

ARTICLE

Exploring differences between public and private providers in primary care: findings from a large Swedish region

Anna Häger Glenngård 

Department of Business Administration, Lund University School of Economics and Management, Box 7080, SE-220 07 Lund, Sweden

Corresponding author. Email: anna.glenngard@fek.lu.se

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Abstract

This study contributes to the sparse literature on differences between public and private primary care practices (PCCs). The purpose was to explore if differences in performance and characteristics between public and PCCs persist over time in a welfare market with patient choice and provider competition, where public and private providers operate under similar conditions. The analysis is based on data from a national patient survey and administrative registries in a large Swedish region, covering PCC observations in 2010 and 2019, i.e., the year after and 10 years after introducing choice and competition in the region. The findings suggest that differences across owner types tend to decrease over time in welfare markets. Differences in patients' experiences, PCC size, patient mix and the division of labour have decreased or disappeared between 2010 and 2019. There were small but significant differences in process measures of quality in 2019; public PCCs complied better with prescription guidelines. While the results demonstrate a convergence between public and private PCCs in regards to their characteristics and performance, differences in patients' experiences in regards to socioeconomic conditions persisted. Such unwarranted variation calls for continued attention from policy makers and further research about causes.

Keywords: Equity; patients' experiences; performance; primary care; public and private providers; quality; Sweden

1. Introduction

During the past three decades, the key features of many modern welfare states have been redefined. The previously prevailing view on health care as both publicly funded and publicly provided has been altered as new ways of organising the provision of health care have been introduced, altering the relationships between payers, providers and patients (Saltman, 2003; Martinussen and Magnussen, 2009; Sheaff *et al.*, 2019). The Swedish health care system, and in particular Swedish primary care, is no exception to this development. Swedish primary care has traditionally been provided by fairly large and predominately publicly owned primary care centres (PCCs) with a broad responsibility for patients in a geographical area. This type of integrated community model often displays problems with accessibility and responsiveness towards individuals' expectations but perform well with respect to equity and effectiveness (Lamarche *et al.*, 2003). Patient choice and provider competition were gradually introduced 2007–2010, by the regional authorities responsible for the organisation and financing of health care in Sweden. The reform was particularly targeted at persisting problems with poor accessibility, continuity and responsiveness of primary care, ideally without negative consequences for objectives related to equity (Anell, 2011; Fredriksson *et al.*, 2012).

In regulated welfare markets, with patient choice and competition between (public and private) providers, but where funding and regulation is still public, the idea is that market mechanisms should lead to improved efficiency and quality of services and improved responsiveness towards individuals' expectations, i.e., that providers should improve their performance (Le Grand, 2009; Bevan *et al.*, 2010; Pollit and Bouckaert, 2011; Propper, 2012). Performance might differ between public and private providers in welfare markets for several reasons. Theoretically, public providers have weaker incentives to perform efficiently as they are not accountable to shareholders and often face softer budget constraints compared to private (for-profit) providers (Kornai *et al.*, 2003). Motivation might also differ between private and public employees, where the latter may rely more on intrinsic motivation for their work, implying that external controls, e.g., financial incentives, may have less impact in public organisations (Georgellis *et al.*, 2011; Frey *et al.*, 2013; Ellegård, 2020). On the other hand, if public and private providers face similar principles of governance and other conditions, such differences might be reduced. While there is a fair amount of research about differences in economic performance, clinical quality, patient satisfaction and patient mix between public and private hospitals (Tynkkynen and Vrangbaek, 2018) the corresponding literature on primary care is sparse (Dietrichson *et al.*, 2019). This study contributes with such knowledge by exploring differences in performance and characteristics between public and private PCCs in a large Swedish region.

Swedish primary care constitutes an interesting and rather unique setting to explore differences between public and private providers in primary care: There is a mix of public and private PCCs and they are subject to the same principles of governance. Most other countries in Europe have a long tradition of either private group and/or solo practices or public PCCs only (Paris *et al.*, 2010). In other settings with a mix of public and private PCCs, e.g., in Finland, local health authorities either operate PCCs themselves in a traditional bureaucracy or contract private PCC via a tendering process. Following the Swedish choice reform, the number of PCCs increased by approximately 20%, mainly consisting of private for-profit providers. Moreover, the gathering and dissemination of comparative information about PCCs improved to guide individuals' choice and to facilitate the regions' monitoring of provider performance (Glenngård, 2016). This enables studying variation in both characteristics and performance of PCCs across owner types in this setting.

