

Ownership conversions and earnings of care workers in the nursing home sector.

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Paper/extended abstract prepared for IZA/University of Duisburg-Essen

Workshop: The Economics of Long-Term Care and Healthy Aging

Preliminary and incomplete

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May 3, 2020

1 Introduction

How to best fund and provide long-term care (LTC) services is a policy issue that receives increasing attention from policy makers and scholars. The major reason is that many chronic conditions are associated with old age and the world's population is aging. Many countries are experimenting with market based reforms to increase quality and contain costs of public LTC services. An example of such a reform is to contract out the provision of publicly funded LTC services. The goal is that the competition to attract patients among public and private providers will lead to better quality and lower costs of LTC services. There is a strong theoretical literature supporting this notion, see for example Hart et al. (1997) and Shleifer (1998). This literature shows that private providers being the residual claimant of profits have strong incentives to conduct cost and quality innovations. A caveat is that innovations to cut costs can have a deteriorating effect on quality of input and outputs. This is especially troublesome in markets with excess

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demand, which often is the case in public LTC markets, where incentives to improve quality in order to attract patients are weak. In such cases, unintended consequences of private provision could become prevalent, such as deteriorating effects on wages, other employee benefits, and staffing levels and quality. The purpose of this paper is to explore unintended labor market effects of contracting out services that are publicly financed. In this draft, I consider effects on earnings.

There is very little quantitative research from Northern European countries evaluating the effects of contracting out public welfare services on wages and other employee benefits (Gautun et al., 2013). The lack of empirical studies from Northern Europe can potentially be explained by little experience with market based reforms. There are some, but not a lot of, studies from other parts of the world. Cutler and Horwitz (2000) conducts a qualitative analysis of two large hospitals which are converted from not-for-profit to for-profit ownership status. They find that main driver for conversion is financial gain, and they find indications of reduced staffing levels. Currie et al. (2005) also considers American hospitals and estimate the effect on wages and efforts of nurses after hospitals are taken over by large chains. They find no wage penalties, but higher effort measured by the number of patients per nurse. This could, of course, also measure a drop in staffing levels and potentially lower quality. A similar study from France considers the difference in employment between private and public hospitals (Clark and Milcent, 2011). Controlling for hospital activity this study finds that public hospitals employ more staff than do private hospitals. A problem with these studies is that they use aggregated data, and are therefore not able to control for compositional effects of ownership. It could be the case that the reason for a non-finding of a wage penalty in Currie et al. (2005), is that they are not comparing the same nurses before and after a hospital is taken over by a large chain.

I address this concern by employing high quality register data on individual earnings, and study the effects on earnings of care staff who work in nursing homes which are converted from public to for-profit ownership status. The data covers all care staff working in Norway in the period 1992 - 2016. There are only 18 nursing homes that went from public to for-profit conversion, and 15 of them are in Oslo. Oslo, which is the largest municipality and capital of Norway, has long experience with contracting out the provision of nursing home services. Since 2000, the local government of Oslo has contracted out roughly 20 percent of public nursing homes to private providers. I exploit the variation

in time and estimate the earnings effect of private provision of publicly financed nursing home services in a difference-in-differences model. I find that earnings of care staff in converted nursing homes experience falls in the period after conversion.

2 Setting and intervention

In Norway, the municipalities have the overall responsibility of residents health (Hagen et al., 2011). The municipalities are obligated by law to promote health, and prevent injuries, accidents and social problems among its citizens. They are also responsible for funding and providing necessary primary care to their residents. Necessity is defined by health needs of residents. Municipalities are restricted to allocate services according to health needs and independently of socioeconomic status (Karlsson et al., 2012). Among the primary care services are all social and community health services provided to persons with long-term care (LTC) needs. The LTC services the municipalities finance and provide can be broadly divided into nursing and home-based care services. The LTC sector can be said to be semi-centralized (Hagen and Kaarb e, 2006). In the sense that the central government determines the legal bounds of municipalities health and care responsibility, while the municipalities have extensive discretion in determining the composition of preventive, long-term, and curative care that best meet the needs of their residents.

