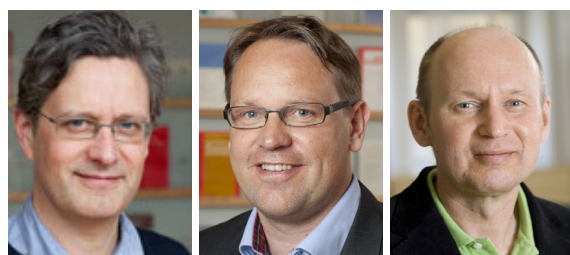


An important part of IFN's mission is to draw attention to Swedish policy-relevant issues from a broad economic perspective. We highlight mechanisms from the economic literature that are essential for the topic in question. To facilitate an eloquent policy discussion we also highlight relevant empirical ties, based on substantiated theory. This article on privatization in Sweden is an example of such work.

Professor Lars Persson, Deputy Director IFN

Effects of Privatisation on Competition and Efficiency

by Fredrik Heyman, Pehr-Johan Norbäck and Lars Persson



Fredrik Heyman Lars Persson Pehr-Johan Norbäck

In this report, the researchers show that privatisations in Sweden have had a positive effect on productivity development but a negative effect on product market competition. These increases in productivity often arise before the actual acquisition. This finding suggests that studies investigating the effects of privatisations at the point in time of the acquisition may underestimate the improvements in efficiency.

Private or public ownership of firms has been debated for a long time in Sweden. This issue was already being discussed at the time of Cabinet Minister Carl Bonde (1581-1652), an early advocate in the development of 17th century industry policy and the mining industry. In 1626, Bonde published a draft for an industry legislation which had become widely implemented by 1637. Bonde argued that the state had the overall responsibility in the development of the mining industry but that industrial plants should be privately owned. “The Crown [the Government] itself has never handled any mining operations efficiently,” Bonde claimed.¹ (“Kronan själv haver aldrig drivit bruk med nytta”)

In recent years, interest has increased in terms of economic effects of public ownership and privatisation. Developments in technology have allowed for naturally monopolistic markets to be opened up for competition. In particular, the advancements in information technology have enabled businesses to be vertically separated and for parts of industries to be opened up for competition. This has been the case with, for instance, distribution of electrical energy as well as track bound traffic.

During the past 20 years, Sweden has experienced a considerable increase in privatisation, primarily driven by the politi-

1) See Johnsson (2008).

cal preference to increasingly use the mechanism of the market to achieve societal goals. This development and this wish have primarily been based on the theory of increased competition leading to increased efficiency in the markets for goods and services. The main economic effects of such privatisations will be described below, as part of a report written on behalf of The Swedish Competition Authority (Konkurrensverket) (Heyman, Norbäck and Persson 2012).

2 The objective for privately and publicly owned firms

Typically the objectives differ between privately and publicly owned firms.²

2.1 Privately owned firms

According to the Swedish Companies Act of 2005, the objective for listed firms is to maximise the shareholder's payoff. On a general level, ownership of the firm guarantees the owner a "residual right" to cash flow and the right to decide how to manage the firm's resources.

The theoretical economic literature demonstrates that listed firms are largely correlated with economic efficiency as they have strong incentives to develop and produce highly sought-after goods and services in a cost-efficient way. The literature has, however, identified two fundamental economic concerns with listed firms. Firstly, as the main objective for private firms is to maximise profit, this may lead to an ignorance of the negative effects of price increases and strategic investments that consumers face. The prices are set too high in comparison to what is economically efficient in oligopoly markets. There is also a risk that these firms may monopolise the market. The theoretical economic literature has shown that competition policy can reduce the impact of these problems by counteracting cooperation between firms in oligopolistic markets. This may also reduce misuse of dominant positions as well as acquisitions driven by market power (Motta 2004 and Tirole 2005).

A second potential major issue identified in the literature is that owners of large firms hold the right to the cash flow, whilst the controlling power in the firm is delegated to the management. Management will therefore not necessarily act in the way that the owners desire. This matter has been investigated in numerous financial studies (for example, Jensen and Fama 2000). The assumption in this literature is that management partially acts in their own interest, for example by avoiding complicated staff changes or through pursuing esteemed non-profit investments. A series of control measures have been developed to manage this problem, such as pay per performance and various forms of monitoring.

