UNIVERSITÀ DEGLI STUDI
DI MILANO

Should we nationalize energy? Thoughts from the Italian experience and a recent survey of SOEs

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Outline

I. Nationalization of the electricity sector in Italy

II. State-Owned Enterprises in recent years
   - Performance
   - Prices
   - Mission
   - Context conditions

III. SOEs in the electricity sector

IV. Lessons learned/Conclusions

I. Electricity nationalization in Italy

- Enel (Ente Nazionale per l’Energia Elettrica) was established in 1962 by nationalization of existing private entities
  - 392 private firms in 1963
- Nationalization determinants
  - Political
  - Economic

I. Political determinants

- Rails were nationalized at the begining of the 1900s
- Italy has a history of post-WW1 nationalizations through IRI (Istituto per la Ricostruzione Industriale)
- The electric sector remained private throughout Fascism and evolved in an oligopoly after WW2

I. Political determinants

- To contrast private market power and rationalize the provision of an essential service, left-wing forces promoted nationalization
- There was also an interplay with the center-wing party (Democrazia Cristiana)

→ The resulting nationalization in 1962 also had political underpinnings, unrelated to economic and sector-specific issues

I. Economic determinants

- The nationalization law had a set of economic objectives:
  - Set prices compatible with a balanced economic development;
  - Promote a harmonised and balanced electrification of the country as a whole;
  - Take advantage of economies of scale and scope.
- Power generation mix:
  - The new nationalized company moved away from hydroelectric to thermal power plants and aimed at nuclear.

I. ENEL: impact of nationalization

- Some implications and consequences:
  - Prices were unrelated to costs and remained stable until 1974;
  - Nationalization was financed through credit, weighing in on Enel’s balance sheet;
  - Compensation to private firms’ owners was financed directly by the newly established Enel;
  - The productive mix was further disrupted by the referendum prohibiting nuclear in 1987.

I. The issue of compensation

CAMERA DEI DEPUTATI N. 282

PROPOSTA DI LEGGE

d'iniziativa dei Deputati BIMA e DALL'ARMELLINA

Presentata il 26 luglio 1968

Norme per la determinazione degli indennizzi per i trasferimenti di aziende elettriche minori all'ENEL in applicazione dell'articolo 5, n. 4, della legge 6 dicembre 1962, n. 1643

ONOREVOLI COLLEGHI! — L'articolo 5 della legge 6 dicembre 1962, n. 1643 – istitutiva dell'Enel – stabilisce i criteri in base ai quali deve essere determinato l'indennizzo da corrispondere alle imprese espropriate.

A tal fine vengono distinte tre categorie di aziende:

a) società con azioni quotate in borsa;

b) imprese tenute alla formazione del bilancio ai sensi della legge 4 marzo 1958, n. 191, e cioè società per azioni, società a responsabilità limitata, società in accomandita per azioni e società cooperative non comprese nella categoria precedente;

c) altre imprese (società di fatto, società in accomandita semplice, ditte individuali, ecc. ...).

L'appartenenza all'una o all'altra delle tre categorie comporta un criterio di determina-

di circa 1.31 ». La semplicistica correzione dei dati di bilancio mediante l'applicazione del coefficiente di maggiorazione fisso determina indubbiamente differenti criteri e varie sfasature che portano a danni gravissimi ed irrimediabili per le seguenti ragioni:

1) la dizione « capitale netto » esistente nella legge e quella di « incremento di riserve » cui fa espresso richiamo la legge istitutiva dell'Enel, non trovano chiara definizione né nei codici, né nella legge 4 marzo 1950 né in altre leggi, né trovano pacifica accettazione nella terminologia economica e finanziaria. Pertanto non si comprende bene quali siano le voci che debbano contribuire a formarli e quali invece ne debbano essere esclusi; ciò implica oltre a una grande incertezza anche una possibilità di abusi.

Il bilancio, peraltro, avrebbe potuto esal-

I. ENEL: impact of nationalization

- This mix of economic and political determinants, along with exogenous shocks, had some relevant consequences in the years following nationalization:
  - Uniform diffusion of large power plants on the Italian territory
  - Unified acquisition of production inputs and rationalization of reserves
  - Centralized coordination of transmission and distribution
  - Tariffs unrelated to the company’s fundamentals
  - Tariffs unrelated to inflationary forces
  - Low investments due to overindebtness
  - Sociopolitcal influences in the governance and prevalence of social mission not considernig profit maximization