LTC expenditures is that largest component of municipal spending (Hagen et al., 2011). There is a fear that this funding responsibility will become more demanding in the future because of an ageing population. This has led many municipalities to experiment with market-based interventions and other regulatory reforms to secure financial sustainability of the LTC sector. One such measure is to introduce competition among providers of nursing home care, which is the most expensive LTC service.

2.1 Nursing home conversion in Norway

Oslo is the municipality that has the longest experience with contracting out nursing homes. I therefore describe the nursing home conversion process in Oslo. Towards the end of the 1990s, after a long political battle between the right and the left, the centre-right city government of Oslo enacted legislation that made it possible to contract out

the provision of nursing home services. The first nursing home was contracted out in the year of 2001 and after that 11 more nursing home conversions followed. All nursing home conversions have followed the same set of rules and regulations. The municipality writes a six year contract with a private contractor. The contract specify the price and the number of spaces that are to be provided to the municipalities. The contractor can only sell spaces to the municipality. The contract specify, to the extent that can be specified, the quality level and to a certain extent the staffing level. In the next section, I describe data and methods I use to evaluate the effects on wage rates of going from public to for-profit ownership status.

See Table 1 for the number of conversions across years in Norway.

Table 1: Number and timing of nursing home conversions in Norway in the period 1992 – 2015

Year of conversion	Number of conversions
2001	2
2002	1
2005	2
2008	1
2009	1
2013	5
2014	4
2015	2
Total	18

3 Empirical analysis

3.1 Data

This analysis uses a panel of care workers working in nursing homes in Norway over a twenty-four-year period, 1992 – 2016. The data includes information from two sources: The Register of Employers and Employees (REE) and The End of the Year Certificate Register (YCR). The REE includes an anonymized version of the VAT registration number, which is a unique key identifying all Norwegian firms, linked with an (anonymized)

personal identifier number of all employees. This allows me to identify all individuals who are or have been working in a nursing home in the twenty-four-year period under study. The register also includes information on the type of ownership (public, not-for-profit, and for-profit). The VAT number does not change if a nursing home is converted from public to private ownership, so I can easily identify the nursing homes that have experienced a nursing home conversion. The employers are obligated to report labor earnings and other remuneration to the YCR for each employee. This allows me to link earnings information to each nursing home. The earnings variable includes all payments made by the employer to the employees. These payments include, among others, wages, vacation and sickness payments. To account for wage inflation I divide earnings by the National Insurance scheme basic amount (G), which is set each year to reflect growth in overall wages.¹

In Table 2, I present descriptive statistics for treatment and control nursing homes in 2000. I have chosen 2000 since the first nursing home conversion happened in 2001, so 2000 is the last pre-intervention year and therefore the variables are not affected by the prevention. The nursing homes seem to be very well balanced in terms of annual earnings and age. On average, care workers earn 4 times the basic amount, which is roughly 400,000 NOK (\$ 38,000) per year in today's value. The nursing homes that experience a conversion are larger in terms of the number employees. The treated nursing homes have roughly 90 more people employed than nursing homes that do not experience a change of ownership status from public to for-profit. However, it is not necessary for the identification strategy that the treatment and control group to be equal in levels. In the next sub-section, I describe a difference-in-differences model that exploits variation over time within nursing homes.

¹In 2000 the basic amount was equal to NOK 50,000 (roughly \$ 5,000), and is almost double today at NOK 99,858 (\$ 9,000)

Table 2: Descriptive statistics in 2000

	Control		Treatment	
	mean	sd	mean	sd
Number of employees	100	90	189	105
Mean age in years	36.45	4.00	37.51	2.22
Full-time (share)	0.36	0.19	0.40	0.07
Real mean earnings	2.72	0.76	2.95	0.36
Real earnings full-time workers	3.77	0.95	4.10	0.42
Observations	1277		18	

The table shows the means and standard deviations of treatment and control municipalities.