Previous research about the performance of public and private PCCs in the Swedish setting mainly focus either on the effects of introducing patient choice and provider competition without addressing differences across owner types, or on differences between public and private PCCs during the first years following the introduction. Dietrichson *et al.* (2020) find that, despite the increase in PCCs, the effects have been modest, with small improvements of patients' satisfaction and no significant effects on clinical quality, as measured by avoidable hospitalisation. One possible reason is that the increase in PCCs was not followed by a corresponding increase in general practitioners (GPs). Rather, the already existing (scarce) primary care staff was spread out over more PCCs. This reflects a persisting challenge in Swedish primary care, i.e., a shortage of GPs. Others conclude that the introduction of choice and competition led to a greater awareness of the reputation of PCCs among providers (Hollman *et al.*, 2014; Vengberg *et al.*, 2019). While this might drive quality improvement work in theory, the authors found no evidence of providers competing on clinical quality. Similar findings, i.e., that providers are motivated by delivering a positive patient experience to improve their reputation, have been reported from the UK (Dixon *et al.*, 2010; Gravelle *et al.*, 2019). There is also some evidence that increased provider competition in Swedish primary care led to GPs issuing more sick leave certificates (Swedish Social Insurance Inspectorate, 2014) and prescribing more drugs (Fogelberg, 2013), to satisfy patients' demands. Similar evidence has been reported in Norway (Kann *et al.*, 2010; Brekke *et al.*, 2019) and Belgium (Schaumans, 2015). Regarding differences across owner types, Maun *et al.* (2015) analyse data from 2011 to 2014 in a large Swedish region. They find that private PCCs adhered better to prescription guidelines regarding harmful drugs to elderly, while public

PCCs adhered better to prescription guidelines regarding antibiotics and clinical guidelines for patients with chronic disease, but that differences with regard to owner type decreased during the study period.

Studies based on data from a national patient survey (NPS) in Swedish primary care, covering the years 2010–2014, show that patients were more satisfied with private than public, and smaller than larger PCCs regarding most dimensions of patient-reported experiences (Glenngård, 2013; Maun *et al.*, 2015; Glenngård and Anell, 2017). A study based on similar data from 2015 to 2017 also report that patients were more satisfied with private than public PCCs but the analysis includes only one dimension of patient-reported experiences and does not control for characteristics of PCCs (Andersson *et al.*, 2021). Previous research demonstrates that when adjusting for patient mix and PCC list size, differences with regard to ownership disappear for most dimensions (Glenngård, 2013; Glenngård and Anell, 2017). One possible explanation is that private, compared to public, PCCs are smaller and located in more densely populated and socio-economically favourable areas (Swedish National Audit Office, 2014; Isaksson *et al.*, 2016, 2018; Burström *et al.*, 2017). There is a risk that the intended outcomes of choice and competition fail are areas with a high socioeconomic burden if providers choose not to establish there. Important criteria for market mechanisms to contribute to improved performance, without adverse consequences for equity, are that there is competition (or at least threat of competition) between providers and that individuals are informed and interested in making a choice of provider (Le Grand and Bartlett, 1993; Le Grand, 2007). Previous research demonstrates that worse socioeconomic conditions are related to lesser abilities to search for information, articulating demands and travel to non-local providers (Barr *et al.*, 2008; Fotaki *et al.*, 2008).

The purpose of this study was to explore if differences in performance and characteristics between public and private PCCs persist over time in a welfare market with patient choice and provider competition, where public and private providers operate under similar conditions. Compared to previous research, this study has a broader scope, both in time horizon and the view on PCC performance. By analysing differences both the year following and 10 years after the introduction of patient choice and provider competition in a large Swedish region the intention was to explore if differences persist over time in welfare markets rather than to analyse the effects of introducing a reform. Moreover, by including both patient survey data and proxy measures of clinical quality in the analysis, multiple perspectives of PCC performance are explored.

2. Materials and methods

2.1 The case

In Sweden, the responsibility for overall health care policy and legislation lies with the central government, while 21 independent regions and 290 municipalities are responsible for the financing and organisation of health care. The share of total health care expenditures allocated to primary care is approximately 20%. There are about 1200 PCCs, whereof about 40% are private, predominately for profit. Team-based primary care (Jessup, 2007; Yarnall *et al.*, 2009) is practiced with a mix of different staff categories at each PCC. GPs and other staff categories are salaried employees and the same restrictions regarding, e.g., weekly working hours apply to employees in both public and private PCCs. A majority of all staff are members of professional unions, i.e., the Swedish Medical Association, representing physicians or the Swedish Association of Health Professionals, representing, e.g., registered nurses. As a result of the highly decentralised health care system, patient choice and provider competition were gradually introduced by regions. Local political considerations and priorities lead to variation in the requirements that providers have to fulfil to be allowed to practice primary care and get publicly reimbursed but the same requirements apply to public and private PCCs in each region. Principles for allocating resources and financial responsibility to PCCs and assessment of provider performance varied initially, but have become more similar over time. Fixed capitation, risk-adjusted with regard to patient mix,

i.e., the level of morbidity and socioeconomic deprivation, is the dominating recourse allocation principle (Glenngård, 2019). The regions use different performance measures, usually related to a framework called 'Good care' (Institute of Medicine, 2001; National Board of Health and Welfare, 2009), to assess public and private PCCs in accordance with the requirements that providers have to comply with to be allowed to practice care and get publicly reimbursed.

