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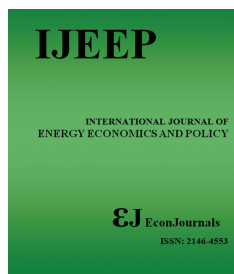
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The Evolution of Public-Private Partnerships in a Comparison between Europe and Italy: Some Perspectives for the Energy Sector[#]

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ABSTRACT

The recent global economic and financial crisis has generated new challenges for all public governments. In a number of countries, anti-crisis packages included innovative public actions, realized also in combination with private investments, like in the case of public-private partnership (PPP), which combines the resource of government agents with those of private agents in order to realize public-interest aims. In this study, we have conducted a general analysis on PPP models, in order to present some evidences from a comparison between European Union with 28 countries (EU-28) and Italy in the 2008-2016 period, with specific considerations on the energy sector. The various trends demonstrate a substantial evolution about global numbers and values of the PPP initiatives in EU-28 and Italy, and underline several constraints and challenges for successful PPP projects, even specifically for the energy sector.

Keywords: Public-Private Partnership, European Union-28 Italy Comparison, Energy.

JEL Classifications: G38, M21, Q48

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1. INTRODUCTION

Although there is not a unique definition of public-private partnerships (PPP), traditionally this type of investment describes a "... range of possible relationships among public and private entities in the context of infrastructure and other services" (Asian Development Bank, 2010. p7). For Skelcher (2005. p347), "... PPP combines the resource of government with those of private agents (business or not-for-profit bodies) in order to deliver social goals."

The PPP Knowledge Lab, most probably the most authoritative worldwide initiative for PPP governance and management

development, defines PPP as "... a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance" (pppknowledge.org). This concept:

- Concerns Private Public Partnerships working on both new and existing activities;
- Concerns PPPs in which users pay for the activity totally, and PPPs those in which a public agent contributes partially or totally;
- Concerns PPPs in many sectors, if a public interest for that specific activity would exist.

Historically, some degree of cooperation between the public sector and the private sector has always existed (Wettenhall, 2003), but in the last years "... academic interest in their use and effectiveness as economic development tools appears to have increased in the past decades" (Rossi and Civitillo, 2014. p141). Furthermore, the recent global economic and financial crisis has generated new challenges for all public governments, in advanced and emerging countries. In a number of states, anti-crisis packages included innovative public actions, realized also in combination with private investments (Burger et al., 2009). Thus, the constraints that have affected the public budgets of developed economies in recent years have shed increasing light on project financing initiatives (PFIs): This is true at global level, in the USA, in the European Union (EU), and even in Italy. More specifically, this is true also for a peculiar sector, "energy," in which combination of public and private interests is evident.

The study presents the following structure: Specific literature review on PPP models; research objectives and methodology (aims, value, and limitations); analysis of PPP evolution in comparison between EU-28 and Italy, with focus on the energy sector. The paper ends with discussion on research evidences, and their limitations and implications.

2. A LITERATURE REVIEW ON PPP MODELS

Starting from the deep meaning of the concept, Rosenau (1999), Brinkerhoff (2002), and Wettenhall (2003) remark on the proliferation of definitions of partnership. Coburn (1995) considered partnership as a synonym of cooperation. Savas (2000) views PPPs as a new way to handle infrastructure projects, such as building tunnels and renewing harbors. Muetzelfeldt (2001) emphasized the importance of mutual obligations and confidence that must have precedence, while Chalmers and Davis (2001) stressed the commercial nature of the relationship. In their opinion, "... contracting fragments program responsibility among multiple contractors, and separates policy agencies from service delivery contractors" (Chalmers and Davis, 2001. p74).

In addition, Van Ham and Koppenjan (2001) focalize their attention on cooperation. In fact, they define PPPs as "... cooperation of some sort of durability between public and private actors in which they jointly develop products and services and share risks, costs, and resources which are connected with these products" (Van Ham and Koppenjan, 2001. p598).

Even from an institutional point of view, a unique definition does not exist. For example, the European Commission has not provided a formal definition of PPP. However, in EU-28 vocabulary this concept generally refers to "... forms of cooperation between public authorities and the world of business which aim to ensure the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service" (Commission of the European Community, 2004. p3).

The huge number of PPPs definitions show the complexity of this phenomenon. Thus, it seems reasonable to agree with Hodge and

Greve's point of view: "... We might observe that the reasons behind PFI-type PPPs have changed over time and are – like the rationale behind outsourcing policy decisions – somewhat slippery" (Hodge and Greve, 2007. p548).

Nowadays, PPPs show an extensive variety of forms that are different in the extent of involvement and risk taken by the private party (Figure 1). The explanations of the most important models of PPPs are object of detailed presentation below.

"Management Contracts" is a category that represents a wide range of contracts – from technical assistance through to full-blown operation and maintenance agreements – and so it is difficult to generalize. The main common examples provides the conferring authority engaging the contractor to manage a range of activities for a short time period, generally from 2 to 5 years. Management contracts tend to be commission specific and input rather than output focused. In this PPP category the public sector is the investor, and risk, obligation, and duration are defined to public administration.

"Turnkey" is a category that represents a traditional public sector procurement model for infrastructure facilities (<https://www.unescap.org>). A private contractor is selected through a bidding process. The private contractor designs and builds a facility for a fixed fee, rate or total cost. The contractor assumes risks involved in design and construction phases (Figure 2). In this case, the involvement of the private sector concerns the investment, but it is generally low and for a short-term.