2.2 Publicly owned firms

The role of publicly owned firms is to actively administer the assets of the people in order to maximise the long run value creation and, if appropriate, to ensure that specific societal targets are met. Publicly owned firms serve under the same laws as privately owned firms, with a few exceptions. For example, the Swedish Companies Act 2005 serves as the key framework for publicly owned firms. However, publicly owned firms can, in the same way as privately owned firms, operate under specific sectorial legislation, such as the Postal Law (1993:1684) and the Law (2003:389) for Electronic Communication.

Municipal firms and firms owned on a county council level serve under the Municipality Law (1991:900). According to this law, following a vote of the city council, municipalities and county councils have the right to hand over the provision of healthcare to corporations, partnerships, economic cooperatives, non-profit associations, foundations, or individuals. It is worth noting that a prime-production-cost principle in the Municipality Law stipulates that the revenue collected may not exceed the cost attributed to the service in question. It should be also noted however, that the prime-production-cost principle does not apply to municipal firms unless explicitly stated in the governance document. As follows, these firms can partly aim to make profit.

From an economic perspective, the objectives of publicly owned firms can be split into economic return and societal goals. The societal goals can, in turn, be divided into two components:

2) See Jordahl (2009) for a detailed overview of the economic privatization literature.



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- Distribution objectives, i.e. the objective to redistribute resources amongst various groups in society. For instance, the mission of a publicly owned telecom firm might include offering telecommunication to citizens in rural areas. The objectives of Systembolaget (the alcohol monopoly) might also incorporate redistribution objectives, as the objective is to safeguard those with potential abuse problems and those who are victims of such abuse.
- Correction of market failure. Publicly owned firms have the opportunity to take into account how different stakeholders might be affected by the firm's actions. Privately owned firms tend to make use of their market power in oligopolistic markets by setting consumer prices that are too high. Non profit-maximising publicly owned firms can increase welfare benefits by setting lower prices in these markets. In natural monopolies, the presence of economies of scale entails only one firm pursuing a profitable business. An example of this is distribution of water and electricity. Thus, a motive for public ownership of natural monopolies is to prevent overpricing. Education is an example of an activity that has positive spill over effects since learning results in benefits that exceed what is gained by the individual student, such as a reduction in crime. In other words, increased education benefits individual students as well as the society at large. Privately owned schools may find it difficult to benefit financially from these positive spill over effects and will therefore provide less education than what is socially desirable.

In the economic literature, two fundamental economic problems with publicly owned firms have been identified. Firstly, investments may be used by politicians in order to get re-elected, typically with the interests of the median voter or lobby groups in focus. These preferences and interests often differ to what is desirable from an economic perspective. For example, politicians may for tactical reasons employ a larger workforce than what is economically efficient or avoid laying off workers in order to maintain popularity (Shleifer and Vishny 1994; Boycko et al 1996). Furthermore, it is difficult and politically costly to let a firm go bankrupt even if the firm might be unprofitable in the long run (Kornai et al 2003). Accordingly, publicly owned firms have weaker incentives to be cost efficient than privately owned firms.

The second fundamental economic problem with publicly owned firms is the same as for listed firms, i.e. the conflict of interest between owners and management. However, the negative effects differ. For example, if the management expects the state to confiscate the revenue generated from a risky but successful investment, they will not pursue with the investment. Large and risky investments will therefore not be as common in publicly owned firms as in private ones (Laffont and Tirole 1993).

