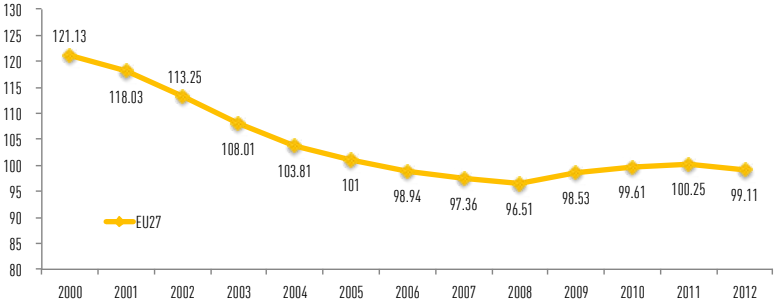
pre-liberalisation estimates about layoffs by electricity companies, which needed to cut costs, especially labour costs, to prepare for competition.[76]

FIGURE 39 ► Persons Employed in the NACE v.1.1 Sector E401: Production and Distribution of Electricity



Source: Eurostat.

FIGURE 40 ► Persons Employed in the NACE v.2 Section D: Electricity, Gas, Steam and Air Conditioning Supply



Source: Eurostat.

76. Riechmann, C. and W. Schulz (2000) 'Regulatory reform in the electricity industry', in Galli G. and J. Pelkmans (eds.) *Regulatory reform and competitiveness in Europe*, Vol. 2, Cheltenham: Edward Elgar.

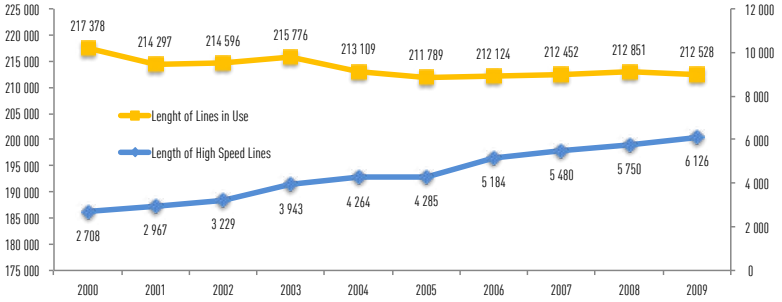
Economics easily explains why consumers in certain member states will lose from the Single Electricity Market.[77] Where two markets previously separated are merged, e.g. by building or enlarging or better use of interconnections, someone loses and someone wins, although overall welfare increases.[78] For example, consumers in high-price countries will enjoy lower prices, but consumers in low-price countries will suffer from higher prices. At the same time, power producers in high-priced markets will lose some of the infra-marginal rent, whilst producers in low-priced markets will gain a higher infra-marginal rent. In principle, this could be resolved by redistribution policies. Take the case of France, an outlier in the EU electricity market due to the huge recourse to nuclear power plants, which keeps the unit price low. Should the single market for electricity come into existence, EDF would gain more and French users and consumers would pay more. In principle, the government could tax EDF (profits) more and at the same reduce taxes on electricity, thereby counterbalancing the single market effects. Once user companies in low-priced member states are going to pay more for electricity in an integrated single market, significant second-level effects come into play.

The price of electricity is an important input for the production of goods and services. Therefore, a sudden shock in electricity prices could cause difficulties for energy-intensive industries in low-price countries. The relevance of this conundrum will become lower once the asymmetry between nuclear and non-nuclear member states will be reduced, i.e. when the wave of nuclear plants built in the '70s and '80s will be phased-out.

Switching to the railway sector, Figure 41 shows the length of lines as a proxy for investment. As noted, the railway industry is a mature sector and its network already covers the whole continent. As expected, the overall length of lines is constant throughout the last decade. Only the amount of high-speed lines is on the rise. High-speed lines require large capital investments, and it is worth noticing that these investments have not been cut back during the liberalisation process. Additional 2,200 km are expected to enter into service before 2017.[79]

77. Kappf and Pelkmans, 2010, *op. cit*.
78. Because of the reduction of the deadweight loss, at least if only first-level effects are taken into account.
79. European Commission, 'Accompanying Document to the 2012 Report on Monitoring Development of The Rail Market', SWD(2012)246, 3.10.2012.