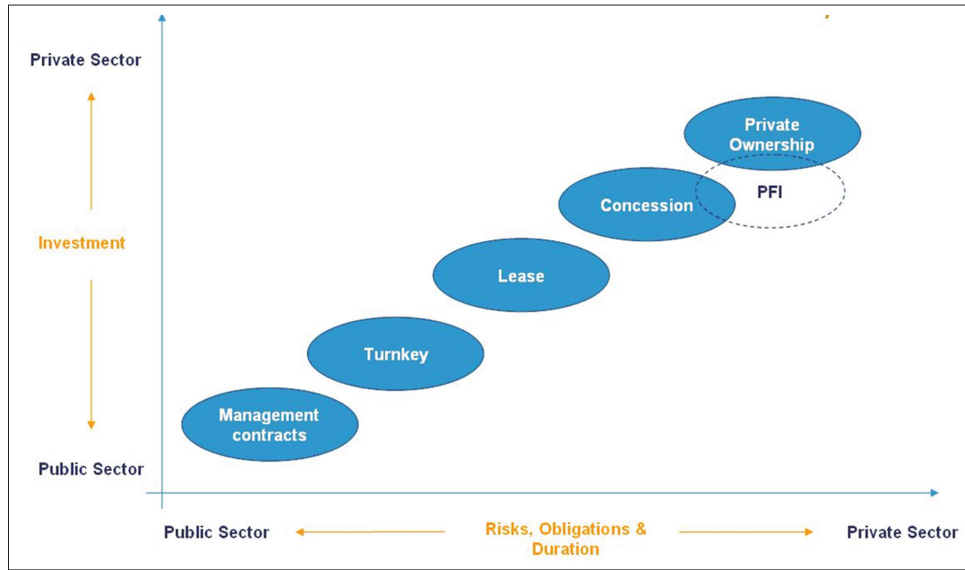
"Lease" is a category that represents "... public-private sector arrangements under which the private operator is responsible for operating and maintaining the utility but not for financing the investment" (World Bank Group, 2018). In this contract, there is a balance between public and private parts in terms of involvement and risks. The key elements of leases are (World Bank Group, 2018):

- Medium length (between 8 and 15 years);
- Assemblage risk passed to operator in lease;
- Cost of maintenance and some replacement passed to operator (operator takes some degree of asset risk in terms of the performance of the assets);
- Review process every 4 or 5 years to review performance, costs, tariff levels, and so forth.

"Concession" is a category that represents a particular form of contractual PPP, in which there is a direct link between the Private Partner (PP) and the final user: The PP offers a service to the public "in place of," and under the control of, a public administration. The PP assumes the responsibility linked to the construction, operation, and maintenance of the infrastructure, requiring users' payment for the service. Some of the best-known models concern the development of urban infrastructure facilities. The main concession model characteristics are:

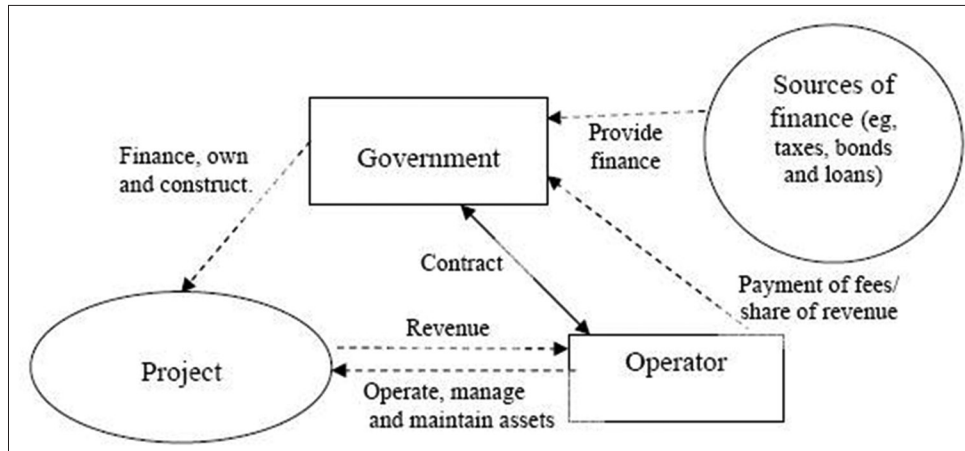
- Long contractual period (25-30 years);
- The concessionaire takes risk for the condition of the assets and for investment;
- General public is usually the customer and main source of revenue for the concessionaire.

Figure 1: Public-private partnerships models



Source: United Nations Economic and Social Commission for Asia and the Pacific (unescap.org)

Figure 2: Turnkey contract: An example



Source: United Nations Economic and Social Commission for Asia and the Pacific (unescap.org)

In a PPP of a purely contractual nature, the partnership between the public and the private sector is based solely on contractual links, whereas in a PPP of an institutional nature there is cooperation between the public and the private sectors within a distinct entity. Both arrangements involve delegated management of the traditional public sector activities to the private sector. In the first type of PPP, the “contractual” one, rights and obligations are regulated by an administrative contract or series of contracts. In the second type of PPP, the “institutional” one, rights and obligations are regulated by the company’s statutes and by the shareholder agreement between public and private parties. Most evidently, there is contractual regulation in both situations, and there are different kinds of arrangements that depend on the characteristics of the contractual relationship, most of all when “purely” contractual.

A variant of the contractual PPP relates to infrastructure systems mainly, where it is necessary to transfer funds from the government to assure the economic-financial balance (Merna and Njiru, 2002).

This model, known as private finance initiative (PFI), concerns most of all sectors like health (hospitals) or education (schools), where there is a periodical payment to the PP for making that infrastructure available. In truth, this variant has been extended to many other sectors (in particular transportation). More specifically, PFI is a long-term arrangement whereby a government department acquires from the private sector (through competitive bidding) construction services for public infrastructure (e.g. a road), together with post-construction maintenance and services, under a single contract in return for unitary payments linked to the performance under contract.