The analysis is based on data from Region Skåne, the third largest region in Sweden, with about 1.3 million inhabitants. There are 33 municipalities in the region, with differences in demographic characteristics, the largest being the residence city of Malmö with about 300,000 inhabitants. In connection with the introduction of choice and competition in primary care on 1 May 2009, the number of PCCs increased by 17%. The new providers were predominately private for profit. Providers have a comprehensive financial responsibility for the need of outpatient care among individuals on the PCC list. Contracts, signed between a contract manager at the region and the managing director of each PCC, are formally valid for two years, but they are automatically renewed as long as the PCC adheres to the financial, organisational and quality requirements as specified by Region Skåne. The region monitors adherence of public and private PCCs through performance measurement and dialogue between a contract manager and the managing director and key staff at each PCC. Fixed capitation is used to allocate resources to PCCs, risk-adjusted for expected care need related to patient mix.

2.2 Methods

The study was designed as two cross-sectional analyses of PCC observations. The association between dependent and independent variables was evaluated in simple and multivariable regression analyses, based on data from 2010 to 2019, i.e., one year after and 10 years after the introduction of patient choice and provider competition in the region. First, mean values were used to describe performance and characteristics of private and public PCCs the two years. Then, bivariate (Pearson correlation) analysis was used to analyse differences in performance and characteristics of PCCs attributable to ownership. Finally, multivariate OLS regression analysis, carried out in SPSS version 22, was used to analyse variation in performance between PCCs attributable to ownership, while controlling for other factors. The dependent variable in each regression model was defined as PCC observations of different aspects of performance. The choice of independent variables presented in the final models was done with respect to multicollinearity between independent variables. No value of tolerance below 0.44 and no value of variance inflation factor above 2.26 were observed in the final models.

2.3 Data

The sample of PCCs included in the analysis consisted of all PCCs in Region Skåne in 2010 and 2019, subject to availability of data for the different variables. Different variables, corresponding to commonly discussed important objectives of primary care (Starfield, 1998; Institute of Medicine, 2001; Lamarche *et al.*, 2003), were used to analyse the performance of PCCs. Two types of performance variables were included: (i) patient-reported experience measures (PREM); and (ii) proxy measures of clinical quality. Variables representing structural and organisational characteristics of PCCs were used as control variables in the analysis and to describe differences in characteristics between public and private PCCs. The choice of control variables was based on previous research about factors correlated with provider performance in welfare markets in primary care where providers have a comprehensive financial responsibility for individuals on the PCC list (Campbell *et al.*, 2001; Glenngård, 2013; Glenngård and Anell, 2017, 2018; Angelis *et al.*, 2021; Kandelaki *et al.*, 2016; van den Hombergh *et al.*, 2016).

Data on PREMs was derived from a NPS in primary care (Swedish Association of Local Authorities and Regions, 2011, 2020). Since 2009, a NPS is administered by mail to a random

sample of patients having visited a PCC during the autumn each year. Results from the 2010 and 2019 NPS were used in this study. The results are comparable across PCCs but not over time since the survey changed in 2015. The survey used in 2009–2014 contained background questions about the respondents and 54 questions about their experiences with care (mix of Likert scale and binary yes/no-questions). The survey used since 2015 contains background questions about the respondent and 32 Likert scale questions (1–5, where 1 = No, not at all and 5 = Yes, fully) about their experiences with care. The questions are grouped into seven PREM-dimensions for each PCC: overall impression, emotional support, patient involvement, respect and responsiveness, continuity and coordination, information and accessibility. Each dimension is assigned a PREM-score between 0 and 100 based on the proportion of positive answers (3–5 on the Likert scale) to each question [see Swedish Association of Local Authorities and Regions (2020) for details on questions and composition of scores]. The choice of questions from the 2010 NPS and PREM-scores from the 2019 NPS included in the analysis (see Table 1) was subject to the criteria that the definitions should be as similar as possible the two years.

Data on process measures of clinical quality and PCC characteristics were derived from registries in Region Skåne (Table 1). The region collects and stores data from their administrative systems, electronic patient records and from national patient and waiting-time surveys, to assess the performance of PCCs and to inform resource allocation decisions. These data include process measures of adherence to clinical guidelines, used as proxy measures of clinical quality (Region Skåne, 2018; Appendix 1). Data from the NPS and registries in Region Skåne were linked by the individual names of PCCs.