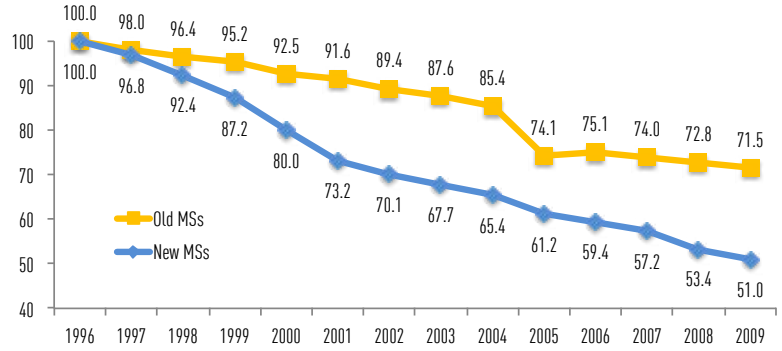
FIGURE 41 ► Length of Lines and High Speed Lines in the EU



Source: Eurostat.

As for workers, the railway sector has shown a steady decline of its workforce. In about 15 years, railway undertakings in the old member states have reduced the number of employees by about 30%, whilst in new member states the reduction reached about 50%. It is difficult to assess whether this was a "natural" process for over-manned behemoth or whether the threat of liberalisation and entry is the main driving force for the shrinkage. In any event, unlike in the air transport market, the low degree of market opening and limited entry prevented new entrants to (more than) compensate for lost jobs with the incumbents.[80]

FIGURE 42 ► Workforce in the Railway Sector



Source: Eurostat.

80. Old member states (MSs): AT, BE, ES, FR, GR, IT, FI, SE. New member states: CZ, EE, LT, LV, PL, SI, SK. For CZ, 2009 value missing; 2008 imputed. For ES, 2003 value missing, average of 2002 and 2004 imputed. For IT, 2001 value missing, average of 2000 and 2002 imputed. For FR, data from 2006 to 2009 missing; linear trend based on 1996-2005 imputed.

CONCLUSION

The European Union has finally become more determined to pursue the single market for network industries. The opening up of network markets in the EU has now been going on for some 25 years. This is quite a long time. But it has to be granted that this path has proven to be both complex and adventurous. The ample empirical evidence in our Study demonstrates that a considerable distance of this path has been travelled and that, with sustained political, regulatory and anti-trust enforcement, investment, and entrepreneurial efforts, the single market for network industries can be perhaps achieved within a decade from now.

We show that the path of getting there is highly uneven between the seven network markets we discuss. The markets for postal services and broadcasting have not been studied in the Study but in the assessment in Table 1 they are typified respectively as competitive and somewhat competitive (given the dual broadcasting system that the EU explicitly supports). The gas sector is at best weakly competitive. Although the recent flood of LNG imports has significantly lowered prices from source countries, the empirical evidence so far shows that this price fall has not been passed on (yet) to consumers, and especially not to industrial customers. This could be due to agreed lags in price formulae and to the difficulty of renegotiating industrial prices fixed in longer run contracts.

Even if one focuses on the four sectors studied in the Paper, the differences are considerable. Air transport basically does enjoy a single market. The benefits, as shown empirically, include a strong expansion of output in both passenger and cargo services, massive entry by low-cost carriers (with sharp price competition, the attraction of a new type of customers and many new routes as well as some routes with much more rivalry), overall price increases below those of transport generally and many new routes also by regional airlines. There seem to be few losers, be it that workers in the network carriers had to adjust (from a highly advantageous position), but the overall number of

workers remained roughly the same; PSOs have been maintained or increased (if justified), safety records have, if anything, improved and CO_2 emissions have linearly moved up with the sharp output increase of the sector.

For telecoms, or eCommunications, the single market has not been achieved at all, but numerous and major economic benefits have nonetheless been acquired. The point is that these benefits are the result of liberalisation in national eComms markets, not in a single EU market. They could therefore be much larger still. In eComms there has been massive new entry, new technologies and new services, all clearly to the benefit of consumers and industry alike. The price developments have been almost sensational: tariffs for fixed telephony have declined drastically, so have prices for mobile services, broadband tariffs and those for local loop unbundling. Competition is effective, with market shares of entrants in the mobile sector having become quite large and market shares of fixed and broadband telecom incumbents having shrunk drastically. Also interconnect charges have fallen a lot in fixed and even more in mobile (as much as down to one-seventh in a decade).