3. SOME CONSIDERATIONS ON PPP GOVERNANCE AND MANAGEMENT

After analyzing the different model of PPP, and before getting into details as concerns the specific research, it is to remember that, in general, PPP operations are complex, above all when affecting infrastructures. This complexity requires the development of

specific assessment, technical, and planning skills (engineering, architectural, and plant), together with managerial skills (organization, operation, and administration).

In the World Bank Group's opinion, "... The evidence shows that there is a positive and significant impact of private sector participation in access, quality of services, labour productivity, and reduction in technical losses. The magnitude of the impact varies by sector and size of the project and with the context, especially as it relates to the institutional and regulatory environment" (World Bank Group, 2016. p11).

Furthermore, the recent economic and financial crisis onwards brought about renewed interest in PPP. Facing limitations on public resources and fiscal space, while recognizing the importance of investment in infrastructure, governments are increasingly turning to the private sector as an alternative additional source of funding.

Moreover, it is to remember that PPP is not appropriate for all projects. In fact, the main threats for a successful partnership are (Thomson Reuters, 2013):

- Transaction costs;
- Loss of operational control;
- Loss of an ongoing revenue source, and
- Higher user fees.

Practical experiences have demonstrated that the costs of negotiating the PPP documents are significant. However, these costs can be managed by standardizing PPP procedures. Furthermore, in many Public-Private projects, public administrations delegate significant control over the project to the private sector.

PPP contracts typically give the public agent extensive monitoring rights, making the loss of an ongoing revenue source a limited problem. In fact, the public agent often sacrifices the right to receive revenues on an ongoing basis from the public use of the project. However, the government might receive a sum payment when the contract entered into a share in the project's ongoing revenues. In any event, lost revenues link also the circumstance that the public agent often declines the expense of operating and maintaining the project.

The real problem for citizens is the user fee: In asset monetization projects, the fees paid by the users may be higher than those they paid when the project was government managed. These costs are justified to the necessity – for the private sector – to retrieve the fee paid for the concession and make a profit.

The various PPP experiences have highlighted that not all these threats are effectively managed by public administrations and for this reason every Public-Private project requires a deep contextual analysis to balance costs and benefits in each partnership. More in general, an approach that would consider the PFIs also and above all from an entrepreneurial and managerial point of view (Festa et al., 2016), especially if considering a special purpose vehicle (Metallo and Festa, 2004), are indispensable for the correct governance and management of these projects.

4. RESEARCH OBJECTIVES AND METHODOLOGY

The research has been developed through a secondary data analysis on institutional databases (EPEC, 2018; CRESME, 2017), describing primarily the phenomenon of Private-Public Partnerships in a comparison between the EU-28 (EU with 28 countries) and Italy, with a further specific focus on the energy sector. Reasons for the choice of this general and particular research perimeter are the following:

- The EU-28 is one of the most developed areas of the world;
- The EU-28 has adopted in recent years, even though with some differences from one country to another, several rigid financial constraints (introduction of the euro currency, subscription of the fiscal compact program, and so forth), limiting public expenditures;
- In this respect, Italy is one of the most observed country, in the EU and in the world, due to its public debt (one of the highest in the world);
- Energy is one of the most relevant sector for developed economies, above all when strongly industrially based;
- Nonetheless, Italy is one of the most important countries in the world from an economic and most of all industrial point of view.

In responding to the following research question: "What are the main differences in the evolution of PPP initiatives between EU-28 and Italy in the 2008-2016 period?" (RQ1), the study presents findings from the evidence of secondary data. Methods consist in a descriptive, longitudinal and sectional, analysis to frame an overview of main dynamics and characteristics of PPPs in the above mentioned research perimeters (EU-28 and Italy, from 2008 to 2016).

In responding to the following research question: "What are the main business development trajectories for PPP initiatives in the energy sector in Italy emerging from the 2008-2016 period analysis?" (RQ2), the study presents preliminary findings from the derivative analysis of the previous results. In fact, the secondary research objective concerns understanding of some perspectives of the phenomenon in the energy sector, starting from the evidence of the prior comparison and shedding some light on possible business development trajectories. Thus, methods consist prevalently in multidimensional analysis, based on prior secondary data analyses and conducted through business intelligence tools.

5. ANALYSIS OF PPP DYNAMICS

5.1. An Analysis of the PPP Dynamics in the EU-28 During the 2008-2017 Period

As above-mentioned, the recent economic and financial crisis, started with the bankruptcy of Lehman Brothers in 2008, has encouraged governments to introduce appropriate policies. Some have increased the public support to national economies through quantitative easing programs (like the USA, Japan, and so forth); others, like the EU in particular, have not only introduced some QE initiatives, but also designed to reduce public spending (Heald

and Steel 2018). In this respect, PPPs can be a tool for contributing to solve such complex problems. In fact, in Europe, so far there have been >1,000 PPP-based (infrastructure) projects (Ahmad et al., 2018), with their capital value of approximately USD635 billion representing around half of total PPPs worldwide (Public Works Financing, 2011; Lammam et al., 2013).

However, the analysis of the EU-28 PPP market in 2017 presents some conflicting data (Figure 3). In fact, in 2017, the aggregate value of PPP transactions that reached financial close in the European market totaled EUR14.4 billion. In 2016, they were EUR11.8 billion, so there is a 22% increase. Differently, the number of PPP transactions reaching financial close fell to 42 (the lowest number of transactions since 1997), compared to 68 in 2016, with a 23.5% decrease.