2.4 PCC characteristics

Variables reflecting structural and organisational characteristics of PCCs were used as control variables in the analysis and to describe differences between public and private PCCs in 2010 and 2019:

- Ownership, defined as private or public PCC.
- Size, measured as the PCC list size in November both years.
- Two variables were used to describe the PCC patient mix: average adjusted clinical groups (ACG), and average care need index (CNI). ACG quantifies morbidity in a group of individuals based on age, gender and diagnoses during a certain period of time (Reid *et al.*, 1999), 18 months in Region Skåne. CNI measures socioeconomic deprivation based on seven factors, e.g., education, marital status and unemployment (Sundquist *et al.*, 2003). Higher values imply worse morbidity and socioeconomic status, respectively. ACG and CNI measure the relative level of illness and socioeconomic deprivation in a group of PCCs.
- One additional variable, describing the patient mix, was available for year 2019: the proportion of individuals on the PCC list aged 75 years or older.
- Dummy variables representing each of the 33 municipalities were included to control for variation attributable to structural differences due to location.
- One variable was used to describe the division of labour, defined as the number of GP visits as a proportion of all visits.
- Two variables were used to describe volume of visits at PCCs: the average number of visits and the average number of weighted visits [GP visits = 1; all other visits = 0.4 (National Board of Health and Welfare, 2020)] per enrolled individual. As no data on employees that are comparable between public and private PCCs were available it was not possible to derive a traditional productivity measure.

3. Results

The characteristics and performance of public and private PCCs in 2010 and 2019 are summarised in Table 2.

Table 1. Definition of variables on performance used in analysis

Objective		Definition 2010	Definition 2019
Patient-reported experience measures (PREM)			
Continuity	PREM: continuity	Proportion answering 'Yes, almost always' to the question 'Do you usually get to see the same doctor (alternatives: Yes, almost always/No, rarely)?'	Proportion positive answers (3–5 on a 5-point Likert-scale) to questions in the dimension 'Continuity and coordination'
Accessibility	PREM: accessibility	Proportion answering 'Acceptable' to the question: 'What is your opinion about the waiting time (alternatives: Acceptable/Too long/Much too long)?'	Proportion positive answers (3–5 on a 5-point Likert-scale) to questions in the dimension 'Accessibility'
Responsiveness	PREM: respect and responsiveness	Proportion answering 'Yes' to the question 'Were you attended to with respect and in a considerate way (alternatives: Yes/Somewhat/No)?'	Proportion positive answers (3–5 on a 5-point Likert-scale) to questions in the dimension 'Respect and responsiveness'
Quality	PREM: overall impression	Proportion answering 'Excellent' to the question 'Overall satisfaction (alternatives: Excellent/Very good/Good / Fair/ Poor)?'	Proportion positive answers (3–5 on a 5-point Likert-scale) to questions in the dimension 'Overall impression'
		Source: 2010 NPS. 16 669 respondents in total. Average number of respondents per PCC: 112 (SD 27 respondents)	Source: 2019 NPS. 12 514 respondents in total. Average number of respondents per PCC: 82 (SD 28 respondents)
Proxy measures of clinical quality			
Continuity	Process measure: continuity in GP visits	The proportion of patients (0–100%) with more than three visits during six months who get to see the same GP in at least 50% of the visits. A higher value indicates better continuity. Data available for 2012 and 2019	
Preventive	Process measure: adherence to clinical guidelines	N.a.	The annual influenza vaccination coverage (0–100%) among individuals who are 65 years or older. A higher number indicates better adherence to treatment guidelines
Quality	Process measure: adherence to prescription guidelines	N.a.	The number of daily doses of harmful drugs (DDD) among patients aged 75 or older. A lower number indicates a better adherence to prescription guidelines

(Continued)

Table 1. (Continued.)

Objective		Definition 2010	Definition 2019
Quality	Process measure: adherence to prescription guidelines	N.a.	The proportion quinolones of all penicillin prescribed to women with lower urinary tract infection (UTI) (0–100%). A lower number indicates better adherence to prescription guidelines. The target is <10
Quality	Process measure: adherence to prescription guidelines	N.a.	The proportion of penicillin V of all penicillin prescribed to children aged 6 years or younger with respiratory illness (0–100%). A higher number indicates better adherence to prescription guidelines

Source: administrative registries, Region Skåne.

Three private and three public PCCs have discontinued their operations and seven private PCCs have been established during the period 2010–2019. Public PCCs were larger than private ones in 2010 as well as in 2019. However, the gap has narrowed during the period as private PCCs have become larger.