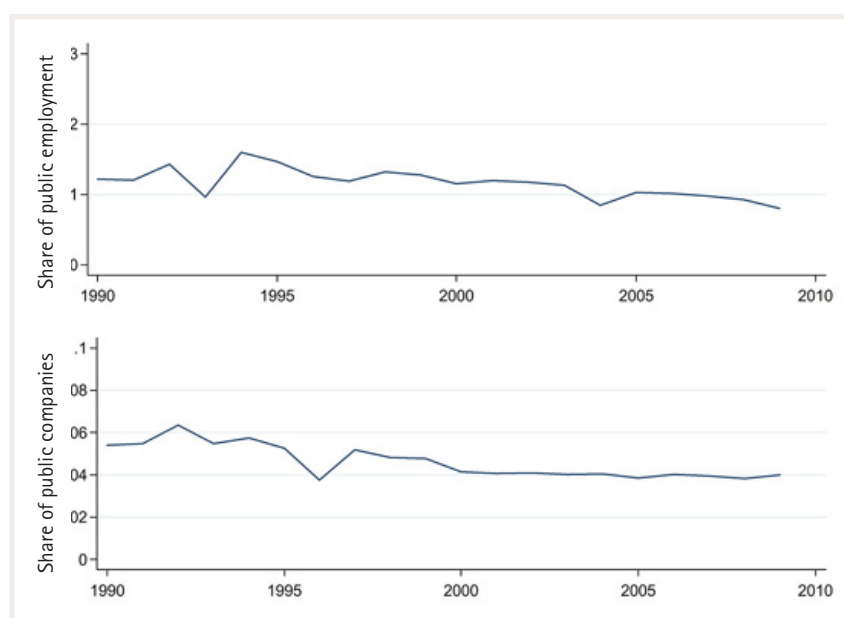


Figure 1: Share of total employment in public enterprises and the share of the total number of companies that are publicly owned.

2.3 The effects of privatisation in oligopoly markets

The theoretical literature on the effects of privatisation in oligopolistic markets establishes that privatisation results in increased productivity as privately owned firms have stronger incentives to minimise costs and to develop new products. At the same time, these studies show that consumer prices may increase as private firms have larger incentives to take advantage of their market power. De Freja (1991), Anderson et al. (1997), and Cremer et al. (1989) analyse oligopolistic markets where both private and public firms are operating and show that publicly owned firms can be used as an instrument to stimulate competition. This is due to the fact that low pricing by publicly owned firms can induce lower pricing by privately owned firms.

The literature also shows that the effects of privatisations arise ahead of the actual acquisition. Roland and Sekkat (2000) show that in the case of an anticipated privatisation, management will begin restructuring the firm before the acquisition in order to increase their own future employment opportunities. A similar mechanism is presented by Norbäck and Persson (2011), revealing that public owners have an incentive to restructure ahead of the privatisation in order to strategically enhance the intensity of the bidding competition for the firm. The effects of privatisation can therefore occur in advance, and that is why it is vital to also study developments in a firm before the actual privatisation is completed.

3 Public ownership and privatisations in Sweden 1990–2009

Economic theory observes a number of differences concerning public and private ownership, for example in distribution objectives. Economic theory has also shown that firms have incentives to change their behaviour before the actual transition into privatisation. So, how have privatisations in Sweden affected the privatised firms and market competition, and what is the difference between private and public ownership? To clarify and answer these questions we use an extensive and detailed database from Statistiska Centralbyrån (SCB; Statistics Sweden), which encompasses information of around 300 000 firms and 500 000 work places. In our analysis we use merged data for firms and work places during the time period of 1990–2009.

Several variables are used in identifying privatisations. Our primary variable indicates if the firm is privately-, municipality-, or state owned. This variable is used to compare privately and publicly owned firms. A privatisation is defined as change of ownership from municipality-owned or state-owned to privately-owned.

In order to fully understand the data a description of the development and extent of public ownership in Sweden is essential. Figure 1 shows the proportion of the total population working in public firms and the proportion of firms that are publicly owned. There is a slight negative trend in both the proportion of publicly owned firms and the proportion of

employees in such firms. This is particularly obvious after 1996 when all firms are included in the data from SCB.

What patterns can be identified in privatisations between 1990-2009? Based on firms with at least 20 employees we find substantial differences over time. We identify two waves of privatisations. The first wave begins at the start of the 1990's and ends shortly before the turn of the millennium. A second wave of privatisation appears to have occurred a few years later.

In which industries can the publicly owned firms be found? Table 1 shows the average proportion of employees in publicly owned firms and the number of privatisations from 1990 to 2009 separated into eleven different industry categories. The largest number of public employees is found within the sectors for "Electricity, gas, heat and water supply" and "Mineral extraction." These industries are characterised by distinct economies of scale and are in part natural monopolies where private ownership can result in substantial market power. Low levels of public employment are found in the sectors of "Manufacturing and "Real estate and leasing business, business services".

There is no apparent pattern amongst the different industries in terms of the number of privatisations; privatisations can be seen in industries with both low and high public ownership.

	Industry	Number of privatizations	Share of public sector workers in % of resp. industry
C	Mineral extraction	1	42
D	Manufacturing	53	5
E	Electricity, gas, heat and water supply	18	80
F	Building	19	8
G	Wholesale and retail: repair of vehicles and household appliances, household goods, etc	16	6
H	Hotel and restaurant business	5	8
I	Transport, storage and communications	33	58
K	Real estate and leasing business, business services	59	5
M	Education	2	25
N	Healthcare, social services, veterinary services	9	15
O	Other civil and personal services	10	33

Table 1: Number of privatizations and the share of public employees in various industries.

