

14/01/2026

Do markets deliver? Competition and Choice in European healthcare markets

Carol Propper

Imperial College London, Monash University and CEPR

November 2025

Key words: Choice, competition, healthcare markets, policy reform

JEL codes: I11, H42, H44

Abstract

In the last two decades European policy makers have sought to increase the use of market mechanisms in the delivery of healthcare. These reforms introduce competition and choice into previously heavily constrained environments. This leads to a set of interesting economic issues that have been addressed in a range of papers, both theoretical and empirical. This paper examines whether this popular reform model has resulted in improvements in outcomes for patients and/or taxpayers. It synthesises the existing economic analyses, highlights what is known and what is not, and signals potential next steps for economic research.

Acknowledgements

This paper is based on my Royal Economic Society Presidential address in 2023. My thanks are to the Royal Economic Society, to Lir Hoxhaj for excellent research assistance, to Samantha Burn and George Stoye for their comments on drafts and to my co-authors for extensive discussion on this topic over the years. I would also like to thank Heski Bar-Issac and three anonymous reviewers for their very thoughtful and helpful suggestions which have improved this paper. All errors are my own.

1. Introduction

The healthcare sector is large and growing worldwide. In 2022, OECD countries spent on average 9.2 percent of their GDP on healthcare, with the US spending the most at 17%, and many European countries over 10 percent (Figure 1). Healthcare is also a major employer, with one in ten OECD workers employed in the sector. In terms of sheer expenditure, the healthcare industry is larger than education, mining, agriculture, public administration and defence combined (OECD, 2025).

Technological and demographic changes are major drivers of rising healthcare expenditure. While increasing quality, innovation in healthcare tends to be cost-increasing (Chernew and Newhouse, 2011; Cutler and McClellan, 2001; Dunn et al., 2024; Okunade and Murthy, 2002). Demographic change brought about by economic growth has led to increases in the average length of life but accompanied by a large rise in the numbers of older and more complex patients.

Healthcare markets differ from typical product markets due to strong equity concerns and pervasive information asymmetries. Many countries treat healthcare as a right, requiring government intervention to ensure access. Healthcare markets are characterised by information asymmetries that can lead to market failure. In insurance markets these include adverse selection, where less healthy consumers select more generous insurance, driving up prices and making insurance less accessible to others, and moral hazard, the increase in demand arising from the lower price at the point of use due to insurance coverage. In markets for the provision of care, consumers often have less information about the quality and price of care than suppliers, giving suppliers a degree of monopoly power.

These features lead to an important role for the state in regulating healthcare markets to promote access to care. Examples include regulation of entry into provision, subsidies for health insurance, subsidies for the provision of care, market regulation to prevent price-based discrimination based on health status, the setting of prices by a market regulator and the direct provision of healthcare by the public sector. As a result, the lion's share of expenditure on healthcare is from the public purse. Public expenditure accounted for 73 percent of total healthcare expenditure in European countries, ranging from 37 percent in Switzerland to 87 percent in the Czech Republic (OECD, 2023), easily outstripping expenditure on education and dominated only by expenditure on pensions and unemployment insurance. This means healthcare costs, expenditure, access and outputs are important to taxpayers, voters and politicians and the organization of healthcare occupies a prominent place in policy debate.

In the search for ways to improve productivity and control cost increases, politicians inside (and outside) Europe have introduced reforms to make greater use of markets in healthcare. At the heart of these reforms is the attempt to promote competition between suppliers, either on the provision side of the market (between healthcare providers such as hospitals, clinics, and physicians), or on the financing side (health insurance firms) or on both. Reforms to increase the

role of markets for providers of care have been implemented in the UK, Norway, Germany, Sweden and Italy and in several countries that were formerly part of the communist bloc. Reforms to increase the role of markets in the financing of healthcare, i.e. to promote competition between insurers, are less common though they have been implemented in Switzerland, the Netherlands and Germany (Docteur and Oxley, 2003; Van de Ven, 1996).

My focus here is on reforms which aim to promote or enhance competition between suppliers of healthcare, rather than those that seek to introduce or increase competition between insurers of healthcare. This first type of reform, sometimes referred to as choice-based reform, may be introduced in hospital care and/or in care supplied by community-based suppliers (i.e., primary care or specialist care providers). Reforms may take the form of providers competing directly for patients or providers competing for contracts from third-party buyers of healthcare, where the buyers may be private or public health insurers. Prices may be set in advance by a regulator or may be negotiated between buyers and sellers of healthcare. Entry of suppliers, including for-profit suppliers into markets in which provision was previously only public, may be promoted. Reforms may also be accompanied by the release of greater information on various aspects of quality and, where prices are negotiated, on price.

At their heart, these reforms have three broad components: the promotion of competition between suppliers by allowing greater choice by users of care or their agents, coupled with the provision of greater information on quality or other measures of performance; giving more autonomy to decision makers at the supplier level, often part of a move towards decentralization from central or regional government to suppliers of care; and changes in financial incentives for suppliers (but generally not consumers) of care. They are therefore similar to reforms in education and other public services that changed “the rules of the game” by which service users and providers operate but do not introduce large changes in how the service is financed and paid for by consumers.¹

This review examines whether this popular reform model has resulted in improvements in outcomes for patients and/or taxpayers. How effective such reforms are depends on answers to questions about changes in consumer, insurer and healthcare supplier behaviour in response to the changes in information and incentives embodied in these reforms. Do consumers or their insurers have incentives to make choices of providers; what constraints do they face; what information is available and to what information do they respond? Even good pro-competitive reforms might not help much if consumers can’t see or respond to real quality differences. Is the promotion of competition muted by limited capacity, excess demand and shortages of providers? On the supply side, do providers respond to increased choice, or to changes in market structure? Do they increase quality? What other aspects of production are altered? Do they attempt to avoid competition by merging? How does delivery of care after the introduction

¹ The use of greater user choice and competition between suppliers is a popular reform model for education (and other services) where funding is primarily from the public purse. For example, for education, see Dinerstein and Smith (2021) for New York; Muralidharan and Sundararaman (2015) for India; Nielson (2021) for Chile; Singleton (2019) for Florida; Burgess et al. (2015) for England.

of pro-competitive policies change the allocation of care across individuals of different incomes, severity, by whether providers are public or for profit?

To address these questions, I begin with an overview of how healthcare is financed and provided in European countries and then outline policies that have been designed to introduce, or increase, competition between suppliers of healthcare in these markets. This is followed by a discussion of the theoretical models of competition in healthcare that have sought to address some of the key features of European healthcare markets. Institutional detail matters in healthcare (as other markets) and the European setting differs substantially from the US healthcare market for which the bulk of the theoretical analyses have been conducted. Ignoring the details of institutions is problematic given the market frictions that exist in healthcare markets. This is followed by my main focus, which is the empirical evidence on whether pro-choice and competition reforms have brought gains and, if so, how, to European healthcare markets. I discuss this in three sections: the first examining the hospital sector, the second primary care and the third considering new forms of entry. This is followed by a brief discussion of an alternative policy approach: the promotion of integrated care. The final section offers some thoughts on future directions for research efforts and policy.

2. Healthcare financing, provision and pro-choice reforms in Europe

There are two models of health insurance used in European countries. Under the first, known as the 'Beveridge' model, healthcare is free at the point of demand or is provided at low levels of co-payment for a subset of services (generally those services delivered outside a hospital setting). Funding for this care is paid for through taxation. Historically, there has been no consumer choice of insurer (the organization that covers the cost of healthcare). Countries operating such systems include the Nordic countries, Spain, Italy, the UK, Greece and Ireland. Under the second, known as the 'Bismark' model, funding is via social insurance. In these systems, purchase of insurance is generally mandatory and a significant share of the cost of insurance is paid for by the government. Consumers may have choice of insurer, though historically such choice has been limited and determined by location and employment status. Countries operating this type of system include the Netherlands, Germany, France, Switzerland and Austria. Figure 2 shows total public expenditure on healthcare and the division between social insurance and direct government funding across European countries, and thus shows which countries use which system. However, despite these differences in funding arrangements, both systems are characterised by strong equity concerns and in practice are broadly similar in terms of the distribution of funding across income and need for healthcare (Van Doorslaer et al., 1999; Wagstaff et al. 1999; Luyten and Tubeuf, 2025).