In eComms it is hard to trace any losers of liberalisation, but there may well be an investment problem. The low income consumer have not only not lost out but actually gained through lower prices, whilst USOs have worked in particular to their advantage. As for the number of workers in this business the evidence is mixed. Investment has been declining in the sector and this may be of some concern, given the expected huge demand for faster broadband, hence fibre, in future. These great price benefits as well as the new services are not only due to liberalisation, but also to rapid technological progress, prompting cost reduction as well as product innovation.

For electricity the single market is still at some distance, although many efforts are under way to arrive there in the next five years or so. The interconnectors and their congestion are one significant problem, despite increasing reliance on power exchanges. Investment is required, but the incentives for doing so are weak for incumbents given access regulation and the prospective price equalisation between national markets. Indeed, the cross-border import share in electricity is exactly the same in 2010 as it was in 2000. National markets are very concentrated still and, as noted, gas price decreases have not (yet) been passed on to customers and consumers. Electricity prices are going up

since about 2005 for two reasons: one is the world price rise for fuels (input for electricity; although recently, gas prices have declined) and the other one is the greening of electricity via national taxes, the ETS (pushing up the price for coal as it is CO_2 intensive) and costly renewables. The EU electricity market suffers from significant price disparities, showing that the market of this homogeneous good is not integrated. Moreover, the network costs billed to consumers has increased. However, the quality measured via four indicators has invariably gone up, so has the security of supply. In terms of environmental quality, the share of renewables has increased from 13% to 19% in a decade. Because liberalisation and the "greening" of electricity coincide since about 10 years ago, it has become harder to trace the price benefits of EU market integration. Finally, the number of workers in the electricity fell sharply, especially at first, probably due to overmanning under the old system.

For rail transport, there is a sharp contrast between passenger and freight. The EU market integration for passenger rail is based in part on liberalisation and interoperability programmes over a long period, but mainly on an investment approach. The investments go into dedicated track for fast trains which are increasingly cross-border between large metropolitan areas in the EU. Nevertheless, the overwhelming majority of passenger rail services remain domestic. For EU freight, the opposite is true. Freight rail is naturally "European" and only in the larger EU countries can domestic freight rail be profitable, too. Nowadays, half of freight rail is intra-EU cross-border (compared to 6% for passengers) and this share in freight is likely to increase further once liberalisation is proceeding on the nine "corridors" with all the measures executed.

Freight rail has continuously lost market share against road transport for decades, but this trend seems now to have stopped. The aim is to let freight market share grow and getting numerous trucks off the road. There is market entry but the situation is uneven between countries. There are still far too many and at times severe obstacles to freight rail, despite the incredible potential gains in the sector and the potential for indirect gains inside value chains for European business. Access charges are national (ideally, for freight, they ought to be corridor-specific, hence, "European") and both methods and disparities between these charges amount to nothing less than a jungle. True, the level of access charges is, in general, decreasing. The number of workers

in the sector has sharply declined, even though output has gone up (more than market share), indicating a possible problem of overmanning under the past system (and perhaps due to the effect of new technologies like in ticketing).

Until recently, the EU took relatively little interest in the single market for network industries as a whole. The EU institutions have changed this attitude. During the crisis the realisation that the single market can generate growth, among other things via lowering the input costs for European businesses through improving the performance of network industries, has gained ground. The seven sectors together can also contribute together directly to EU growth as they are sizeable activities. The newest EU Annual Growth Survey 2013 has a special report on the single market in which the policies to overcome the shortcomings for network industries assume a prominent place (energy, transport and digital). This perspective goes much beyond the Single Market Act II and is most welcome. Both the latter and the former are embedded in a long run growth strategy for the EU, the very reason to pursue with gusto the completion of the single market for network industries. Our Study shows empirically that a good deal of the potential has not yet been reaped. The growth potential can thus be tapped, even though this will not happen without considerable effort.