3.1 Public ownership, privatisations and competition

We find that public ownership tends to be common in capital-intensive and low export-intensive industries. As mentioned, this indicates that public ownership is prominent in industries with large profit as a result of low competition. Subsequently, the question that presents itself is how public ownership is correlated with the degree of competition in the product market.

Figure 2 shows x the average proportion of people employed in public firms on the vertical axis and the average proportion of competition on the horizontal axis. In order to assess the degree of competition, we use a new measurement derived from the research by Boone (2008). The measurement captures the sensitivity of a firm's profit to changes in marginal costs. The concept is that industry competition will be higher the more the marginal cost of producing an extra unit decreases the profit. Thus, the reason for the decrease in profit is not only increased total costs but also a decrease in sales when aggressive competitors take over parts of the firm's customers. In markets with less competition, the threat of expanding rivals is not the same, and the effects on profit will therefore not be as extensive.

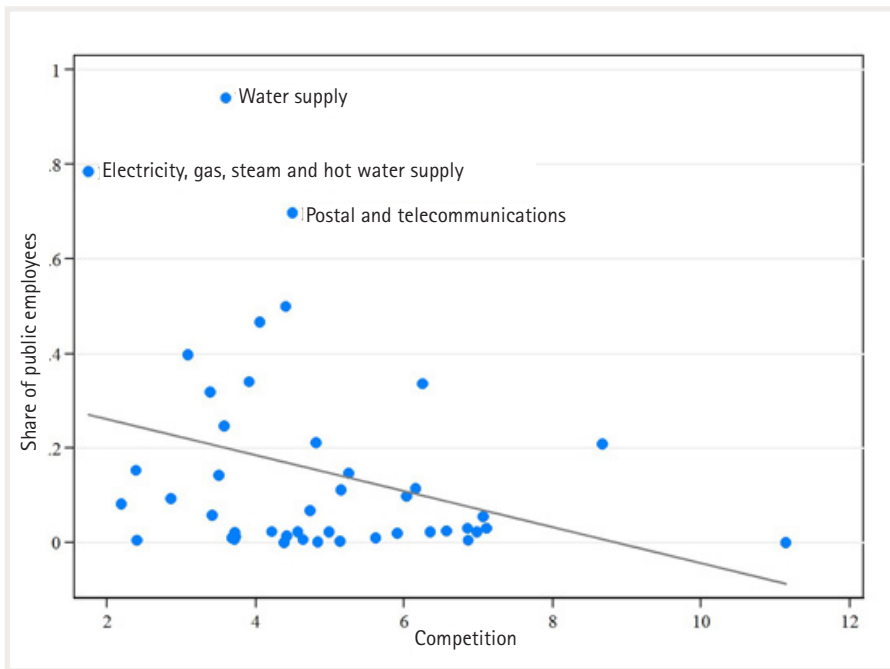


Figure 2: Share of public sector workers in different sectors and levels of competition. Average 1990-2009 for 44 industries. The figure also includes the estimated relationships.

As seen in Figure 2 we have found that a higher degree of competition in general is associated with a lower degree of public ownership.

Figure 3 shows industries where privatisations have been extensive. The total number of privatisations in an industry is indicated by the size of the circle (the larger the circle, the more privatisations, with x indicating no privatisations). It seems that privatisations often take place regardless of the degree of public ownership but have been more common in industries with relatively low competition.

3.2 Efficiency and competition in privatisations

So what happens when an average firm is privatised? In Figure 4 the process can be seen as of two years prior to the change of ownership ($t - 2$) until two years after the privatisation is completed ($t + 2$).