On the provision side, in tax-funded 'Beveridge' systems, most provision is publicly owned and operated. In social insurance 'Bismark' systems, hospitals may be privately owned but also may be public and historically, relatively few have been for-profit and organization into chains or networks has been uncommon. Under tax financing, consumers have historically had little

choice of provider of care: allocation to providers, whether they be hospitals, family doctors, or specialists, has primarily been by means of geographical distance. Under social insurance, consumers generally have had greater choice of hospital provider and/or specialist for outpatient care, but public information that could be used by consumers to make such choices has been extremely limited.

Reforms intended to promote or enhance competition between either insurers or the suppliers of healthcare have been introduced across Europe (see Table 1). These reforms have had the aims of improving the delivery of healthcare, though the policy goals are often very generally articulated rather than specific (for example, 'improving access' or 'raising standards'). However, with the exception of the Netherlands, Switzerland and more recently Germany, European reforms to introduce greater choice and competition in health insurance have been quite limited.² Where insurance-side reforms have been introduced, these have been accompanied by high levels of regulation, designed to reduce adverse selection of consumers by insurance providers, with the aim of reducing any negative effects on equity of allowing greater choice.³ This has meant that the extent of actual competition in these markets for consumers has been limited to offering policies that are broadly similar for all consumers but may allow different coverage at the margin (for example, add-ons for being in private hospitals, or for ill-health events resulting from certain kinds of activity).⁴ I therefore do not discuss these further here (Siciliani et al., 2022 provides a review).

Reforms to introduce or increase competition between healthcare suppliers have been introduced in both hospital and primary care (care provided outside hospitals in a community setting) in many European healthcare systems. The underlying premise is that consumers or their agents (insurers or locality-based purchasers) have superior knowledge of consumers' preferences and needs, and so choice may improve quality by improving the matching of consumers and suppliers, and by strengthening suppliers' incentives to compete on quality.

Policies to achieve this end include the following. First, policies to relax existing constraints on patient choice of provider. These have been introduced primarily in Beveridge-type systems (for example, in England and Norway in both hospital and primary care), as choice of provider has historically been a feature of Bismarkian social insurance systems (for example, in Belgium, France, and Germany). Second, policies to increase the amount and type of information available in the public domain on provider quality or other aspects of care, either to help patients or their agents make choices of provider and/or to encourage providers to compare

² In Latin America, such reforms have led to mixed outcomes, particularly in Chile, the pioneer of such reforms in the region. Reforms in health and insurance markets, which were supported by the World Bank (1992) and the IMF, failed to increase access to and choice of health insurers, and improve overall welfare (Armada et al. 2001; Rotarou and Sakellariou, 2017). However, such reforms were considered more successful in Argentina and Colombia, where greater use was made of regulatory agencies and risk-reducing redistribution mechanisms (Bertranou, 1998).

³ For example, in the Swiss pro-competition reforms, whilst consumers have choice of insurer, insurers have to include all hospitals in their insurance packages (Frank and Larimaud, 2009).

⁴ For example, for the Netherlands, see Rosenau and Lako (2008).

themselves. Examples include England, which has been a European leader in providing some quality information for hospitals and primary care providers; the Netherlands, which provided quality information for hospitals; and France, where the government has recently sought to increase information on process measures of quality and hospital activity (Siciliani et al., 2022). Third, policies to change funding such that provider revenues increase in the number of patients and/or the quality of care. Some reforms have allowed providers to set their own prices, though an increasingly common reform model is to pay providers via prospectively fixed prices per patient or per treatment type (for example, Germany, Norway and, in one set of pro-competitive reforms, England).⁵ Fourth, policies to encourage the entry of private providers into systems in which provision was previously provided only by the public sector (e.g. England in hospital-based care, Norway in care provided by family practitioners, Finland in community-based care).

As noted above, these reforms have three broad components: giving more autonomy to healthcare suppliers (often part of a move towards decentralization from central or regional government to the suppliers of care); the promotion of competition between suppliers through greater choice by users of care or their agents or by direct comparison through yardstick competition on measures of performance; and changes in financial incentives for suppliers of care.

The balance between each of these components has varied across reforms within and between countries, but arguably without all three components being present in some form, achieving greater competition is difficult to bring about. Without autonomy, suppliers are unable to make improvements in quality or efficiency in response to market conditions. If information is not publicly available on provider quality, then consumers or their agents have limited information on which to base their choices and suppliers have no incentives to increase effort to improve service provision. Where information is only available on a subset of outcomes or activity, suppliers have an incentive to focus effort on the published outcomes and divert effort from those aspects of performance which are not made public – a long-established concern in the literature on information revelation (analysed in the healthcare context in Dranove et al., 2003; Dranove and Jin, 2010). If financial incentives which allow suppliers to benefit from providing better services are not introduced (for example, providers are simply given budgets based on their last year's budget), then there are fewer incentives to change services in response to the behaviour of other suppliers than if they are also rewarded financially for better performance.

While these pro-competitive policies do not generally change the direct cost to the consumer (which is either zero or low), they combine changes in incentives for demanders (patients or agents purchasing care on behalf of patients) and suppliers of care (hospitals, specialists, family doctors), or both. For example, the introduction of prospective pricing explicitly affects the

⁵ The same approach is used in the US market to pay providers of care for individuals aged 65 and over who are insured under the public programme Medicare. The prospective prices are known as Diagnostic Related Groups, or DRGs.

supply side. But its effects depend also on the demand side of the market through patient choice policies, which will influence the extent to which hospitals can attract additional patients by raising quality. The provision of information on the quality of services provided by suppliers will affect both demander and supplier behaviour. Pro-competitive and choice-based reforms are therefore a portfolio of interdependent tools, aimed at demanders and suppliers of care and the markets through which they interact.

Policies to promote greater choice and competition will have different implications depending on the service (primary or secondary care), the dimensions of quality on which providers compete, the market structure, and the diversity of providers (Siciliani et al., 2022). How effective such policies are depends on the answers to the questions flagged in the introduction about consumer, insurer and healthcare supplier behaviour changes in response to the changes in incentives brought about by greater use of market mechanisms to deliver care. On the demand side, do consumers have incentives to make choices of providers, what constraints do they face, how do they respond to the available information? On the supply side, how do healthcare suppliers respond to the release of information on their output? Are there incentives for suppliers to respond to increased choice or to changes in market structure? Do they increase quality or cut costs and prices? What other aspects of production are altered? Do responses differ depending on the relative strength of extrinsic (profit-orientated) and intrinsic motivation of the suppliers? How does the introduction of such reforms change the allocation of care across individuals of different incomes and severity of illness?

To shed light on (some of) these questions, I briefly outline theoretical analyses that have been used to explore the impact of greater competition and user choice on outcomes in healthcare markets. Much of the literature has been focused on the US market, but institutional details matter so my focus is on research that has applied theory to competition in healthcare in the context of heavily regulated European systems.⁶

3. Theoretical analyses of competition between healthcare suppliers

Gaynor et al. (2015) present a general framework for analysing the effect of competition on the choice of quality by healthcare providers. Under ex-ante fixed prices, nonprice (quality) competition gets tougher in the number of firms, so long as the regulated price is set above marginal cost. Firms facing tougher competition will increase their quality in order to attract and retain consumers. The increased quality can benefit consumers but may not be welfare increasing. In particular, with entry costs, if firms neglect business stealing effects there can be excessive entry.

When firms choose both quality and price, there are no determinant results on the effect of competition. The outcome depends on various factors including the relative elasticities of

⁶ Gaynor et al. (2015) and Handel and Ho (2021) provide detailed reviews of theory and empirical analyses that address issues that are particularly relevant to the US healthcare market.

demand with respect to quality and price for different consumers and the nature of competition between firms. In markets where consumers are fully insured and less elastic to price, competition is more likely to increase quality. Where consumers are less insured, competition may lead to price and quality reductions. If firms have differing marginal costs of producing quality, greater competition that leads to increased quality can have varying effects on prices and may increase price dispersion.