Regarding patient mix, the level of socioeconomic deprivation among enrolled individuals, as measured by average CNI, was higher for public compared to private PCCs in 2010 but there was no statistically significant difference in 2019. One reason is that recently established private PCCs to a higher extent have established in socioeconomically deprived areas compared to private PCCs that established in connection with the introduction of choice and competition. In 2019, the average CNI-level was 1.88 among the seven PCCs established after 2010 and 2.36 among those recently located in the residence city of Malmö, as compared to 1.02 for all PCCs in the region. The level of morbidity, as measured by ACG, was higher among private than public PCCs in 2010 but there was no statistically significant difference in 2019.

Regarding organisational characteristics, the proportion of all visits being with a GP was higher for private than public PCCs in both 2010 and 2019 although the gap has narrowed. The proportion of GP visits decreased between 2010 and 2019 for both public and private PCCs and the decreased was more prominent among private ones.

Private PCCs performed better with respect to all PREM-dimensions included in 2010. When controlling for other factors in regression models, the significant relationship between the dimension ‘overall impression’ and private ownership remained (Table 3). In 2019, ‘continuity’ was the only dimension where there was a statistically significant difference between public and private PCCs in the bivariate correlation analysis (Table 2). When controlling for other variables, private ownership was not significantly correlated with any PREM-dimension (Table 3). There was a statistically significant negative correlation between patients’ experiences with care and average CNI and a statistically significant positive correlation between patients’ experiences and a high proportion of GP visits for most dimensions in both 2010 and 2019 (Table 3).

Regarding the process measure of continuity, private PCCs performed better than public ones in both 2012 (earliest year with available data) and 2019. However, the proportion of patients who got to meet with the same GP in consecutive visits decreased between 2012 and 2019 for both public and private PCCs (Table 2). In 2019, the difference between public and private PCCs was not significant when controlling for other factors (Table 4).

Regarding the other proxy measures of clinical quality, public PCCs adhered better to prescription guidelines for two of the three measures included in the 2019-analysis (Table 2).

Table 2. Characteristics and performance of public and private PCCs, 2010 and 2019

	All PCCs Mean (SD)	Private Mean (SD)	Public Mean (SD)	Pearson correlation
Year 2010				
Number of PCCs	154	65	89	
PCC list size	8 324 (4 211)	6 634 (4 786)	9 529 (3 279)	-0.340**
Patient mix: socioeconomic deprivation (average CNI)	1.07 (0.29)	0.97 (0.20)	1.12 (0.31)	-0.230**
Patient mix: morbidity (average ACG)	1.01 (0.13)	1.07 (0.17)	0.99 (0.10)	0.281**
Number of visits per enrolled	2.35 (0.69)	2.15 (0.83)	2.43 (0.59)	-0.193**
Number of weighted visits per enrolled	1.74 (0.46)	1.74 (0.39)	1.75 (0.59)	0.008
Proportion GP visits	0.51 (0.12)	0.60 (0.16)	0.47 (0.07)	0.481**
PREM: continuity (proportion)	0.64 (0.19)	0.74 (0.19)	0.57 (0.16)	0.447**
PREM: accessibility (proportion)	0.63 (0.09)	0.66 (0.08)	0.61 (0.08)	0.274**
PREM: respect and responsiveness (proportion)	0.82 (0.09)	0.86 (0.07)	0.80 (0.09)	0.304**
PREM: overall impression (proportion)	0.35 (0.12)	0.42 (0.12)	0.30 (0.09)	0.501**
Process: continuity doctor visits (year 2012) (proportion)	0.61 (0.15)	0.64 (0.21)	0.58 (0.08)	0.202*
Year 2019				
Number of PCCs	155	69	86	
PCC list size	8 884 (3 631)	8 220 (4 165)	9 429 (3 045)	-0.166*
Patient mix: socioeconomic deprivation (average CNI)	1.02 (0.40)	1.04 (0.49)	1.01 (0.31)	0.038
Patient mix: morbidity (average ACG)	1.00 (0.10)	1.01 (0.12)	1.00 (0.08)	0.037
Proportion of patients aged 75 or above	0.095 (0.035)	0.090 (0.039)	0.098 (0.029)	-0.119
Number of visits per enrolled	3.04 (1.07)	3.10 (0.95)	3.00 (1.17)	0.049
Number of weighted visits per enrolled	1.95 (0.70)	2.02 (0.59)	1.90 (0.79)	0.087
Proportion GP visits	0.41 (0.12)	0.43 (0.15)	0.39 (0.07)	0.172*
PREM: continuity (proportion)	0.72 (0.09)	0.74 (0.09)	0.70 (0.09)	0.202*
PREM: accessibility (proportion)	0.82 (0.05)	0.83 (0.05)	0.82 (0.05)	0.079
PREM: respect and responsiveness (proportion)	0.85 (0.05)	0.85 (0.05)	0.85 (0.05)	0.041
PREM: overall impression (proportion)	0.80 (0.07)	0.80 (0.07)	0.80 (0.07)	0.059
Process: continuity doctor visits (proportion)	0.49 (0.16)	0.54 (0.18)	0.46 (0.13)	0.251**
Process: influenza vaccination coverage (proportion)	0.48 (0.08)	0.48 (0.08)	0.48 (0.08)	0.043
Process: prescription of penicillin V (proportion)	0.81 (0.08)	0.80 (0.10)	0.82 (0.07)	-0.118*
Process: prescription of quinolones (proportion)	0.07 (0.02)	0.07 (0.03)	0.07 (0.02)	-0.107
Process: prescription harmful drugs, elderly (DDD)	23 070 (7 663)	24 797 (9 894)	21 650 (4779)	0.205*