Another important evidence concerns the average transaction size, which has increased: From EUR174 million in 2016 to EUR351 million in 2017, which has been characterized by 8 large transactions (i.e., EUR500 million or more in value) closed, compared to 6 in 2016. Quite interesting is also the analysis by countries (Figure 4), which shows that Turkey in 2017 was the largest Private-Public Partnership market in the EU-28, in terms of value. Evidently, Turkey is not yet a Member State of the EU-28, but as a Candidate State, it is normally object of consideration in many reports about the EU-28.

In 2017, the UK was the largest in terms of number of projects, with 12 deals closed. However, if we consider the 8 large transactions, Turkey includes 5 projects: Northern Marmara motorway (first section) with EUR1.8 billion, Istanbul Ikitelli health campus with EUR1.1 billion, Northern Marmara motorway (second section) with EUR 1.1 billion, Izmir Bayrakli integrated health campus with EUR717 million, and Gaziantep integrated health campus with EUR685 million. Italy was the second largest PPP EU-28 market in terms of value in 2017, with EUR3.1 billion. “However, this was mostly accounted for by one large transaction (the Pedemontana Veneta toll road), which accounted for around 90% of the Italian PPP market (EPEC, 2018. p2).” A further 5-years analysis

(2013-2017) highlighted that the UK and France led the EU-28 PPP market in terms of number of closed deals, while Turkey has been the largest PPP market in value terms (EUR22.5 billion).

Quite interesting is also the breakdown by sector (Figure 5). This analysis shows that the transport sector in 2017 was the largest in value terms with over EUR7.6 billion worth of transactions (EUR3.8 billion in 2016).

Healthcare was the second most active sector if considering aggregate values: EUR3.8 billion (EUR2.1 billion in 2016). Instead, the education sector was characterized for a decrease of the number of projects (from 27 to 10). In addition, the aggregate value decreased to EUR958 million (EUR1.6 billion in 2016).

5.2. An Analysis of the PPP Dynamics in Italy During the 2008-2016 Period

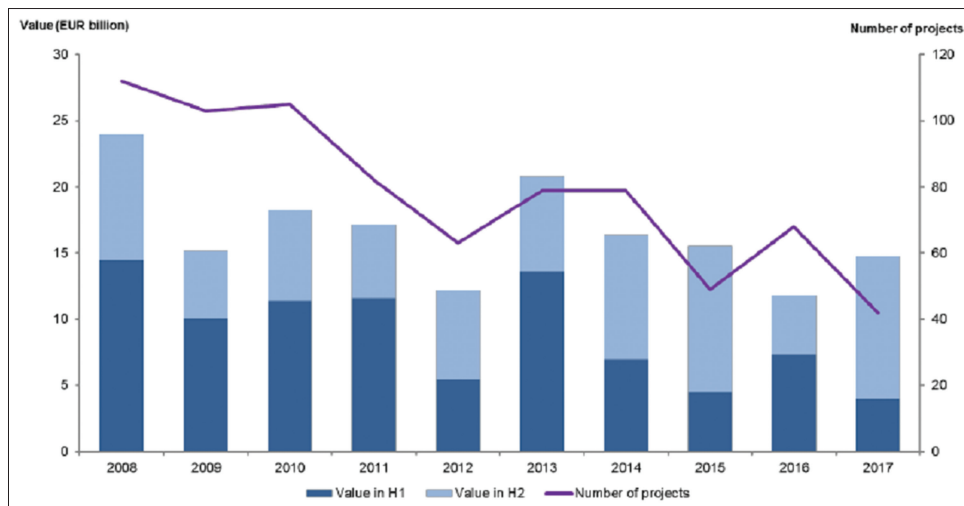
During 2002-2016, the Italian PPP market (CRESME, 2017) realized 28,735 tender procedures with a total market value of about EUR89 billion. The Italian PPP market has evolved (Figure 6) from 331 tenders for the amount of EUR1.4 billion in 2002 to 3,187 tenders for the amount of over EUR13 billion in 2016.

The history of the Italian PPP market can be structured in at least three essential stages (Figure 7):

- The start-up, from 2002 to 2007, with 723 initiatives; this is the first step for Italian PPP market characterized by a (local and central) government euphoria;
- The regulatory rethinking, from 2008 to 2011, with 2,231 initiatives; this stage presents a review for PPPs use;
- The financial settling, from 2012 to 2016, with over 3,000 initiatives; in this phase the Italian PPP market arrives at a new (mature) structure.

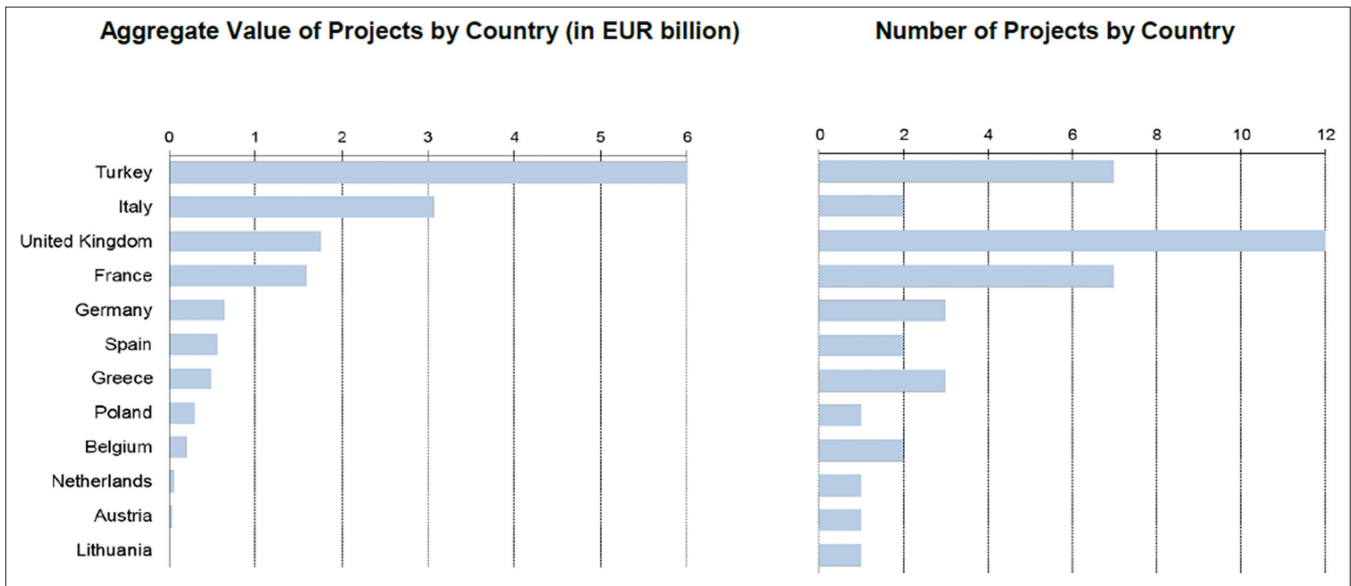
In the Italian context PPP has an important impact on public utility sector/markets/projects/services/activities (Figure 8). The trend – from 2002 to 2016 – seems robust: From 1% to about 19% if considering the number of the initiatives. If considering