3.2 Econometric approach

I use an event-study approach to evaluate the effects of nursing home conversion on individual earnings:

$$Y_{ijt} = \alpha_j + \gamma_t + \sum_{k=-5, \neq -1}^4 \pi_k D_j[t - e_{jt} = k] + \epsilon_{ijt} \quad (1)$$

- where Y_{ijt} is the log of annual earnings of individual i working in nursing home j at year t , α_j and λ_t are nursing home and year fixed effects respectively
- D_j is 1 for nursing homes that are converted
- e_j is the year of conversion for nursing home j
- $1[t - e_j = k]$ are event dummies equal to 1 when the years since conversion is k
- π_k will measure the effect of the conversion if the earnings would have followed the same path in the absence of conversion (the counterfactual)

Unobserved heterogeneity at the individual level can cause compositional effects that alters the interpretation of the results. For example, given that the wage level in nursing homes falls following a change from public to private ownership, is this because the now private nursing homes are cutting wages, or is it because more experienced and older workers quit because of dislike of abrupt administrative changes and therefore wages are lower because the employees have now on average lower work experience? To explore this I will later add results using only care workers who are employed in the converted nursing homes in the year before the conversion

4 Preliminary results

In this section, I presents the results by plotting the event dummies (the π_k 's) from equation 1.

Figure 1: The relationship between public-to-private ownership conversion and mean real earnings of nursing home workers

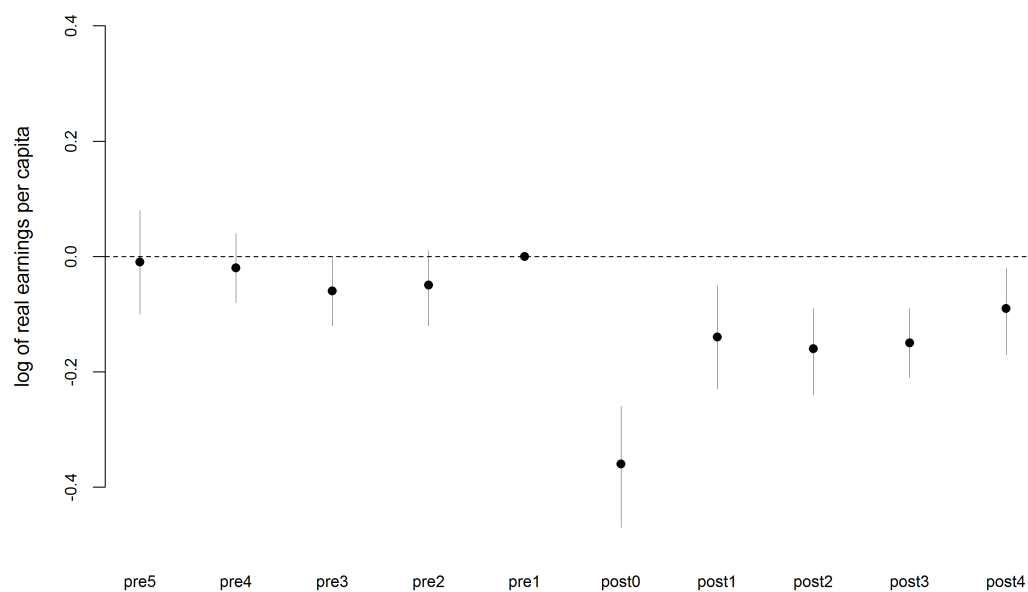


Figure 2: The relationship between public-to-private ownership conversion and share of full-time workers in nursing homes