The model above – and other models of quality determination by providers reviewed in Gaynor et al. (2015) - focus on a single quality dimension observed by customers and on monopolistic competition, in which there is no strategic interaction between providers. Absence of strategic interaction is appropriate when there is a large number of competitors, none of which impact more on one rival than on another.

Theoretical analyses of the impact of pro-choice reforms on regulated European markets have adopted a different approach as they have sought to model the effect of key features of these markets. These include the existence of non-profit/motivated providers who care about consumer benefit but also about their own self-interest (as in Newhouse, 1970 and Glaeser and Schleifer, 2001); price insensitive consumers who care about travel distance as well as quality; and an important role for the regulator. Models generally allow for strategic interactions between suppliers. Issues that have been addressed include the impact of competition between suppliers when some aspect of quality is unobserved by consumers; whether entry into a market served by a non-profit incumbent will increase welfare; how the regulator should set prices; and the impact of greater use of competition and choice on the distribution of care.⁷ Table 2 provides an overview of the modelling approach and assumptions adopted in papers in this relatively small literature.

3.1 Does entry increase welfare?

Papers examining whether entry increases welfare include the following. Besley and Malcomson (2018) explore the allowing entry of a for-profit provider into a market served by a not-for-profit incumbent.⁸ Quality is modelled as having an observed and an unobserved component. They show that entry of a for-profit guarantees that consumers are better off provided that the non-profit incumbent is retained as an active supplier. But a for-profit entrant competing with a not-for-profit incumbent needs a greater cost advantage for entry to be worthwhile than if the incumbent were for-profit. This creates a trade-off from retaining the not-for-profit incumbent - it ensures greater benefit to consumers if entry occurs but with a lower probability of benefit-increasing entry. The paper also shows that, in this setting, it is not in general optimal for there

⁷ See also the review by Levaggi and Levaggi (2024)

⁸ Laine and Ma (2017) include quality of service in their model of competition between public and private firms. Their public firms, however, are assumed to maximize social surplus, rather than having their own self interests.

to be a “level playing field” with the same fee for both incumbent and entrant as the probability of entry is endogenous to the fee that is set.

Brekke et al. (2011) show that when prices are regulated and providers are semi-altruistic, competition does not necessarily increase quality. If the price-cost margin is not positive, competition may not increase both quality and efficiency. Using the same analytic approach, Brekke et al. (2017) examine the impact of mergers and find that, while mergers always increase cost efficiency, the impact on quality is ambiguous. Brekke et al. (2012) provide a model in which a unidimensional measure of quality is lower in markets in which both profit and non-profit constrained providers operate. Whether provision should be by only for-profits or by profit constrained (semi-altruistic) providers depends on the level of provider altruism, patients’ valuation of quality and provider efficiency. This contrasts with Besley and Malcomson (2018) and with Herr (2011) who both show that markets with a for-profit and a public hospital can be more efficient.

Halonen-Akatwijuka and Propper (2008) examine the conditions under which a self-interested politician will introduce competition and/or managerial control by providers. In their model, the politician can use managerial control and competition to elicit greater managerial effort and hence higher quality. However, managerial control and higher quality come at a cost: the first brings a loss of political benefits, the second higher tax revenues. The politician will choose competition when she derives benefit from a high-value service and when cost of raising taxes is not too high. She will delegate control rights if the effort level that can be implemented under managerial control is sufficiently greater than under politician control.

3.2 Price setting by the regulator

Brekke et al. (2006) considers a market for hospital care where entry is free, providers compete in quality, and providers are horizontally differentiated. If the regulator sets a price before provider location is chosen, the optimal (second-best) price causes excessive investment in quality and an insufficient degree of differentiation, as compared with the first-best outcome, at least if the transport cost is sufficiently high. In contrast, if the regulator sets the price after the location choice, optimal regulation induces first-best quality provision, but excessive differentiation. Bardey et al. (2012) show that, where there is a single non-contractible dimension to quality, fixed payments per episode are dominated by two-part tariffs.

3.3 The distribution of care

A small number of papers focus on the effects of competition with regulated prices on the distribution of care. Siciliani and Straume (2019) examine quality when patients’ evaluation of healthcare benefits depends on the severity of their illness and the two competing hospitals have different levels of efficiency. They examine two sources of inequality. The first, designated as ‘postcode inequality’, arises because a patient that lives close to a low-quality hospital has to travel further to receive higher quality care. The second is differences in severity of illness across patients. The authors examine the effects of competition on the quality gap between the

competing hospitals and in health outcomes. Under competition, the first may increase or decrease, depending on the structure of the cost function, the relative efficiency of hospitals and the shape of the demand function. Predictions with respect to postcode inequality are relatively straightforward: if competition leads the more efficient hospital to increase quality and the less efficient hospital to reduce quality, postcode inequality increases and vice versa. However, the effect of competition on patient heterogeneity in illness severity is less clear and does not necessarily go in the same direction as differences in hospital quality.

Halonen-Akatwijuka and Propper (2024) examine the implications of consumer heterogeneity for an inequity-averse regulator's choice of competition or monopoly. Their innovation relative to other papers in this small literature is to allow providers to derive greater private benefits from serving one type of user than from serving another. They show that competition can raise average quality. However, this may be at the expense of the minority type of user if the providers get greater benefit from serving the majority type of user. In this case an inequity-averse regulator may protect the minority by not introducing competition. Alternatively, if the providers favour the minority type of user, the regulator may introduce competition to incentivize the providers to pay attention to the less rewarding majority type.

In summary, the various theoretical analyses of healthcare markets show the importance of the assumptions with respect to the objectives of suppliers in the market, the way in which prices are set and the observability of quality. Competition does not always improve quality and may increase inequality.

4. Empirical Evidence: Analytical approaches

Empirical research on competition in healthcare has been dominated by US studies. Initial research focused largely on hospitals (Gaynor and Town, 2012; Gaynor et al., 2015), though there is a growing literature on competition between physicians and on the effect of entry into physician or hospital markets by new providers. I begin by discussing the analytical approaches which have been adopted to derive causal estimates of the impact of greater use of the market in the delivery of healthcare. In the following two sections I present the results of empirical studies of competition and choice in European healthcare markets, examining hospital markets and community-based care (family doctors, specialists) separately, as economic features differ between these two types of market.

Empirical analyses of competition in healthcare markets use a variety of econometric approaches. Initial analyses in the US context for hospitals used a structure-conduct-performance approach (SCP) in which market structure is hypothesized to affect firm behaviour which in turn affects outcomes. Most of the SCP models applied to healthcare focus on the link between market structure and firm conduct, and omit industry performance. The typical conduct measure in the general industrial organization literature is price or price-cost margin. Given that prices are often regulated, the conduct variable in the healthcare literature has more generally been quality or some other measure of firm performance. The measure of market

structure is some measure of concentration, often the Herfindahl Index (HHI). Estimated models also incorporate demand and cost shifters.

Gaynor et al. (2015) point out that this model is not strongly rooted in a theoretical framework. It also suffers from measurement issues. Measuring concentration is inherently difficult because in the healthcare context markets are not observed directly in the data, but more importantly, the HHI (or any market structure measure) is likely to be endogenous. Unmeasured variation in demand and cost factors affect quality, price and market structure. For example, a firm with low costs is likely to both have a high market share (leading to a high HHI) and choose high quality. Alternatively, if high fixed-cost investments improve quality, then hospitals in high-density markets will have higher quality simply because they spread these costs over more patients. More fundamentally, different changes in primitives can produce the same observed correlations between concentration and quality/prices, with very different implications for welfare. A positive observed correlation between market concentration and prices, for example, could be caused by firm mergers that jointly generate higher concentration, higher markups, higher prices and lower consumer surplus. However, the correlation could also be observed if large firms have low marginal costs but high fixed costs, since in that case firm size (and industry concentration) may be associated with high markups, in part in order to recover the fixed costs (Handel and Ho, 2021).⁹

Analyses using the SCP approach for healthcare markets have recognised issues in defining markets and the endogeneity of measures of concentration. In an early and influential paper, Kessler and McLennan (2000) instrument HHI based on predicted flows from patients' location to providers (in their case hospitals). This approach is useful when the only variation across markets is spatial variation in the extent of competition. But where competition is introduced by policy reform, this can provide some exogenous variation, potentially overcoming the endogeneity in the market structure measure.