Figure 3: The European Union-28 public-private partnership market by value and number of projects (2008-2017)



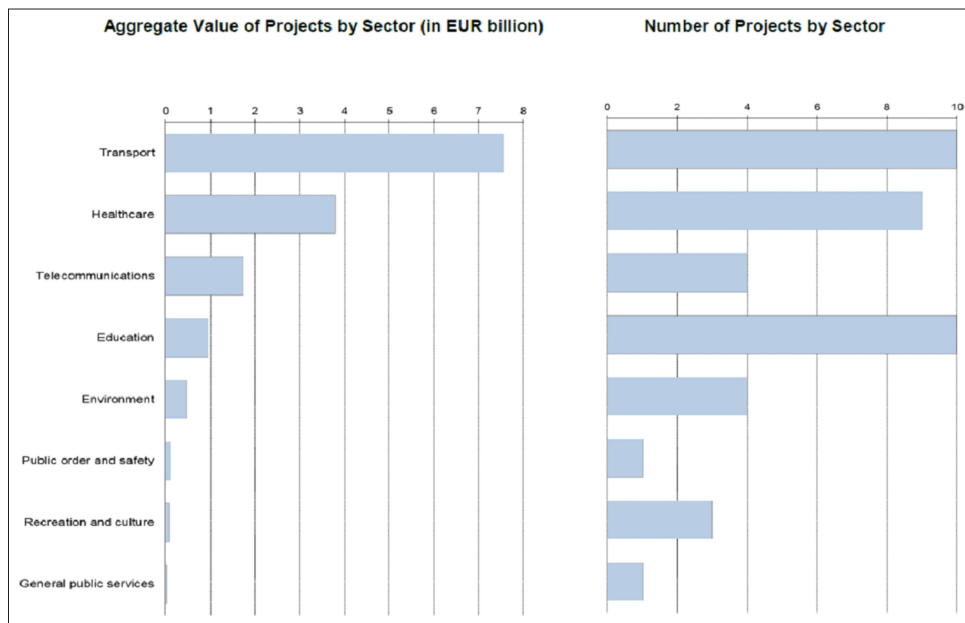
Source: EPEC (European PPP Expertise Centre, European Investment Bank), 2018

Figure 4: Country breakdown by value and number of public-private partnership projects in 2017



Source: EPEC (European PPP Expertise Centre, European Investment Bank), 2018

Figure 5: Sector breakdown by value and number of public-private partnership projects in 2017



Source: EPEC (European PPP Expertise Centre, European Investment Bank), 2018

the value of the projects, the impact of PPP has grown from 6% in 2002 to 53% in 2016 (the maximum level).

The analysis of Italian PPPs by sectors shows an ambivalent result (Figure 9). “Building and housing” and “Sport facilities” were the most active sectors in terms of projects number, but “Transport” and “Energy and communication” sectors were the largest as regards the aggregate value.

PFIs in Italy represent only the 6% of total initiatives, but they are the 35% of the PPP Italian market value (Figure 10). In Italy, between 2002 and 2016, 1,578 PPP contracts with Private Finance can be found, but the total market value is around

EUR31.6 billion. The initiatives increased from 67 procedures with EUR801 million in 2002 to 133 procedures with >EUR4 billion in 2016.

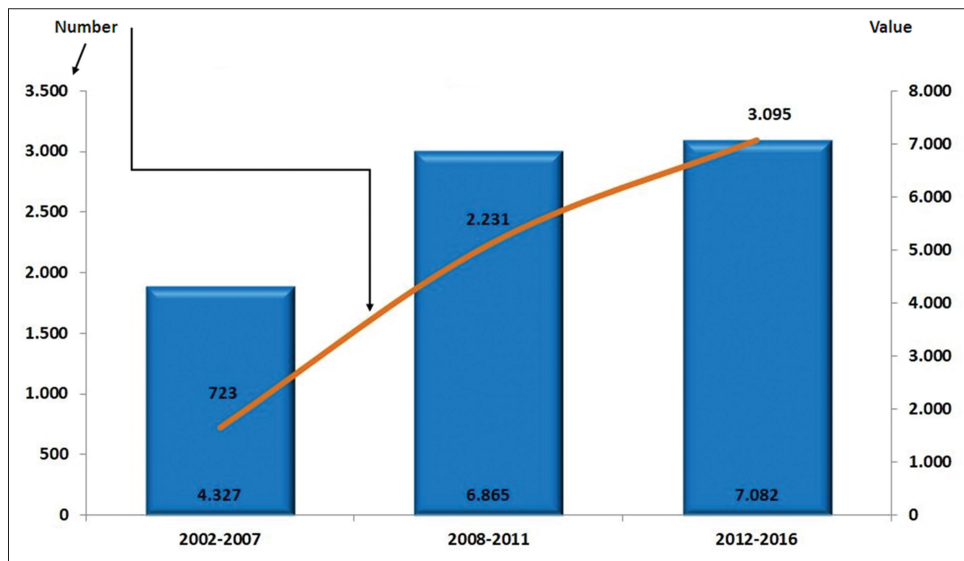
Thus, the PPP Italian market presents some interesting results. Number and value of Public-Private projects has increased during the last 5 years with respect to prior 5 years (Figure 7). They represent over 50% of Italian public works, but, as in other countries, PPPs in general (and PFIs in particular) require contextual analysis for detailed understanding. In fact, it is necessary to verify where and when these partnerships have the greatest impact, and how they can represent a consistent solution to support public governments in these post-crisis phases.