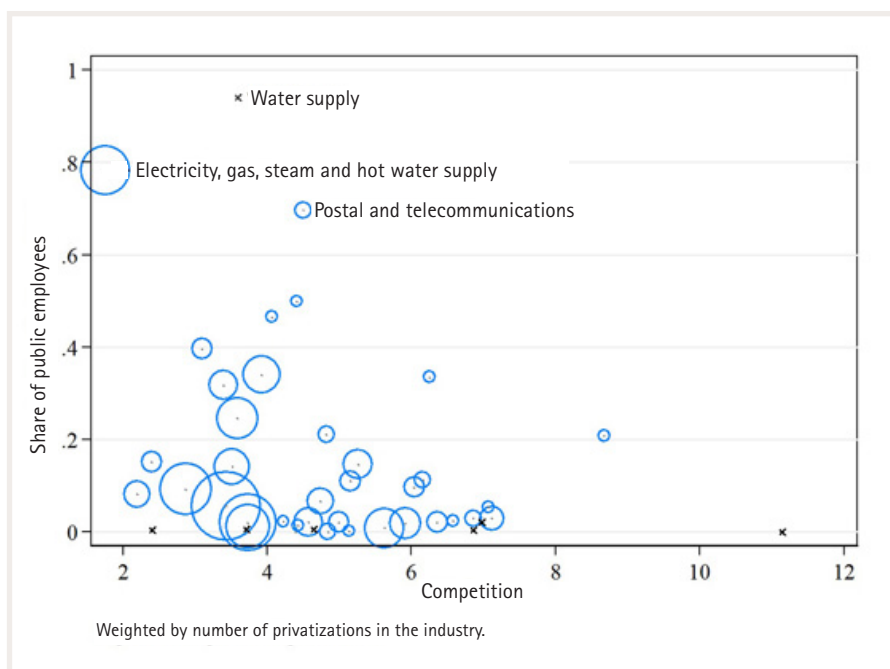


Figure 3: The average percentage of public sector employees by industry and competition 1990-2009. Number of privatizations in the sector indicated by the size of the circle. x = no privatisation.

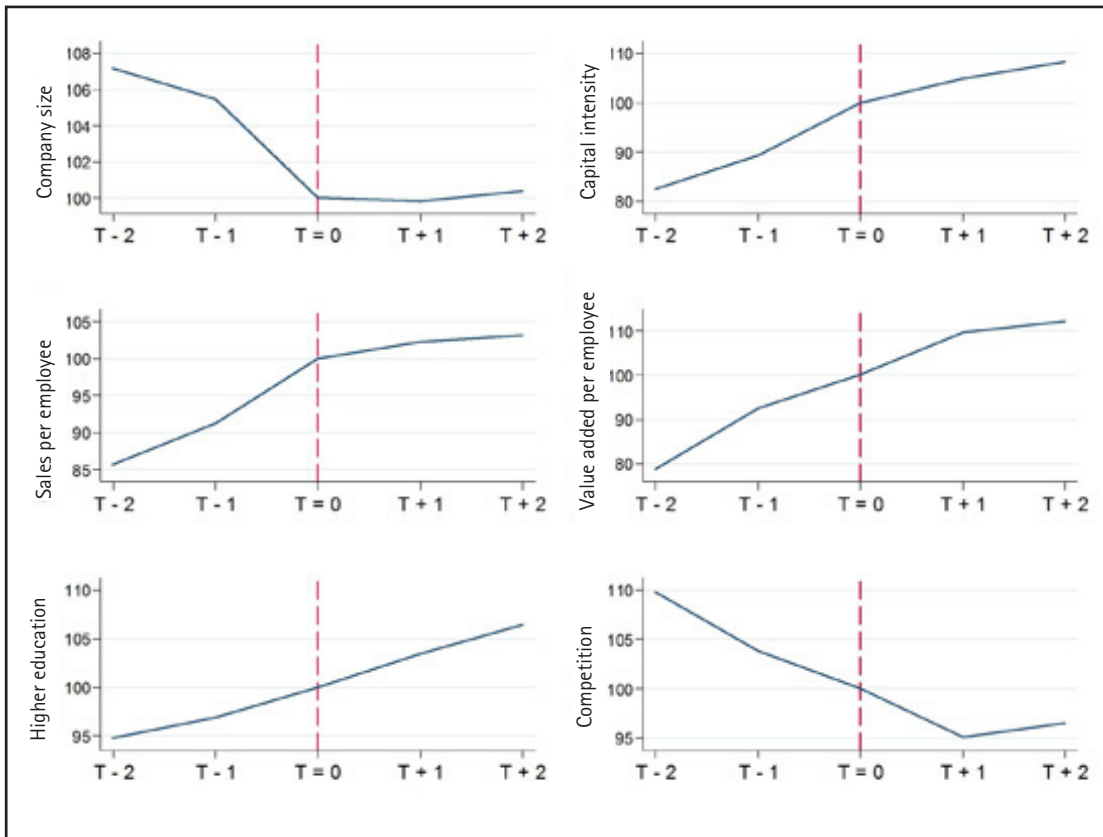


Figure 4: Average development in privatized enterprises. Windows $t-2$ to $t+2$.