Much of the research examining European markets has therefore sought to adopt such an approach, combining policy-introduced reforms with pre-existing market structure to estimate a difference-in-difference type model interacting the reforms (generally time-invariant) with some measure of pre-reform market structure. The hypothesis being tested is that those providers who are more exposed to the effect of the reform as a result of the pre-existing market structure will react more. A smaller set of studies has examined the increase in competition brought about by the entry of private providers into a market in which there were previously only (often monopoly) public suppliers or the increase in competition following regulatory that allowed entry of new types of provider. Another approach is to exploit the impact of a decrease

⁹ For these reasons, later US analyses have moved away from the SCP to estimate more structural models, with a focus on US institutional details specific to US markets (see Handel and Ho, 2021).

in competition brought about by mergers that are the results of policy change. Finally, a small number of studies take a structural approach to the estimation of demand and supply.

Almost no analyses examine welfare. Instead, research has focused on the impact of choice and competition on a relatively limited set of measures of the quality of healthcare production. The early empirical literature on hospital competition and quality focused on quality for emergency conditions, in particular mortality following emergency admissions for acute myocardial infarction (AMI), more commonly known as a heart attack. This is partly because mortality is well measured and this approach also reduces possible bias from selection of hospitals by patients with different unobserved ill-health (morbidity) as emergency care patients typically do not choose their hospital of treatment. However, using mortality from emergency admissions relies on the assumption that quality for emergency patients is strongly correlated with the quality of care for, and therefore demand from, other patients (Bloom et al., 2015). Later analyses have broadened the set of outcomes to include waiting times (important in markets where care is partly rationed by waiting), length of stay (an important component of efficiency in hospital production) and admissions (volume of activity). Despite the equity concerns of European policy makers, fewer studies have examined the effect of competition on the distribution of quality across different healthcare users.

Analyses of the family doctor/specialist markets tend to focus on process measures, sometimes including patient ratings of quality. Mortality at the level of these smaller markets is less common and more variable and so is statistically less robust.

5. Evidence from European hospital markets

One prerequisite for choice to drive up quality is that patients (or their agents) can choose their healthcare provider based – at least in part – on quality, so that demand responds to quality.¹⁰ Even when patients are allowed to choose their provider, there is no guarantee that they will actually do so. The link between consumer choice and welfare may be weakened by market frictions, such as imperfect information about providers (Arrow, 1978) or transaction costs associated with switching providers (Tilipman, 2022). Thus, before analysing the impact of policies to increase choice and competition on supplier behaviour and patient outcomes, it is necessary to understand whether patients value quality and whether increasing choice for patients changes patterns of demand.

5.1 Demand responses to policies to promote competition in hospital care

Evidence from England

¹⁰ Hence, policies, such as public reporting, that provide quality indicators in the public domain support patient choice. Public reporting is, however, not the only mechanism behind patient choice as patients can still act on information on quality informally through word of mouth for providers that have established a good reputation.

Several empirical studies have investigated whether hospitals with higher quality attract more patients.¹¹ England provides considerable evidence on this, as the government has been a leader in the introduction of markets into the delivery of public services, including healthcare, from the late 1980s (Bartlett et al., 1994). Within the healthcare space, political opposition to this model meant that this policy was reversed, and then instituted again, and the precise components of the pro-competitive reforms have changed over time. England has also been a market leader, relative to other European countries, in the release of information on various aspects of provider performance.

The UK government instituted two experiments to introduce competition between providers of hospital care in the English NHS. The first allowed public hospitals to engage in both price and quality competition. Budgets for healthcare that were allocated on the basis of previous year(s) budgets were replaced with a system in which local purchasers of care (essentially insurers for the population they covered) were given budgets based on population need. They then placed contracts for hospital care with local public hospital providers. These contracts were written over price and measures of activity, but no measures of quality were made public. Direct consumer choice of hospitals was not permitted under this pro-market reform. Instead, this reform relied on local purchasers making choices on behalf of the populations for which they were responsible. The second reform placed more emphasis on choice by the consumer. It maintained the separation between the buyers (local purchasers) and sellers of hospital care, but contracts negotiated between the buyers and sellers that had been written over price and quality in the first reform were replaced by centrally set prices for around 65% of hospital activity, the rest being funded primarily by block contracts. Entry of private providers was allowed, and patients were given choice of where they had their hospital treatment. To encourage hospitals to compete, hospitals were given greater autonomy in the use of financial surpluses. Alongside this was the release of a (limited set of) quality of care measures. This second reform is similar to reforms that promote school choice in which choice is made by parents (or children), funding 'follows' the user of services and entry of new providers is used to stimulate competition.

Gaynor et al. (2016) estimate a structural model of patient demand which exploits the second policy reform to evaluate its impact on patient choice. They found that higher quality hospitals attracted more patients for heart surgery post-reform and the reforms decreased market concentration in supply. Under the same policy regime, patients having hip replacements were more likely to choose hospitals with lower re-admission rates (Moscelli et al., 2021), higher patient gains (Gutacker et al., 2016) and lower methicillin-resistant *Staphylococcus aureus* (MRSA) infection rates (Beckert et al., 2012). There is also some evidence that sicker patients are more likely to value attributes of quality more highly than other demanders of care. Gaynor et al. (2016) who found that patients whose health condition was more severe were more willing to travel further than those who were less ill.

¹¹ See also the comprehensive review by Siciliani et al. (2022).

Evidence from other European settings

Reforms in other European countries have often not been accompanied by public information on the quality of hospitals. However, there is evidence that following choice reforms in the Netherlands (Varkevisser et al., 2012) and Italy (Moscone et al., 2020) patients alter their behaviour to choose hospitals that they perceive to be higher quality or that had published higher quality measures. For Sweden, evidence has shown patients are willing to travel further for hospitals that have higher reported quality (Avdic, 2015). For Germany, patients requiring heart surgery are willing to travel further to hospitals with better reputations (Pilny and Mennicken, 2014), better service quality and higher procedure volume (Kuklinski et al., 2021). From Italy, there is evidence that patients in need of angioplasty are willing to travel further to avoid longer waiting times and clinical quality (mortality), with stronger effects of quality for more severely ill patients (Bruni et al., 2021).

The finding that quality is one dimension of healthcare that patients value echoes findings from the US context where patients have historically had greater choice of hospital (e.g. Cutler et al., 2004; Ho, 2006; Pope, 2009; Tay, 2003). US studies also find that new information on quality, as provided for example by report cards, leads to changes in demand (e.g. Bundorf et al., 2009; Dranove et al., 2003; Dranove and Sfekas, 2008; Epstein, 2010). However, in general, while the evidence suggests that patients can and do respond to quality signals in European healthcare markets, the responsiveness of demand to quality remains low relative to proximity to provider (Dixon et al., 2010). This is also consistent with US studies (Gaynor and Town, 2011) which show that while hospitals with higher quality are rewarded with more patients, the response of demand for higher quality is relatively small, and distance to hospital remains the key determinant of patient choice. And while the empirical literature on patient choice has shown that hospital demand does depend on quality, there is much less evidence on the mechanisms through which higher quality affects patient choice. Several mechanisms could be at work, such as family doctors making the choice on the patient's behalf, the patient making the choice based on public information or the patient making the choice based on informal information about providers' reputations.¹²

5.2. Supplier responses to policies to promote competition

Evidence from England

Again, much of the evidence on the behaviour of European hospitals in response to pro-competitive policies comes from England. Propper, Burgess, and Green (2004) and Propper, Burgess, and Gossage (2008) provide evidence on the effects of the first set of reforms which allowed providers to set both price and quality and in which direct consumer choice was limited. Both papers use mortality following heart attacks as a measure of quality, which at the time of

¹² Beckert (2018) examines the dual role that GPs have in the English system. They are both agents for patients and help patients choose hospital care providers but they are also agents for the funders of healthcare. He finds that GPs as patients' agents select choice options based on quality, but as agents of the funders also consider financial implications of referrals.

the reform was not made publicly available. Both papers found that mortality increased with the number of competitors. It seems unlikely that hospitals deliberately set out to decrease survival rates. What is more likely is that in response to competitive pressures on costs, hospitals cut services that affected AMI mortality rates, which were unobserved, in order to increase other activities which buyers could better observe. The length of waiting lists for treatment was of considerable concern to both buyers and sellers of healthcare in England during the policy of competition. They were also measured and well publicised and so were observable. In support of this, Propper et al. (2008) found that hospitals subject to competition had significantly shorter average waits for elective treatment during the competitive era. Thus, competition had a positive impact on output which was visible and of concern to both buyers and sellers, but at the cost of a fall in (unmeasured) quality. However, back-of-the-envelope calculations by the authors suggested that unless the value of waiting time is very high, the net effect of competition was negative. More generally, the results indicated that hospitals in competitive markets have incentives to reduce unobserved quality in order to improve observed quality in response to different demand elasticities for measured and unmeasured quality.