Figure 6: Public-private partnerships tenders in Italy (2002-2016). Values in EUR million



Source: Authors' elaboration from CRESME, 2017

Figure 7: The evolution of the Italian public-private partnership market. Values in EUR million



Source: Authors' elaboration from CRESME, 2017

Thus, in the comparison between the EU-28 and Italy as regards PPP initiatives, a clear difference has arisen. While in the EU-28 number of projects and their value decreases in the 2008-2016 period (Figure 3), in Italy numbers of projects and their value increases in the same period (Figure 7), although there is a strong contribution to this trend by years 2015 and 2016. Consequently, this is the main response arising from this study for RQ1 (“What are the main differences in the evolution of PPP initiatives between EU-28 and Italy in the 2008-2016 period?”).

5.3. Some Considerations on PPPs in the Italian Energy Sector

The prior results, in Italy, are true also and in particular, for the “Energy and Telecommunications” sector, which in the sole 2016 has registered a decrease as concerns number of PPPs (Figure 11), and increase as concerns value of PPPs (Figure 12).

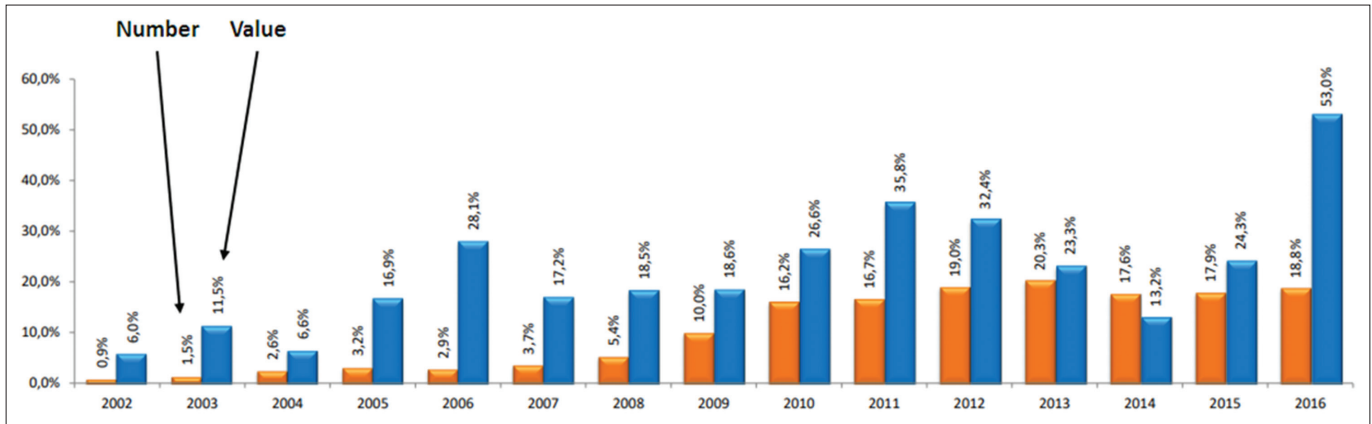
The only limit of this evidence concerns the combination of energy and telecommunications in the same category. Thus, from

the databases under current investigation, it is quite impossible to understand exactly the real contribution of PPPs to the sole energy sector. However, it is quite likely that the main contribution to the “Energy and telecommunications” category comes right from the energy sector. In fact, the CRESME report comments (p. 30) that the total amount of over 4,000 initiatives (4,050) in the energy and telecommunications sector amounts to around EUR20 billion (19,890) and affects the following activities:

- Works and services for construction, maintenance, and management of plants and networks of production and distribution of gas and electrical/heat energy;
- Works and services for redevelopment, adaptation, and management of public lighting systems; and
- Works and services for the energy redevelopment of public buildings;