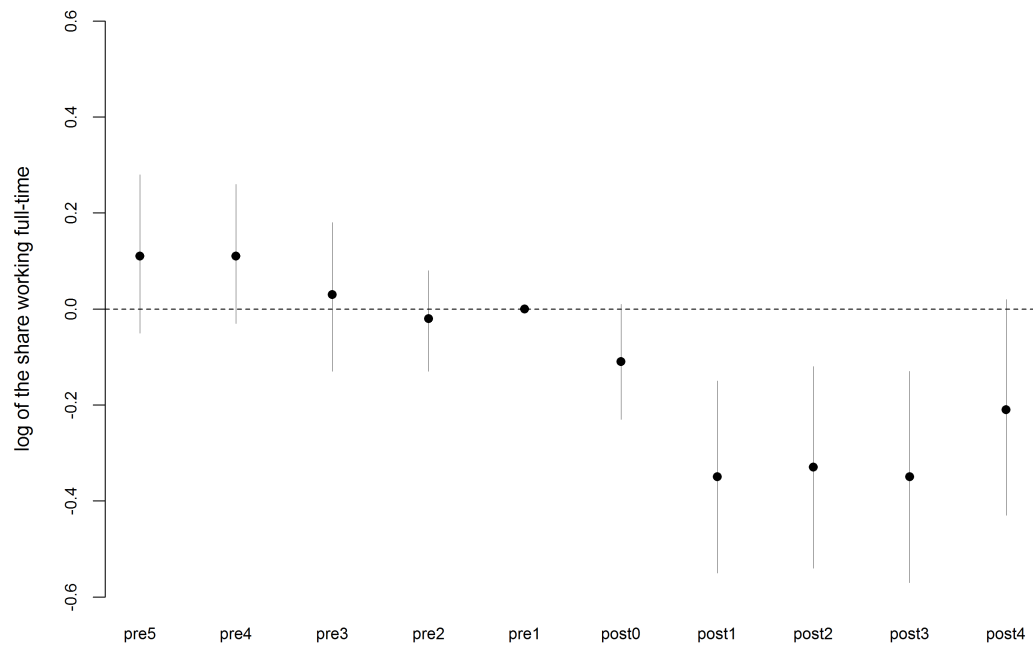
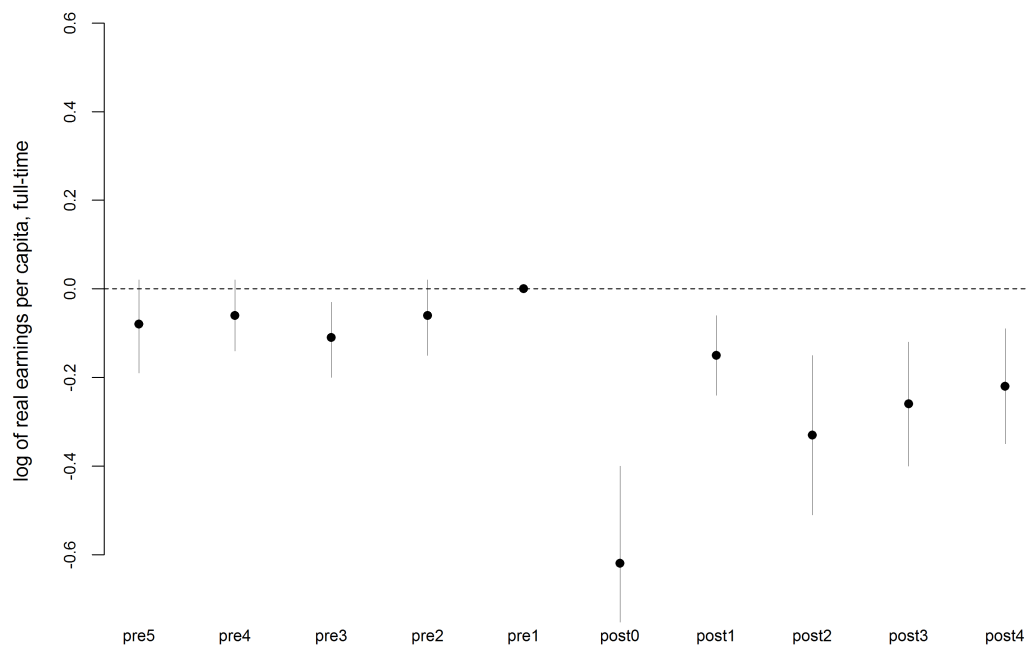


Figure 3: The relationship between public-to-private ownership conversion and mean real earnings of full-time nursing home workers



5 Conclusion and plan for future work

1. It seems like per capita real earnings of care workers drops after the nursing home is converted from public to private provision
2. The drop is about 20 percent (!) after three years, and 20 percent in the share of care workers working full time.
3. In the future, I will do an event analysis at the individual level to explore the reason for the large drop in earnings.
4. I will also do simple descriptives of who quits and who stays in nursing homes that are converted.

5. I will also analyze tenure, sickness absence,...

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