Subsequent analyses of the behaviour of hospital suppliers in the UK have focused on the second, patient choice-based, reform. Cooper et al. (2011) and Gaynor et al. (2013) adopt a similar difference-in-differences approach, exploiting differences in the pre-reform extent of hospital competition coupled with the introduction of patient choice in 2006. Both analyses find that, following this second pro-market reform, risk-adjusted mortality from AMI fell more at hospitals in less concentrated markets than at hospitals in more concentrated markets.

Other outcomes that have received attention are length of stay and the impact of increased competition in non-emergency treatment (known as elective care). Gaynor et al. (2013) found that competition reduced length of stay but did not affect expenditure or volume of admissions. As they found that the reform reduced heart attack mortality by 0.2 percent but did not increase costs, they concluded that the introduction of competition was welfare improving, though this again was a very back-of-the-envelope calculation. Moscelli et al. (2018) delve into the impact on particular treatments/patients. They examined a range of emergency conditions and found that the choice reform reduced mortality for one set of patients (those admitted with hip fractures) but had no effect on patients admitted with strokes or heart attacks. Moscelli et al. (2021) examine booked (elective) surgery conditions (as distinct from emergency admissions) and find a reduction in quality for elective hip and knee replacements but no impact on elective heart surgery. They explain this difference of findings with the studies that examine overall hospital mortality as arising from differences in prospective prices and costs across different conditions. They present data that suggests that hospitals were making larger losses on hip and knee replacements (where they found a reduction in quality) than on elective heart surgery (where they found no effect on quality). This points to the importance of variation in patient severity relative to the regulated payments and in market conditions across different sub-markets. The same study also found evidence of effort diversion in response to greater competition. The reform reduced mortality for emergency hip fracture patients (in the same

specialty as elective hip and knee replacements) and for emergency AMI patients (in the same specialty as elective heart patients).

There is also some evidence that stimulating competition by allowing private providers to treat publicly funded patients increases efficiency, as measured by a reduction in the preoperative length of stay for patients having hip and knee replacements, even though private providers treated healthier patients leaving the sicker patients to the public hospitals (Cooper et al., 2018). Feng et al. (2015) found that private entry was positively associated with health gains for hip replacement patients, where the health gain is measured by the difference in patient-reported health outcomes (PROMs) before and after the surgery. However, this was not confirmed by Skellern (2017), which used a more robust design to deal with the endogeneity of private entry and found that competition reduced elective quality. For the same treatments, Kelly and Stoye (2020) found private entry decreased length of stay but also led to increased demand at public providers, leading to a fall in the severity of the marginal patient treated.

While a concern for equity is high among policymakers and is one of the features examined in the theoretical analyses of pro-competition policies in European healthcare markets, there is less empirical evidence on the effect of these policies across different types of patients. Analysis at the small geographical area level for England by Cookson et al. (2013) found that the choice reforms did not increase inequality in access to elective care. Gaynor et al. (2016) found that sicker patients benefited more from choice of hospital, with no differences in gains by (small area) income. Kelly and Stoye (2020) found that use of private sector entrants for elective care was higher in more affluent areas, but this was due to the pre-existing location of private providers in more affluent areas rather than patient selection. They were unable to disentangle location of providers from potential differential treatment of individuals across incomes.

Evidence from other European countries

In general, the evidence base for other European countries is more limited. This is partly the result of a lack of published quality data prior to the introduction of pro-choice reforms, rendering robust assessment difficult.

Norway: One country for which robust empirical analyses exist is Norway. The Norwegian NHS is broadly similar to the English NHS system. Nationwide patient choice of hospitals was introduced in the Norwegian NHS in 2001. The choice reform replaced an administrative scheme with referral of patients to the closest hospital in the catchment area, and thus implied a switch from a situation where hospitals were local monopolists to a situation with potential for (non-price) competition.

Brekke et al., (2021) seek to test the idea that where semi-altruistic hospitals operate under competition with fixed prices the impact of competition on quality depends on the hospital's profit margin and is not always positive. They examined this using a difference-in-difference design similar to Gaynor et al. (2013) and Cooper et al. (2011). The results are not clear-cut. For emergency treatment, where selection is less likely to be an issue, they found that the

introduction of patient choice (and thus competition) in the Norwegian NHS was associated with positive effects on the quality of emergency care. Acute myocardial infarction (AMI) mortality rates for hospitals in more competitive areas fell more than for hospitals in less competitive areas. They also found a positive but smaller effect on all-cause mortality for emergency admissions. This corroborates the English evidence. The authors also found some evidence that the introduction of competition is associated with a sharper decline in length of stay for emergency admissions at hospitals in more competitive areas compared to hospitals in less competitive areas. As length of stay is a key contributor to the cost of inpatient hospital care, this result suggests a pro-competitive effect on hospitals' cost efficiency. On the other hand, they found the introduction of competition was associated with a sharper increase in readmission rates for emergency admissions at hospitals in more competitive areas compared to hospitals in less competitive areas post the choice-based reform. Higher (emergency) readmission rates are interpreted as being the result of more complications related to the first treatment and thus an indicator of poorer treatment quality. They also examined the effect of variation in prices and found that when the price per case rose, the positive effects of introducing patient choice tended to be reinforced, thus confirming the theoretical prediction that a higher DRG price reduces the scope for adverse competition effects.

The Netherlands: Evidence from a setting in which market reform in the 1990s was introduced on both the insurer and the provider side comes from the Netherlands. Hospitals were permitted to set their own prices. An early study found hospital price-cost margins were lower in areas where insurers had larger, or hospitals had smaller, market shares (Halbersma et al., 2011). For cataract surgery, however, provider concentration did not affect negotiated prices or quality (Heijink et al., 2013), and substantive price variations between hospitals persist for the same treatments (Douven et al., 2020). Evidence on hospital quality is limited and mixed (Siciliani et al., 2022). In a recent review Maarse and Jeurissen (2024) argued that institutions in the Netherlands often compete much less intensely than the original reforms expected and that contract and price agreements have often resulted in a de facto budget system in some areas. This may account for the finding by Roos et al., (2020) that price deregulation in the Netherlands did not appear to affect quality for hip replacements. Perhaps the clearest outcome of the pro-market reforms in the Netherlands has been the change in market structure. The number of hospitals has steadily declined since 2000 by around 27 per cent, driven by a wave of merger activity partly in response to insurer competition.

France: Studies from France provide evidence on differences in response to competition between public and private hospitals in markets where patients have choice of provider of care. In France, patients have freedom of choice of hospitals. Private hospital provision is important, with around 60% of surgical treatments being provided by the private sector. France introduced a prospective payment system in 2005 that applied a higher rate to public than private hospitals. While hospital outcomes are not made public in France, there is reporting of quantity of activity and process indicators related to quality (Choné, 2017). Prior to the pricing reform, admissions grew less rapidly in public hospitals than in private hospitals, while after its introduction this

trend was reversed (Choné et al., 2013). This confirms the more general finding that paying for activity where there is competition between suppliers tends to increase hospital admissions, a finding substantiated in several European healthcare markets (Street et al., 2011). There was also evidence that patients were willing to travel further for hospitals perceived to be of higher quality (Choné and Wilner, 2015). Non-profit hospitals, which have greater managerial autonomy than public hospitals, exhibited larger declines in mortality when located in more competitive areas (Gobillon and Milcent, 2017), indicating less managerially constrained suppliers responded to the increased demand by increasing (one aspect of) quality.