Note: Absolute levels of PREMs are not comparable between 2010 and 2019 as the NPS changed in 2015. ** and * denote that the difference (correlation with regard to private ownership) is significant at the 1 and 5% level (2-tailed).

Table 3. Regression models: variation in patient experiences (PREM), 2010 and 2019

	Overall impression	Respect and responsiveness	Continuity	Accessibility
	Stand. beta	Stand. beta	Stand. beta	Stand. beta
Year 2010				
Private PCC (1 = yes)	0.275**	0.145	0.080	0.019
PCC list size	-0.180	-0.049	-0.072	-0.034
Morbidity (average ACG)	0.112	0.119	0.282**	-0.205
Socioeconomic deprivation (average CNI)	-0.299***	-0.472***	0.027	-0.417***
Weighted visits per enrolled	-0.184	0.057	0.043	0.329*
Proportion GP visits	0.249**	0.161	0.465***	0.409***
(Constant)	0.285***	0.801***	-0.202	0.612***
Adjusted R^2	0.574	0.536	0.475	0.300
N (number of PCC observations) ^a	119	119	119	119
Year 2019				
Private PCC (1 = yes)	0.041	0.040	0.151	0.024
PCC list size	0.026	-0.017	-0.049	-0.160
Proportion on PCC list aged ≥ 75	-0.014	-0.060	-0.033	-0.076
Socioeconomic deprivation (CNI)	-0.223*	-0.349**	-0.138	-0.210*
Weighted visits per enrolled	0.030	0.015	0.039	0.102
Proportion GP visits	0.242*	0.153	0.248**	0.213*
(Constant)	73.1***	85.2***	64.4***	80.5***
Adjusted R^2	0.182	0.184	0.193	0.282
N (number of PCC observations)	148	148	148	148

Due to multicollinearity between average ACG and the proportion of enrolled individuals aged 75 and above, these two variables could not be included in the same models. The proportion of enrolled individuals aged 75 and above is included in the 2019 models as the proportion of explained variance was higher when including this variable compared to when including average ACG. The average ACG is included in the 2010 models as no data on age was available for this year. Dummy variables for municipalities are included in all models to control for structural differences due to location. ***, ** and * denote statistical significance at the 0.1, 1 and 5% level.

^aPCCs excluded in the analysis due to missing data for different variables are predominately private.

Significant correlations remained when controlling for other factors in multivariate regression models (Table 4). Moreover, higher levels of CNI were correlated with worse adherence for three proxy measures and with better adherence for one proxy measure of clinical quality (Table 4).

4. Discussion

The analysis of differences between public and private providers in primary care in a large Swedish region suggests that differences across owner types tend to decrease over time in welfare markets, where all providers operate under similar conditions. The results demonstrate a convergence between public and private PCCs in regards to both their characteristics and their performance.

Neither differences in patients' experiences with care nor differences in patient mix, observed the year after introducing patient choice and provider competition, persisted over time. Private PCCs performed better with respect to all PREM-dimensions included in the analysis year

Table 4. Regression models: variation in adherence to clinical & prescription guidelines 2019

	Continuity in doctor visits (higher is better)	Influenza vacc. coverage (higher is better)	Harmful drugs, elderly (lower is better)	Proportion quinolones (lower is better)	Proportion penicillin V (higher is better)
	Stand. beta	Stand. beta	Stand. beta	Stand. beta	Stand. beta
Private PCC (1 = yes)	0.146	0.072	0.274**	-0.061	-0.225*
PCC list size	-0.277**	0.097	0.090	-0.059	-0.045
Proportion on PCC list aged ≥ 75	0.005	0.090	0.091	0.074	0.100
Socioeconomic deprivation (average CNI)	-0.254*	-0.566***	0.341**	0.116	0.321**
Weighted visits per enrolled	-0.020	0.071	0.097	0.053	-0.066
Proportion GP visits	0.208*	0.108	0.054	0.003	0.031
(Constant)	0.545***	0.467***	0.6834	-0.058**	0.766***
Adjusted R^2	0.206	0.584	0.08	0.005	0.107
N (number of PCC observations)	152	152	152	152	152

Dummy variables for municipalities are included in all models to control for structural differences due to location. ***, ** and * denote statistical significance at the 0.1, 1 and 5% level.