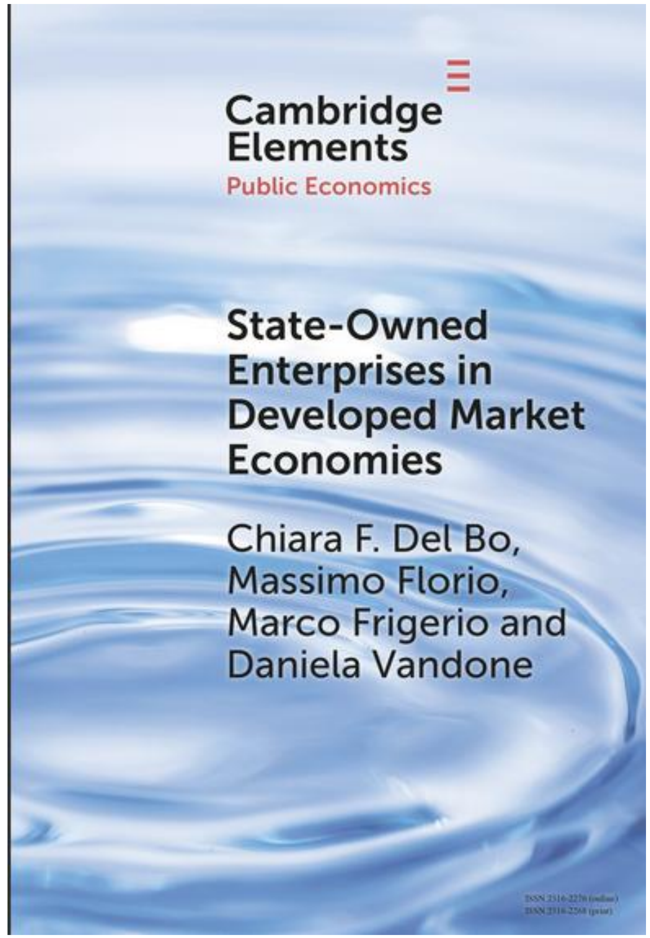
I. Lessons learned

- The discussion of the case of Italian nationalization suggests that:
  - Ownership per se is not enough to understand the performance of the firms in the electricity sector;
  - Both political and economic factors have driven this case of nationalization (and cases of privatizations);
  - Context conditions, both within the country and sector as well as exogenous shocks had significant impact.

II. What can we learn from academic research?

- Moving on from a single case to a broader picture, what do economic theory and empirical analysis on the relationship between firm ownership and economic dimensions tell us?
- By proposing a theoretical welfare economics framework and a review of recent empirical literature, my coauthors and I have tried to provide an initial answer.

II. State-Owned Enterprises in recent years



II. The relevance of SOEs

Figures indicate that SOEs have significantly expanded in size, revenue, and influence, especially post-2008

- SOEs account for roughly 11% of the global market capitalization of listed companies, which equates to about $10.6 trillion as of 2022.
- Between 2000 and 2023, the number of SOEs among the largest 500 enterprises by revenue worldwide increased from 34 to 126.
- These SOEs had USD 53.5 trillion in assets and over USD 12 trillion in revenue in 2023.
- That same year, 12% of global market capitalisation was in companies with more than 25% of public sector ownership.

II. Research questions and analysis

What are the arguments for the existence and explanations for the performance of contemporary SOEs in <u>developed market economies</u>

- **Theory** - What should be the role of SOEs based on theoretical models? How do different perspectives (normative vs. positive) influence the study of SOEs? What is the role of SOEs in broad policy agendas? What are the tensions or complementarities between SOE policy agendas and international expansion? Do SOEs enhance social welfare? What role do they play in innovation policy? How do SOEs contribute to the long-term sustainability of the welfare state?

II. Research questions and analysis

- **Performance (under the umbrella of welfare analysis)** - What are the arguments for and explanations of the performance of contemporary SOEs? How do SOEs compare with private firms in terms of productivity, profitability, and innovation? How does ownership structure impact SOE performance?

II. Research questions and analysis

- **Governance** - What is the relationship between institutional quality, corporate governance, and social accountability in SOEs? What are the governance challenges facing SOEs? What are the best practices for managing SOEs to ensure efficiency and mission fulfillment? How does public perception influence SOE accountability and governance? What mechanisms allow public involvement in SOE oversight?