Choné and Wilner (2022) extend analyses of the effect on volume of the payment reforms to analyse strategic interactions, marginal costs, and welfare implications. They – in contrast to most previous work – build a structural model of hospital behaviour to estimate hospital objective functions and marginal costs. They use this model to estimate the effect of financial incentives from demand shocks. They find that while non-profit hospital increased activity, the increase in volumes were accompanied by substantial adjustment costs, meaning that non-profits were substantially worse off post reform. There was also limited increase in total activity, so that the reform shifted activity rather than increasing it. They found that financial incentives explained only around 10% of non-profits' motivation, with the implication that reforms based solely on financial incentives may have limited effectiveness in altering behavior of these providers. They also found that demand shocks, rather than strategic interactions, drove most of the changes in activity.

They conclude that this pricing reform within a competitive market created a welfare trade-off. While it may have improved allocative efficiency by encouraging non-profit hospitals to attract more patients, it also imposed significant costs on these institutions, potentially undermining their ability to deliver high-quality care or maintain staff morale.¹³

Germany: Germany has historically allowed patient choice of hospitals in a publicly funded system characterised by extensive provision by private providers. From the 1990s, Germany introduced a number of competitive elements into its publicly funded healthcare system. Sickness funds were given some freedom to sign selective contracts with providers. Competition between ambulatory care providers and hospitals was introduced for certain diseases and services. Quality reporting, however, has been very limited (Kifmann, 2017) and there is little robust evidence on the impact of increased provider competition on hospital outcomes in Germany. The most striking outcome is, as in the Netherlands, the extent of merger activity (Siciliani et al., 2022).

5.3 Evidence from hospital mergers

¹³ Or et al. (2020) also noted a trade-off between higher competition and costs in the French setting. They found that markets in concentrated markets had less innovation in cancer treatment but had higher volumes and so - they argued - lower costs.

One of the features of several European markets in the last two decades, alongside the promotion of choice and competition, has been a wave of merger activity. Hospital mergers potentially bring the benefits of synergies and scale economies, where costs are reduced as a result of the larger scale of the new, merged organization.¹⁴ Mergers can also provide an opportunity for rationalizing hospital configuration, particularly in countries with a large stock of hospital beds and with excessive numbers of small providers which are not able to exploit scale economies. On the other hand, mergers can increase the market power of hospitals and reduce patient choice. They can also make access more costly for patients if mergers occur in areas of low population density (Siciliani et al., 2022).

The wave of mergers seen in the European context is probably partially due to provider attempts to get greater bargaining power with insurers, particularly where hospitals negotiate with competing insurers (for example, in France and Germany), and partially the result of a more general move in hospital production to larger units to reap benefits of scale and scope. However, regardless of the reason for mergers, they reduce the number of providers in the market and so can be exploited to evaluate the impact on quality of care or other outcomes from reductions in competition. But despite the high level of merger activity, relatively few studies have attempted this in the European context.

Gaynor et al. (2012) examine England. They exploit a policy change that occurred between the two waves of pro-competitive reforms. Between these, the policy was reversed and the government pursued a policy of hospital consolidation.¹⁵ As a result, between 1997 and 2003, England experienced a wave of hospital reconfigurations, with over half of acute hospitals involved in a reconfiguration, resulting in the median number of hospitals in a market falling from 7 to 5. Gaynor et al. (2012) use this policy change to examine the impact of a decrease in competition on hospital production. They adopt a difference-in-difference approach in which merged hospitals are compared to a control group selected to be comparable to the merged hospitals pre-merger, an approach widely used in the analysis of the impact of hospital mergers (for example, Beaulieu et al., 2020; Dafny, 2009) to address the endogeneity of mergers. They found that post-merger NHS hospitals had lower growth in admissions and staff numbers but no increase in productivity (defined as admissions/staff), no reduction in deficits and no improvements in various measures of quality. The authors concluded that such mergers were costly to bring about and had few visible gains other than a reduction in capacity. These results echo the conclusions from studies of the impact of hospital acquisitions and mergers in the US.¹⁶

¹⁴ Merging hospitals usually claim that the merger will improve collaboration and, as a result, improve services and increase quality, or that economies of scale will allow hospitals to improve financial performance, through reduced costs and achieve productivity gains (Gaynor et al., 2016).

¹⁵ The cited grounds for this were that pro-market reforms had led to inequity in access to care, though as noted above, there was little hard evidence of this.

¹⁶ The growing US literature demonstrates that mergers, particularly among hospitals that are close substitutes, can lead to increases in prices via a lessening of competition (Brand et al., 2023; Capps et al., 2003; Cooper et al., 2019; Dafny, 2009; Gaynor et al., 2015; Gowrisankaran et al., 2015; Haas-Wilson and Garmon, 2011; Brot-Goldberg et al.,

The Netherlands – as noted above – experienced a significant number of mergers due to a relatively permissive approach to mergers taken by the Dutch competition authority, driven by the belief that insurers would exercise countervailing power in negotiations with hospitals as prices are set by hospital-insurer negotiation (Schmid and Varkevisser, 2016). Roos (2022) investigates the price consequences of hospital mergers in the Netherlands. Using a difference-in-differences design she finds that prices increase post-merger. Price increases varied across insurers and certain hospital services had more pronounced price increases than others, suggesting that market power may be more easily exercised in specific service categories, and hospitals located in less competitive regions had larger price effects. Azevedo & Mateus (2014) examine the cost effects of hospital mergers in Portugal between public hospitals. They find that mergers generally led to cost savings, which were greater in mergers of hospitals that were in close geographical proximity. They attribute these savings to exploitation of economies of scale and resource reallocation. They did not examine patient outcomes.

5.4 By what mechanisms did the reforms bring gains in the hospital sector?

While there is a growing body of research on the impact of competition brought about by policies to promote greater choice in secondary care, there has been little study of the mechanisms by which competition might bring benefits. Some insight into the mechanisms underlying the relationship between market structure and quality in hospital care is provided by Bloom et al. (2015). The authors use data from the English NHS and employ a measure of management quality developed by Bloom and Van Reenen (2007) to examine the impact of market structure on management quality and, ultimately, on a small number of measures of hospital quality (AMI mortality, emergency surgery mortality, and other measures) and financial performance (surpluses). Using an instrument to predict the number of close-by competitors, they found that having more close-by competitors has a strong and significant impact on management quality and hence, on clinical quality of care and other measures of performance. Their estimates imply that adding a close-by rival hospital increases the measure of management quality by one-third of a standard deviation and thereby reduces heart attack mortality by 10.7 percent. While these results are for the English NHS under specific institutional arrangements, they provide some insight into one mechanism – that competition stimulates the adoption of better management practices.

6. Evidence from primary care markets

Despite the important role of primary care in healthcare systems, primary care markets have been studied far less than hospital and nursing markets and the empirical literature on primary care competition in settings with regulated prices in European settings is limited, although growing. Conditions for a competitive market may be more favourable in the primary care

2024). Conversely, there is little evidence that mergers raise hospitals' quality (Beaulieu et al., 2020, Gaynor et al., 2023).

sector than in the hospital sector because the former is characterised by a large number of small sized suppliers.¹⁷ This smaller size of primary care practices potentially means both lower entry costs and fewer concerns about economies of scale. In addition, private ownership of primary and specialist practices is common across Europe and so financial incentives are likely to have stronger and more immediate impacts. And because consumers interact more frequently with primary care providers than hospital providers, they potentially have more access to information through word of mouth and reputation, even if there are no published quality measures.

6.1 Demand responses to pro-choice policies

There is evidence that patients respond to quality (or correlates of quality such as medical staff to patient ratios) in primary care markets from several European countries. For Beveridge countries in which family doctors play an important gate-keeping role in controlling access to secondary care, papers include Dietrichson et al. (2020) for Sweden, Iversen and Luras (2011), and Biørn and Godager (2010) for Norway and Santos et al. (2017) and Empel et al. (2023) for England.