2010. The significant positive relationship between the dimension ‘overall impression’ and private ownership remained when including variables representing structural and organisation factors of PCCs. In 2019, private PCCs performed better only for the dimension ‘continuity’. When controlling for structural and organisational characteristics of PCCs, private ownership was not significantly correlated with any PREM-dimension. Regarding socioeconomic conditions, the average level of CNI among individuals on the PCC list was higher among public compared to private PCCs in 2010 but there was no statistically significant difference with regard to ownership in 2019. One explanation is that private PCCs having established in more recent years to a higher extent are located in socioeconomically deprived areas, compared to those that established in connection with the introduction of choice and competition. One possible reason is the use of risk-adjusted capitation, based on CNI, which has been found to increase the supply of private PCCs in areas with unfavourable socioeconomic and demographic characteristics in previous research (Anell *et al.*, 2018). Regarding morbidity, the average level of ACG among individuals on the PCC list was higher among private than public PCCs in 2010, but there was no statistically significant difference across owner types in 2019. There was no statistically significant correlation between the proportion of individuals aged 75 or above and ownership in 2019 either. This too indicates that the overall morbidity levels were similar, as age is associated with morbidity. The praxis for registration of diagnoses likely differed between public and private PCCs initially. A previous study, based on a survey of the use of different management practices among Swedish PCC managers in 2014, found that private PCCs had better management quality, including how they managed daily operations (Angelis *et al.*, 2021). Differences in management quality may have decreased over time, however, as public PCCs may have adopted practices from private PCCs. Dackehag and Ellegård (2019) find that public PCCs in Sweden register more diagnoses when faced with more competition from private PCCs, in a primary care market with risk-adjusted capitation based on ACG and Vengberg *et al.* (2021) find that managers of both

public and private PCCs respond to risk-adjustment pay by registering diagnoses more carefully. Hence, it is not possible to distinguish to what extent the level of morbidity has changed from the extent to which the routines for diagnosis registration, as a result of reimbursement models, have converged over time.

Regarding clinical quality, the results suggest that there were small but significant differences in performance across owner types in 2019. Similar to the findings by Maun *et al.* (2015), based on data from another large Swedish region, public PCCs adhered better to prescription guidelines regarding antibiotics. Contrary to the findings by Maun *et al.* (2015), public PCCs also adhered better to prescription guidelines regarding harmful drugs for elderly in the studied region. This result also differs from findings by Ellegård (2020) who found that private PCCs adhered better to prescription guidelines compared to public PCCs in Sweden. However, compliance with guidelines was linked to financial incentives in pay-for-performance schemes in the study by Ellegård (2020). One interpretation, in line with theoretical assumptions about differences across owner types (Kornai *et al.*, 2003; Frey *et al.*, 2013), is that monetary incentives are stronger for private (for-profit) than public providers. Although the results provide an indication of possible differences in clinical quality across owner types, an analysis of differences in the content of care and its outcomes for patients rather than proxy measures is needed to be able to draw certain conclusions.

While differences across owner types in regards to patient mix and patients' experiences with care did not persist over time, differences in patients' experiences with care in regards to worse socioeconomic conditions persisted, in the studied region. Moreover, worse socioeconomic conditions were associated with worse clinical quality regarding three out of five proxy measures at the PCC level in 2019. Risk-adjustment of the payment to providers, based on CNI, seems to be a successful strategy to enhance the availability of alternative providers in unfavourable areas (Anell *et al.*, 2018) and even out differences in patient mix and patients' experiences between public and private PCCs over time. However, risk-adjusted payment is apparently not enough to tackle worse performance among PCCs serving groups of individuals with poor socioeconomic conditions. This highlights concerns that patient choice and provider competition might be difficult to combine with an equitable distribution of services in the population (Barr *et al.*, 2008; Fotaki *et al.*, 2008; Burström, 2009; Fredriksson *et al.*, 2012; Burström *et al.*, 2017). A negative correlation between high socioeconomic deprivation and patients' experiences with care has been reported in several studies based on Swedish patient survey data (e.g., Glengård, 2013; Maun *et al.*, 2015; Kandelaki *et al.*, 2016; Glengård and Anell, 2018). Similar results have been reported in studies from the UK (Campbell *et al.*, 2001; Kontopantelis *et al.*, 2010). Such unwarranted variation calls for further research about causes, e.g., distribution of visits or variation in the content of care with regard to socioeconomic factors. Regarding the distribution of visits, evidence from different parts of Sweden points in different directions. A study based on data from the three largest regions in Sweden show that introducing patient choice and provider competition led to increased overall access to GP visits, with small or no changes in the socioeconomic distribution (Sveréus *et al.*, 2018). Another study, based on data from the four northern-most regions in Sweden, found that increased patient choice and provider competition led to higher use of GPs by individuals with higher income after adjusting for health needs (San Sebastian *et al.*, 2017). However, a limitation of both these studies is that neither had access to information about length or content of visits, i.e., data needed to analyse the distribution of services and interventions across PCCs and population groups.