Note: The numbers are based on companies present in the database each year over the period $t-2$ through $t+2$. In this way, by studying the same companies over the whole time period we take into account any important compositional changes.

Figure 4 shows that productivity increases after privatisation, which is in accordance with the theory that private owners are more inclined to maximise profit. As mentioned, research on privatisations states that it is more challenging for publicly owned firms to be cost effective, partly due to political restrictions that limit efficient restructuring.

Figure 4 also shows that an increase in productivity is noticeable before the actual time of the acquisition. This is in accordance with the theory that the owner of a firm in transition to privatisation has incentives to begin restructuring before the actual change of ownership. The literature on privatisations also shows that the objectives of privatised firms can already be subject to change before the acquisition, at the time when the decision of privatisation is made. At that time, management can be expected to pursue aggressive restructuring in order to increase the value of the firm.

Further noticeable results (see Figure 4) include a decrease in the number of employees in connection with the privatisation. The figure also shows, however, a recovery in the number only a few years later. Furthermore, the proportion of highly educated employees increases; the decrease mainly affects workers with a low education. This observation is in accordance with the theoretical literature on privatisations. A publicly owned firm has not conducted any effective restructuring due to political restrictions, but as soon as a first step in the privatisation process is taken, the objective is changed and the firm is restructured in order to increase its and the management's market value. Figure 4 also shows that competition tends to decrease after privatisation. This result is also in accordance with the theoretical literature showing that government presence in an industry can help to maintain competition.

3.3 Underlying relations

Furthermore, with the help of regression analysis we have investigated differences between publicly and privately owned firms from a more general perspective. The advantage of regression analysis is that we can control for the influence of factors which may generate average differences between publicly and privately owned firms or which may be of importance in privatisations. We have observed that publicly owned firms are common in industries where barriers to entry are high (firms have high development costs, natural monopolies, etc.). If we were to ignore this fact we would instead find that publicly owned firms are more productive than privately owned firms, since productivity tends to be higher in,

for example, industries where firms invest frequently in research and development. Instead, privately and publicly owned firms in the same industry should be compared.

Regression analysis shows that, in general, productivity is higher in privately owned firms than in publicly owned firms. Observing the events following a privatisation and observing the entire sample, we notice a significant increase in productivity. Even when comparing privatised to public firms, productivity increases after a privatisation. If we instead compare firms that at some point during the given time have been privatised, we find no such significant change in productivity.

The latter result is in accordance with the pattern apparent in Figure 4 where productivity already increases before the actual transition from public to private. This suggests a diminished difference in productivity before and after privatisation, which is consistent with theories stating that firms engage in productivity-enhancing measures before the time of privatisation in order to enhance the bidding competition for the firm.

Finally, we find that the number of employees is lower in privately owned firms than in publicly owned firms. Privatisations tend to reduce the number of employees, though there is no such effect when the sample is reduced only to privatised firms. This shows that firms that are to be sold tend to restructure already before the actual sale.

4 Conclusions

Our study of the theoretical economic literature on privatisations shows that the fundamental economic concern in regards to privatisation is the risk of privatised firms taking advantage of their market power and raising prices. Our study indicates that cost and product development is more efficient in privatised firms, as public owners have weaker incentives to cost minimise and to go through with investments that increase productivity, as these might disfavour politically influential groups.

These predictions are in accordance with our empirical analysis, which shows that privatisations have (i) negative effects on product market competition and (ii) positive effect on productivity development. The empirical analysis also shows that improvements in productivity to a large extent occur before the privatisation process has been completed. Studies examining the effects of privatisations at the time of acquisition may therefore have underestimated the increases in efficiency due to privatisation. Our conclusion is that the Competition Act should be implemented actively in privatised industries in order to limit the negative effects of privatisation. This is particularly important as publicly owned firms are present in industries with low competition.

Finally, we would like to call attention to the fact that our empirical analysis does not involve privatisations within healthcare, education, and welfare. The theory used in this paper is less appropriate for these industries since it is mainly relevant for industries where customers are well informed and rational. Since consumers of healthcare, education, and welfare might be uninformed, sick, or minors, they may have difficulties in making rational choices. This is, however, not specific to our study but reflects a general problem. Empirical analysis in regards to different forms of ownership, productivity, and welfare in healthcare, education and social services is lacking. There is a need for development of theory in order to better understand how the Competition Act must be designed in order to suit the specific conditions within the service sector.

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