Brown et al. (2023) extend these findings by estimating a structural model to examine how differences in information contribute to inequalities in healthcare quality in patients' choice of general practitioners (GPs) in England. Despite universal access to public healthcare, low-income patients tend to register with lower-quality GPs. The authors attribute this disparity to differences in information availability. They exploit an NHS website that displayed quality ('star') ratings for GP practice and use a regression discontinuity design to show that low-income patients responded strongly to these ratings, while high-income patients did not, suggesting the latter had better private information. They use these findings in a structural model incorporating heterogeneity in information, preferences, and inertia. They estimate that information differences explain 24% of the income-quality relationship. Policy simulations show that equalizing information and access could eliminate up to 90% of the disparity, while preferences play a minor role. The take-aways from their analysis are that greater provision of information systems will help improve choices of those who have less access to information; that there should be targeted informational campaigns to reach underserved populations, such as simplified comparison tools, community outreach, and personalized GP recommendations; and that information needs to be combined with access reforms, as their model shows that improving both information and access is necessary to significantly reduce disparities.

Benefits from policies to increase information for patients is supported by Anell et al. (2021). This paper focuses on the impact of information and switching costs on consumer choices in primary healthcare, providing evidence from randomized field experiments in a Swedish setting. Participants received leaflets containing comparative information about primary care providers, along with pre-paid choice forms to facilitate switching. The interventions increased the

¹⁷ This may change with the entry of online providers of primary care.

propensity to switch providers both in the general population and among new residents. These results suggest that information frictions and switching costs can be significant barriers in the primary care market and that providing comparative information and reducing switching costs can enhance consumer choice (see also Empel et al., 2023).

Huitfeldt et al. (2024) focus on Norway's system for allocating patients to general practitioners (GPs). They provide empirical evidence of misallocation in the current GP assignment system, where patients are stuck on waitlists for each other's GPs but cannot trade. They examine designing a dynamic reassignment mechanism to improve on this. They propose a dynamic version of a Top Trading Cycle (TTC) algorithm and evaluate its performance using a structural model of switching behavior and GP choice. The analysis considers fairness concerns and the impact on different patient groups. They find that introducing TTC would on average reduce waiting times and increase patient welfare—with especially large benefits for female patients and recent movers—but patients endowed with undesirable GPs would be harmed. They conclude that policy adjustments to the current priority system could help balance these trade-offs.

As noted above, the Netherlands introduced competition between insurers. A study by Handel et al. (2024) of insurance choices in the Netherlands sheds light on the quality of demander choice decisions. The authors find this to be low on average, with many people foregoing options that deliver substantive value. They also find a strong choice quality gradient with respect to key socioeconomic variables. Individuals with higher education levels and more analytic degrees or professions make markedly better decisions. Social influence on choices further increases inequality in decision making, since they find strong within firm, location and family impacts on choice quality. Finally, they use their estimates to model the consumer surplus effects of different counterfactual scenarios and show that while smart default policies could improve welfare substantially, including the choice of a high-deductible option delivers little welfare gain, especially for low-income individuals who make lower quality choices and are in worse health.

6.2 Supply responses to pro-choice policies in primary care markets

There is some evidence that changes in demander behaviour in primary care markets arising from allowing greater choice or provision of information have led to changes in the behaviours of primary care providers. GPs operating in more competitive markets in Norway had fewer emergency admissions (Islam and Kjerstad, 2017) and higher patient satisfaction and shorter waiting times for consultations (Barros, 2017).¹⁸ However, while there is evidence of positive effects, a recent review by Siciliani et al., 2022 concluded that in general, the quality increases that stem from policies that permit or encourage more patient choice of primary care provider appear to be small (see also Dietrichson et al., 2020; Gravelle et al., 2019 and Godager et al.,

¹⁸ In Belgium a cross-sectional association was found between prescriptions and more GPs in an area (Schaumans, 2015), perhaps indicating greater responsiveness to patients in less concentrated markets.

2015). This echoes findings from education, where school choice and vouchers have mostly had small or insignificant effects on achievement (e.g., Rouse and Barrow, 2009; Fryer, 2017; Epplé et al., 2017).

The models of provider competition discussed above highlight that the effect of competition depends in part on the extent to which healthcare providers are motivated by altruism and income. Non-pecuniary sources of motivation are a strong feature of the healthcare sector and the impact of competitive incentives on behaviour may be lower where pecuniary motivation is low, or mission orientation (Besley and Ghatak, 2005) is high. Nevertheless, there have been few direct tests of the relationship between altruism and competition in healthcare. Scott and Sivey (2022) are a recent exception. They examine the relationship between physicians' motivation and price (but not quality) responses to competition in the primary care context. They examine this in the Australian context, which is broadly a Beveridge-type system in which primary care physicians set their own fees. They measure the marginal utility of income of physicians from a stated-choice experiment and examine whether this measure influences the association between the local competition faced by physicians and their prices. They find that physicians are more likely to exploit a lack of competition with higher prices if they have a high marginal utility of income.

6.3 Competition from new entrants/new models of care

In healthcare, competition arises not just from new entrants of the existing type, but also from new types of suppliers. Medical labour markets have been deregulated in both primary and secondary care settings, allowing new entrants to provide services in competition with existing suppliers or as substitutes for existing suppliers. This includes allowing pharmacists and more highly qualified nurses (nurse practitioners) to prescribe certain medications or to take on previously restricted procedures and allowing the entry of online doctors (telemedicine) who primarily operate in primary care markets, providing advice and certain medications.

The literature outside of health care generally finds that the introduction of new products can have large positive impacts on consumer welfare (e.g. Petrin, 2002; Gentzkow, 2007). However, this need not be the case in the health care sector. The large role of public programs where prices are set administratively, the importance of private third-party payers, and the presence of asymmetric information imply that new organizational forms can plausibly reduce consumer well-being. That is, these organizations could be designed to exploit administrative pricing irregularities, the inability of insurers to curtail patient utilization, or knowledge gaps between patients and providers over the quality and necessity of the care they receive (Gaynor and Town 2011).

While there have been policies to promote use of less qualified clinicians as substitutes for more qualified clinicians in European countries, there have been to date few causal studies of the effect. Most studies with causal designs that examine the effect of allowing nurse practitioners to operate in competition with physicians are from the US setting. Currie et al. (2023),

Markowitz and Smith (2023) and Dillender et al. (2024) exploit state level variation in changes to nurse practitioner (NP) scope of practice laws. Dillender et al. (2024) show that changes in scope of practice laws led to increases in demand for NPs and their earnings. The evidence on patient harm is mixed. Currie et al. (2023) find that the existing incumbents (GPs) increase prescribing of opioids and anti-anxiety medications and co-prescribing of opioids and benzodiazepines rises in response to NP competition. In contrast, Markowitz and Smith (2023) study patient harm as measured by malpractice payouts and safety violations and find these do not rise amongst NPs and physician malpractice payouts decline.

One area in which there has been considerable entry in primary care is telemedicine, particularly post-COVID. To date, there have again been relatively few causal studies in European markets. Dahlstrad et al. (2023) exploit the quasi-random allocation of patients to online GPs in Sweden to study how does the mode of healthcare delivery—online versus in-person—affect patient outcomes, provider costs, and overall healthcare efficiency. They find that online consultations are delivered more quickly and are shorter in duration but yield similar in-consultation outcomes to in-person visits (e.g., diagnosis, prescriptions, referrals, satisfaction). However, online consultations are associated with more emergency department (ED) visits and additional in-person primary care visits within 30 days, which reduces the cost savings of online consultations. The authors find no significant differences in avoidable hospitalizations or medium-term health outcomes between online and in-person consultations. They conclude that online consultations offer modest cost savings, especially for less vulnerable patients who are unlikely to require follow-up care, and may help reduce access gaps between urban and rural areas, and between richer and poorer populations.

Dahlstrad (2022) quantifies reallocation gains in Swedish online healthcare by exploiting nationwide time-conditional random assignment between patients and physicians in telemedicine. She finds that matching high-risk patients with doctors effective at reducing emergency room visits would reduce costs as it lowers such visits by 4.4%, as well as reduce counter-guideline antibiotics by 3.1%. Overall, she shows that telemedicine, by enabling matching that is not based on distance, could improve overall welfare.