Similar to the findings by Maun *et al.* (2015), the results show that differences in size between public and private PCCs have decreased over time, as more individuals have listed with private PCCs. Regarding organisational characteristics, differences in the division of labour between public and private PCCs have also decreased over time in the studied region. At private PCCs, GPs carried out a relatively larger share of all visits and private PCCs performed better with regard to continuity in doctor visits both in 2010 and in 2019. Differences in continuity with regard to

ownership were not statistically significant in 2019 when controlling for other factors, however. The gap between private and public PCCs in regards to proportion of GP visits has narrowed over time. The results suggest that private PCCs, over time, have become more similar to the predominately public PCCs that were already on the market when introducing patient choice and provider competition. One possible explanation is that private PCCs gradually have substituted GP visits for visits with other professional groups, e.g., registered nurses, as more patients have listed without an accompanying increase in the supply of GPs (Dietrichson *et al.*, 2019). Another, more general, reason behind the relatively low number of GP appointments is the practice of team-based care in Sweden, which is getting increasingly more common in other European countries (Swedish Agency for Health and Care Services Analysis, 2017). The efficient use of resources through substitution of physician labour input for non-physician labour input is a fundamental idea behind team-based primary care. While team-based primary care should have benefits for patients through shorter waiting times and improved services, as GPs can devote more time to appointments with patients with severe problems (Yarnall *et al.*, 2009), a drawback is poor continuity in GP visits (Swedish Agency for Health and Care Services Analysis, 2020). The results in this study, similar to previous studies based on Swedish patient survey data (Glenngård, 2013; Glenngård and Anell, 2018; Swedish Agency for Health and Care Services Analysis, 2020), confirm that PCCs with a high proportion of GP visits tend to perform better with respect to continuity as well as other dimensions of patients' experiences. From the perspective of GPs, a recent study, including data from Sweden, six other European countries, Australia, the United States, Canada and New Zealand, show that Swedish GPs, in both public and private PCCs, devote a relatively smaller share of their working time to patients and more time to administrative work and experience more work-related stress compared to GPs in other settings (Swedish Agency for Health and Care Services Analysis, 2020). Policy initiatives have been initiated to address the situation for and shortage of GPs, e.g., targeted national grants to strengthen primary care and a new legislation targeting patient-centeredness and continuity, but the effects remain to be seen.

A limitation of the study is that the analysis was based on PCC observations from only one region. A majority of the Swedish regions use similar principles for risk-adjusting the fixed payment to PCCs as in the studied region (Glenngård, 2019). This implies that the financial incentives for private PCCs to establish in socioeconomic-deprived areas (Anell *et al.*, 2018) and for PCCs to adjust their registration praxis (Dackehag and Ellegård, 2019; Vengberg *et al.*, 2021) are similar in other regions and that the findings about convergence between private and public PCCs with regard to patient mix could be applicable to other parts of Sweden. Further research is needed to confirm this, however. Another limitation is that the analysis of clinical quality was based on proxy measures, representing adherence to clinical guidelines, rather than information about the content of care and its outcomes for patients, as the latter was not available.

5. Conclusions

This study contributes to the sparse literature about differences between public and private providers in primary care. The findings suggest that differences across owner types tend to decrease over time in welfare markets, where all providers operate under similar conditions. Differences in patients' experiences, PCC size, patient mix and the division of labour between public and private PCCs, observed during the year following the introduction of patient choice and provider competition in a large Swedish region, have decreased or did not persist at all one decade later. However, there were small but significant differences in process measures of clinical quality; public PCCs complied better with prescription guidelines.

While differences across owner types in regards to patient mix and patients' experiences with care did not persist over time, differences in patients' experiences with care in regards to socio-economic conditions persisted. Such unwarranted variation calls for continued attention from

policy makers and further research about causes. Better information about the content of care and its outcomes for patients is needed to analyse differences in the quality of care and the distribution of services and interventions across PCCs and population groups.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S1744133122000251>

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