ANNEX 1 – EU COUNTRIES ABBREVIATIONS

BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom

ANNEX 2 – LIST OF TABLES AND FIGURES

Table 1 ► Status of the Single Market for Network Industries 22

Figure 1 ► The Market for Air Passengers and Cargo 25

Figure 2 ► Low-Cost Carrier Market Share in Europe 26

Figure 3 ► Price of Air Transport Services 26

Figure 4 ► Number of Employees 28

Figure 5 ► Number of Public Service Obligations 29

Figure 6 ► Lives Lost in Aviation Services 29

Figure 7 ► Total CO_2 Emissions 30

Figure 8 ► Mobile Subscribers Penetration Rate 34

Figure 9 ► Household Broadband Penetration Rate 34

Figure 10 ► Incumbent's Market Shares in the Fixed Voice Market 35

Figure 11 ► Market Shares in the Mobile Market 35

Figure 12 ► Incumbent's Market Shares in the Broadband Market 36

Figure 13 ► Fixed Voice Call Price 37

Figure 14 ► Mobile Prices – OECD Basket 37

Figure 15 ► Broadband Price 38

Figure 16 ► Local Loop Unbundling 38

Figure 17 ► Fixed to Fixed Interconnection Charges 39

Figure 18 ► Fixed to Mobile Interconnection Charges 39

Figure 19 ► Persons Employed in the NACE v.1.1 Sector 64.2: Telecommunications 42

Figure 20 ► Persons Employed in the NACE v.2 Sector 61: Telecommunications 42

Figure 21 ► Share of Imports over Total Generation 47

Figure 22 ► Price Disparities – Coefficient of Variation 47

Figure 23 ► Price Disparities – Max/Min Ratio 48

Figure 24 ► Largest Generator Market Share 49

Figure 25 ► Three Largest Players Market Share 49

Figure 26 ► Electricity Price – Households and Industrial Users 50
Figure 27 ► Price Indices: Electricity for Household, Industry, and Natural Gas 51
Figure 28 ► Network Costs for Household 52
Figure 29 ► Quality-of-Services Failure Decrease 53
Figure 30 ► Remaining Margin over Net Generating Capacity 54
Figure 31 ► Share of Renewable Over Total Generation 54
Figure 32 ► The European Rail Network for Competitive Freight 58
Figure 33 ► The EU Market for Freight and Passenger Services 60
Figure 34 ► Share of Passengers on High-Speed Lines over Total Passenger Services 60
Figure 35 ► Modal Split: Share of Railways in Total Transport 61
Figure 36 ► New Entrants Market Share in the Market for Freight Services 62
Figure 37 ► Price Indices: Railway Passenger Transport, Transport Services, and Electricity 62
Figure 38 ► Access Charges in the Railway Sector 64
Figure 39 ► Persons Employed in the NACE v.1.1 Sector E401: Production and Distribution of Electricity 66
Figure 40 ► Persons Employed in the NACE v.2 Section D: Electricity, Gas, Steam and Air Conditioning Supply 66
Figure 41 ► Length of Lines and High Speed Lines in the EU 68
Figure 42 ► Workforce in the Railway Sector 68

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ENJOYING A SINGLE MARKET FOR NETWORK INDUSTRIES?

In the beginning of 2013 the EU can look back at some 25 years of efforts to develop and deepen a single market for network industries. It is therefore worthwhile taking stock and trying to assess how far this endeavour has proceeded and what benefits and costs may be identified.

The present Study provides a brief survey of the logic and state of the single market in network industries today, reminding readers of the economic and EU rationales underpinning this transformation. A detailed analysis is devoted to two network sectors in which liberalisation is often held to be quite successful (air transport and telecommunication), and to two sectors where the benefit/cost ratios would seem to be more problematic (electricity and rail services).

The authors conclude that the EU has finally become more determined to pursue the single market for network industries. The opening up of network markets has proven to be both complex and adventurous, and the authors show that the path of liberalisation is highly uneven among the different network markets discussed. The ample empirical evidence in this Study demonstrates the EU has come a long way along this path and that, with sustained political, regulatory and anti-trust enforcement, investment, and entrepreneurial efforts, the single market for network industries can be perhaps achieved within a decade from now.

This Study is introduced with a Foreword by Jonathan Faull, Director General for Internal Market and Services at the European Commission.

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