250 contributions are considered here, out of a literature comprising several thousand sources (e.g., about 7,000 results for'state-owned enterprises', 12,000 for'public enterprises' in the database IDEAS/REPEC)

II. Main findings

- Historically, nationalizations have occurred due to
  - Insufficient private investment (network industries);
  - To rescue financially fragile and bankrupt, but otherwise essential, firms;
  - Military reasons;
  - Political and ideological reasons (social cohesion, national prestige…).
- SOEs have always been creatures of historical circumstance, usually coupled with ideological drivers

II. What is an SOE?

- An organization where all (or a controlling part) of the related ownership rights can be effectively claimed by a government (or a public sector) entity on behalf of all citizens, to do something that a private organization would not do or would do differently.
- In a second-best environment, a benevolent, fully informed government aims to maximize social welfare but cannot apply optimal personalized lump-sum taxes. It controls the economy through prices, distortive taxes, quantity constraints on private production and consumption, and property rights laws. Some goods, unprofitable at market prices, may be socially desirable, warranting public production (public mission)

II. What is an SOE?

- Definition:
  - an organization with managerial autonomy, own budget, a public mission ultimately controlled by one or jointly more than one government, which could, in principle, be privatized

II. A welfare theory of SOEs

- Government decisions and SOE plans should use shadow prices (marginal social value of goods) for inputs and outputs.
- Establishing an SOE is worthwhile if social benefits exceed social costs at shadow prices compared to alternatives.
- Unlike socialist planning, the government uses signals like taxes and production plans in a mixed economy. A policy links changes in public sector production plans to signals
- An SOE without a valuable public production plan and supporting right policy is meaningless in social welfare terms.
- A benevolent and fully informed government needs a supporting policy for an SOE to be necessary but not sufficient.

II. A welfare theory of SOEs

- Del Bo and Florio (2012) suggest these conditions for SOEs:
  - private enterprises are free to exit unprofitable markets;
  - the government is benevolent, fully informed, and able to select optimal policies, but cannot use lump-sum taxes or optimal quantity constraints on all goods;
  - public projects pass a social cost–benefit test at shadow prices;
  - public procurement or subsidies to private enterprises are costlier than establishing an SOE
- These conditions justify SOEs as public sector production units filling OEs are needed when public provision is more efficient than subsidizing private firms
- Government corruption can distort the incentives to both nationalize and privatize

II. Is ownership what really matters?

- SOEs increasingly operate in mixed markets, alongside private firms (mixed oligopoly)
- Ownership is not a dichotomous variable
- Performance and productivity measures rely on accounting, not physical measures, and market prices: likely biased results
- Context conditions matter (institutional quality, political factors, regulation, market structure…)

II. Findings for the electricity sector

- Public ownership and performance
  - Sector issues matter: SOEs in distribution fare better than POEs, not so in generation (Kwoka, 2005)
  - Institutional quality matters: SOEs in good institutional settings are more productive than POEs (Dal Bo and Rossi, 2007; Borghi et al., 2016)
  - Political environment: significant effect on performance of investment in US state-level utilities (Adua and Clark, 2021)

II. Findings for the electricity sector

- Public ownership and innovation:
  - R&D intensity and results (patents) may differ according to ownership
- Environmental performance is higher in the European generation sector when firms are SOEs , possibly because of a public mission (Clò et al., 2017)

II. Findings for the electricity sector

- Prices: ownership matters.
  - SOEs in Western Europe have charged lower residential electricty prices (Fiorio and Florio, 2013)
  - SOEs in Europe have charged lower industrial prices (Del Rio et al., 2019)

To sum up

- Some of the differences in performance, productivity, and other measures of firm-level activity that have been reported in previous studies between private and public enterprises might, at least in part, be due to the impact of external contextual conditions, most notably related to institutional quality and political factors.
- When taking these aspects into account, the effect of ownership per se is weaker and, if present, is better understood in relation to the external institutional factors.

To sum up

- The dichotomy between public and private ownership in terms of impact on economic dimensions is probably not so relevant
- Context conditions, including historical, political and institutional settings matter
  - This can be seen adopting both a historical storytelling and by considering the academic literature
- Objectives and public missions should be clarified, along with available resources andexistingg constraints and this should guide the discussion

Open issues

- The role of SOEs in emerging sectors
  - AI and digital infrastructure, space exploration and defense, green technologies
- The impact of SOEs on economic stability
  - economic crises, financial downturn
- Methodological advances in SOE performance analysis
  - nonlinear econometric models, diff-in-diff methodologies, machine learning techniques
- The role in knowledge production and investment in R&D
  - the effectiveness of SOEs in fostering long-term knowledge creation
- Citizen awareness, engagement, and influence over SOEs
  - Public Perception and Accountability

Main references

- Del Bo CF, Florio M, Frigerio M, Vandone D. *State-Owned Enterprises in Developed Market Economies: Theory and Empirics*. Cambridge University Press; 2025.
- Bufarale, L. (2014). Riccardo Lombardi e la nazionalizzazione dell'energia elettrica. Studi storici, 55(3), 645-670.
- Caponetto A. Note per una storia della nazionalizzazione dell’industria elettrica in Italia. *Le Carte e la Storia*, Fascicolo 2, dicembre 1999
- Zanetti G, Fraquelli G. *Una nazionalizzazione al buio*. Universale Paperbacks, il Mulino; 1979

Thank you!