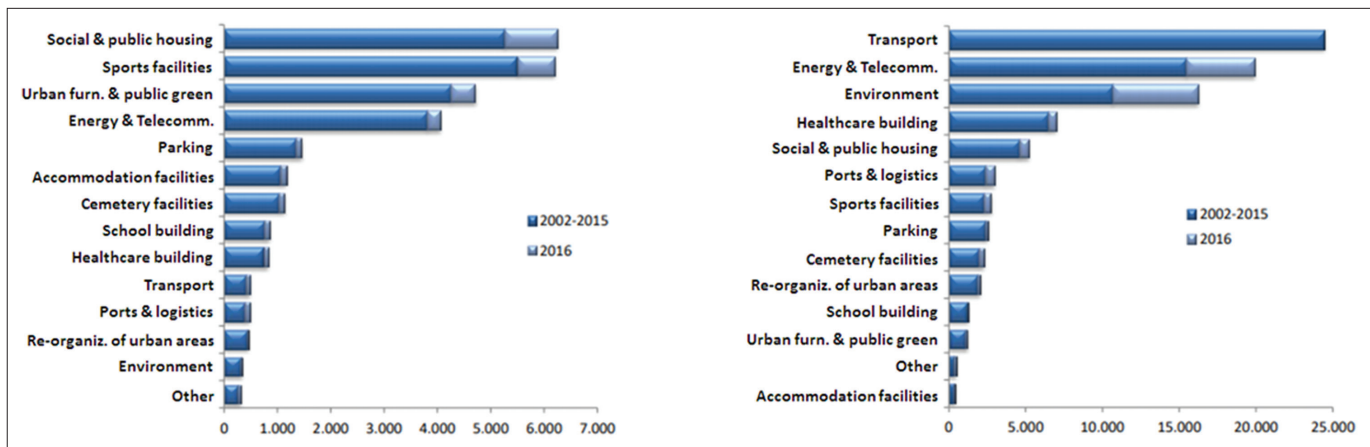
Without giving any other comment that could concern telecommunications. Thus, reasonably, the great part of these numbers/values should concern the energy sector in particular,

Figure 8: Italian public-private partnerships market: Percentages of public-private partnerships on public works



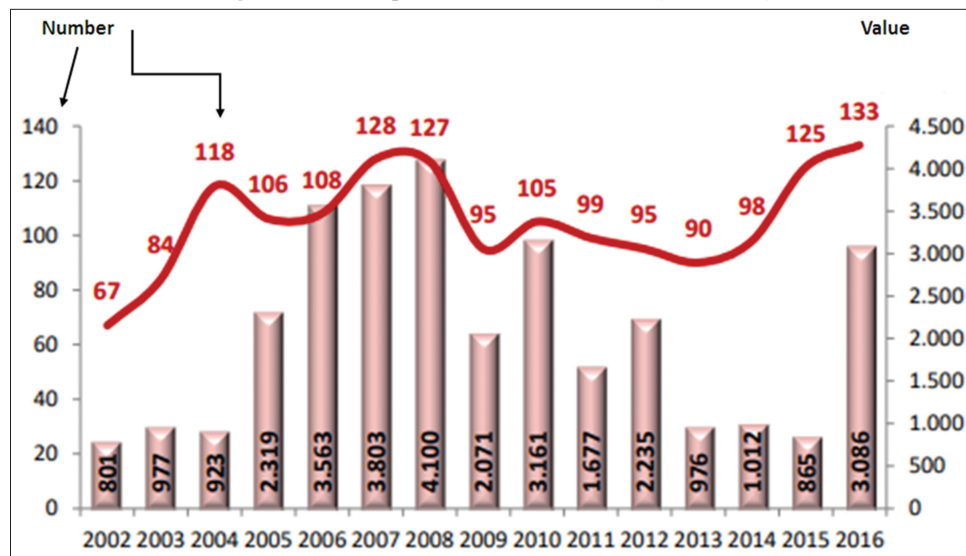
Source: Authors' elaboration from CRESME, 2017

Figure 9: Sector breakdown by value and number of public-private partnership projects in Italy (2002-2016). Values in EUR million



Source: Authors' elaboration from CRESME, 2017

Figure 10: Italian private financial initiatives (2002-2016)



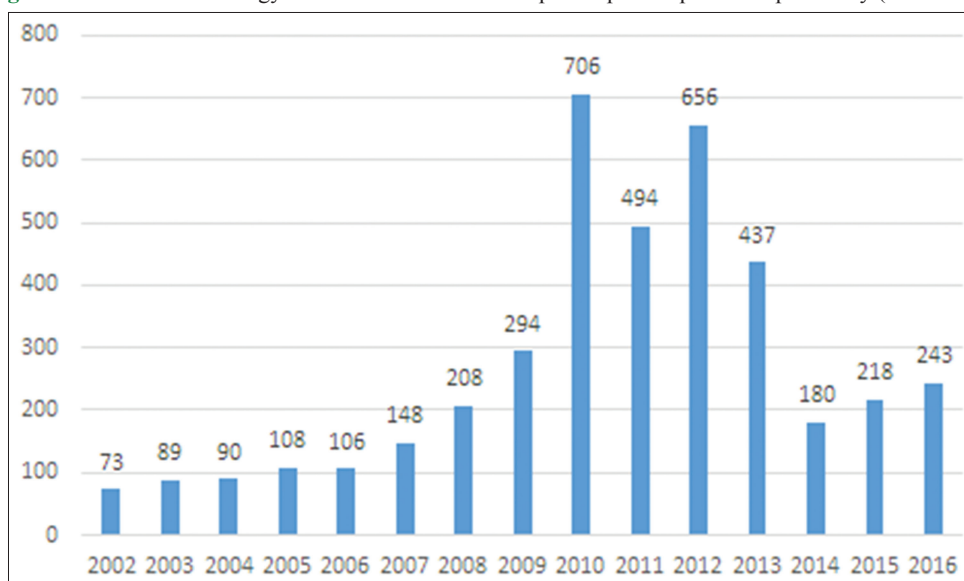
Source: Authors' elaboration from CRESME, 2017

which consequently seems under clear interest of PPP initiatives: With respect to the past, less as concerns number, although in 2015 and 2016 an upswing has arisen, and certainly more as concerns values.

More in general, specific areas of interest for PPPs in the energy sector are the following (European Commission, 2011; EECSP, 2017):

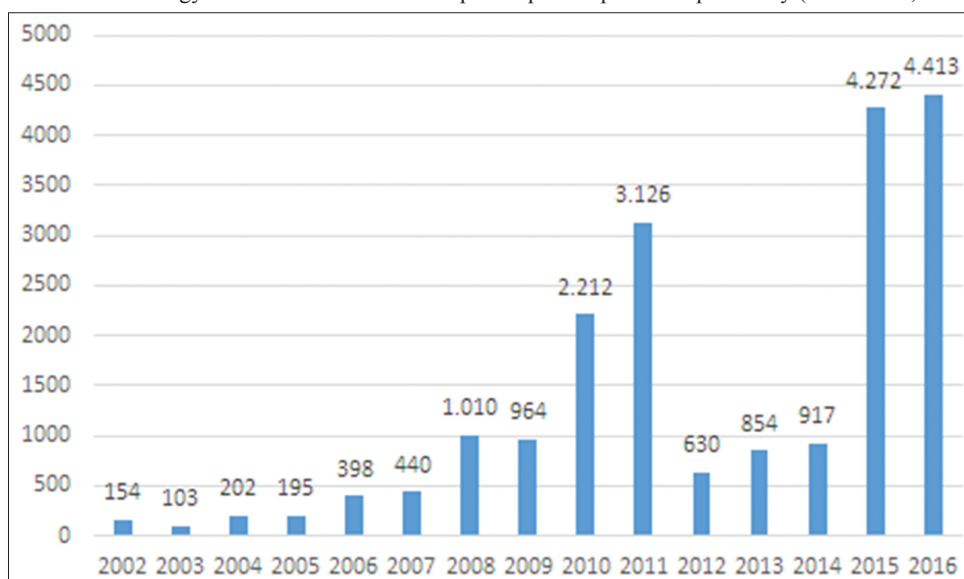
- Agro-energy
- Cyber-security

Figure 11: Number of “energy and telecommunications” public-private partnerships in Italy (2002-2016)



Source: Authors’ elaboration from CRESME, 2017

Figure 12: Value of “energy and telecommunications” public-private partnerships in Italy (2002-2016, EUR million)



Source: Authors’ elaboration from CRESME, 2017

- Energy performance
- Energy-efficient building
- Energy-efficient street lighting
- Green energy
- Renewable energy
- And obviously many others.

It seems almost clear that the most important opportunities can still reside in renewable projects, which moreover can sound useful for profitable and even for reputational objectives (Rokhmawati and Gunardi, 2017). In fact, Italy is one of the countries in the world that have invested most in renewable energy, and for example the second in the world after Germany as regards solar energy (Bhattacharya et al., 2016), and consequently, greater chances of designing and realizing PPP initiatives would likely concern this peculiar energy market.

At last, it is to remember that opportunities of PPPs in the energy sector concern also investments outside Europe for Italian based multinationals like Eni, Enel, and so forth. In this respect, interesting chances have arisen in the MENA region (Middle East North Africa), especially in Jordan and Morocco (Somma and Rubino, 2016). Consequently, these are the main responses arising from this study for RQ2 (“What are the main business development trajectories for PPP initiatives in the energy sector in Italy emerging from the 2008-2016 period analysis?”).

5.4. Research Limitation and Future Directions

The main limits of the current research are a consequence of its very nature, i.e., the fact that it is a descriptive research, based on the analysis of secondary data, with some limitations existing in the same databases under investigation. Thus, further descriptive research can be improved recovering more specific, detailed, and

target-oriented databases, especially with regard to the energy sector. Most probably, moreover, empirical research could be necessary to test the findings, to refine the contextual parameters involved, and to prescribe target-specific actions. In this respect, a survey about the sentiment of investors and managers involved in PPPs, particularly in the energy sector, should support even more the progress of the research.

5.5. Scientific and Managerial Implications

The research result seems to offer a valuable empirical basis for theoretical development and practical application. From a scientific point of view, the research confirms the use of PPP initiatives in developed countries in order to support current and future limitations in public expenditures. This is more evident in Italy with respect to EU-28, and this circumstance could be consequence and further proof of the not healthy condition of Italian public finances. Further investigations in this direction could allow better and detailed understanding (and prediction?) of probable evolutions.

From a managerial point of view, the Italian energy sector seems in the spotlight, most of all because a reduced number of initiatives (with respect to the past) is more than balanced by the huge increasing of the global value. In other words, PPP investors in the Italian energy sector are spending more capital, with much more focus than the past. More specifically, renewable energy, for which Italy is one of the largest investors in the world, seems a quite interesting target for PPP initiatives.

6. CONCLUSION

PPP remains undoubtedly an interesting form of investment, whose importance emerges clearly from the current research. However, some warning signals can be seen.

The most evident is the main result of the research: If considering PPP in general, in the 2008-2016 period number of projects and value of projects decrease in the EU-28, and increase in Italy, at least on 5 years based trends. In fact, if this evidence could seem positive for Italy as concerns the use of PPP, it could seem also not positive if considering the public finance conditions in Italy. In other words, these increases could be also consequences of the limitations of the public expenditures, because of the well-known constraints on public budgets, confirming some scientific literature in the field (Heald and Steel, 2018), and not only consequences of the good health conditions of PPP in general.

Instead, a surprising result emerges as concerns the secondary aim of the research, focusing on PPP in the Italian energy sector. Much more focus on value and not on number of projects seems a powerful circumstance, perhaps able to highlight an advantageous trend for PPP investors in this specific field in Italy (we say “perhaps” because only 2 years of upswing, 2015 and 2016, are not sufficient for establishing a trend). Most probable, the high public investment of recent years in renewable energy in Italy has assisted the global development of the energy sector, probably creating also a sentiment of entrepreneurial trust (Acaravci and Erdogan, 2017). Thus, clear interest for this business trajectory

is admissible, but with prudence, in order to take under control possible changes in public orientation to energy in general and renewable energy in particular.

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