The Israeli health care system shares many of the features of Beveridge-type European healthcare systems: tax-financed health care for all citizens of all ages, free at point of demand, provided by salaried doctors (in both primary and secondary care) and capitation-based payments. Exploiting the rise in telemedicine during COVID to estimate a difference-in-differences model, Zeltzer et al. (2024) compare primary care episodes before and after the lockdown between patients with high and low access to telemedicine, with access defined based on their main primary care physician's propensity to adopt telemedicine during the lockdown. Increased access to telemedicine results in a 3.5% increase in primary care visits, but a 5% lower per-episode cost and no evidence of missed diagnoses or adverse outcomes. They conclude that the increased convenience of telemedicine does not compromise care quality or raise costs.

7. Integrated care

7.1 Moves towards integration

One feature of healthcare markets is the presence of many suppliers between whom there has been relatively little integration, either vertically with upstream or downstream suppliers, or horizontally. However, changes in treatment technology and gains from spreading costs across a larger base, and changes in payment models, such as bundled payments which reward systems that can better coordinate care particularly for complex patient groups, encourage horizontal and vertical consolidation.

The arguments made in favour of integration in healthcare provision are several. First, patient care often involves many different suppliers. Integration of these suppliers – either by changing provider payments or by formal mechanisms that change the boundaries of the firm (for example, employing primary care physicians directly by hospitals) has been argued to allow greater coordination and management of patients, resulting in better outcomes for patients. Second, larger organizations offering integrated care across and within sectors provides countervailing power to increasingly concentrated insurers (Ho and Lee, 2019). Having a single group deliver a whole range of integrated healthcare and related services could strengthen the bargaining power of the care group. This could be reinforced if the lead organizations are larger ones, such as hospitals, with already more concentrated market structures. Third, integration can reduce the administrative costs that arise when coordinating care across different organisations or can allow shared use of expensive capital in the case of horizontal integration.

A recent policy goal in several European markets has been to increase the integration of providers, particularly between providers of community-based care and hospital providers.¹⁹ However, there is a tension between policies to promote competition and choice and policies to increase integration. Integration reduces the number of suppliers in the market, potentially reducing choice for consumers and the extent of consumers. Vertical consolidation between primary and secondary care (which is perhaps more accurately viewed as consolidation of complements) raises an agency problem in the patient-physician relationship, as patients rely on their physician for information about which services are needed as well as for the provision of services. Consolidation increases the incentive for physicians to refer patients to the upstream providers with whom they are affiliated, perhaps for treatments that would not otherwise be recommended. And while integration has been argued to increase the bargaining power of providers when negotiating with insurers, the impact on patient welfare is not clear when few suppliers bargain with few insurers (Ho and Lee, 2019). In systems where the payer is the

¹⁹ In the USA, vertical consolidation between physician groups and secondary care providers such as specialists and hospitals has also increased substantially over the last 10-20 years.

government, a tension may also arise between the health benefits and the synergies from better coordination versus higher tariffs paid by the funder due to provider market power.

Brekke et al. (2024) examine this tension between competition and integration in a theoretical analysis. They analyse a market in which providers compete for patients, but where services need to be horizontally integrated across providers (e.g., for the treatment of a variety of chronic conditions where care requires both general practitioners and specialists). They investigate the effects of such integration when providers compete on quality to attract patients under regulated prices. They identify countervailing effects of integration on quality of care. While integration makes coordination of care more profitable for providers due to bundled payments, it also softens competition as patient choice is restricted. In the absence of synergies in the production of services across providers, integration generally leads to increases in quality for some services and reductions for others. The corresponding effect on health depends largely on whether integration leads to quality dispersion or convergence across services. If the softening of competition effect is weak, integration is likely to improve quality and patient outcomes.

7.2 Evidence on the effects of integrated care

Evidence of the impact of integrated care from Europe is limited. While there is evidence that some integrated care is cost-effective, overall the evidence base is weak (Nolte and Pitchforth, 2014). A review of 38 schemes, covering studies predominantly from Australia, Canada, England, Sweden and the USA, found no effect on health in most cases; in 11 there was no effect on secondary care costs or utilization, three reported lower secondary use, and in 19 the evidence was mixed (Mason et al., 2015).

In the absence of strong evidence from Europe and the current policy interest in integration, it is useful to consider the growing body of evidence from the USA on the effects of vertical integration of hospitals with other types of providers in the healthcare system. One study found that hospital ownership of a physician practice increases the probability that the physician's patients will choose the owning hospital and that patients were more likely to choose a high-cost, low-quality hospital when their physician practice is owned by that hospital (Baker et al., 2016). Two other studies found that increases in the market share of hospitals that own physician practices were associated with higher hospital prices and spending, whereas increases in the market share of hospitals that are contractually integrated with physicians were associated with small reductions in the volume of admissions (Baker et al., 2014; Capps et al., 2018). Hospitals can also integrate with post-acute care rehabilitation providers (skilled nursing facilities and home health agencies). One study found that vertical integration between hospitals and skilled nursing facilities increased payments but reduced rehospitalization rates, while vertical integration between hospitals and home health agencies had little effect (Konetzka et al., 2018).

Accountable care organizations (ACOs) are another US model of integrated healthcare. ACOs allow a network of hospitals and providers to jointly contract with the public payor to provide care to a population of (publicly) insured patients. The key feature of these ACO contracts is the use of shared savings to contain costs combined with incentives to maintain quality. These contracting arrangements seem to have had more positive effects than vertical integration between physician practices and hospitals, where contracts do not necessarily focus on quality. A systematic review found that the most consistent associations between ACO implementation and outcomes across payer types were reduced inpatient use, reduced emergency department visits, improved measures of preventive care and chronic disease management, with no evidence of worse outcomes of care (Kaufman et al., 2019).

In general, however, a recent review of the (limited) US evidence does not provide strong support for an increase in patient welfare following integration between physicians and hospitals (Handel and Ho, 2021). More generally, while consolidation may offer benefits like better resource access and potential efficiencies, it also poses important policy questions, including whether there is a viable alternative organizational form which would maintain the opportunity for competition among health providers and allow the market to work well.

8. Concluding thoughts

I begin by summarising the evidence that exists on the effects of greater choice and competition in the European setting and offer some thoughts on the evidence we need to make fuller assessments of the impact of pro-choice policies. I end with discussion of policy design to promote the use of markets in healthcare.

8.1 Evidence

Over the past two to three decades, increasing competition in regulated European healthcare markets has been a popular reform strategy. However, robust evidence on the effects of pro-choice and competition policies, while growing, is still relatively limited.

The largest body of evidence focuses on the responses of hospitals to policies to promote the use of the market in the allocation of care. In this context, it appears that patients (or their agents) can trade off quality and distance in making choices between providers. In response, under regulated prices, quality, as measured by (lower) mortality for emergency admissions, has increased. Evidence on other measures of quality of care, particularly in elective care, is more mixed, though the poorer quality results that have been found may be the result of costs being higher than prices – in other words, stems from inappropriate price setting rather than being a function of greater choice and competition. Evidence on various measures of efficiency is also limited, though on balance the policies appear to have reduced length of stay, which is one key driver of hospital costs. However, in many cases the effect sizes are not large. On the other hand, evidence from mergers suggests that reductions in hospital competition have not brought gains. This is supported by the larger body of evidence from the USA showing that mergers bring few gains and have led to higher prices and very few increases in quality.

There is less evidence from primary care, even though the conditions for choice are in some ways more favourable in primary than hospital care. What there is indicates that while distance plays a large role in patients' valuation of primary care, patients are willing to trade off quality against distance and providers facing more competition improve (some) aspects of the service they provide. But these benefits may not be shared across the whole population. Individuals with lower access to good private information are more restricted in the choices they make. Reducing restrictions on entry into primary care markets has been shown to have mixed effects on welfare, though to date has been little studied in the European context.

In general, while there have been gains from pro-choice policies, what is also clear is that competition among providers has been less intense than many policymakers originally envisaged and European health care systems have evolved into hybrid models, blending market mechanisms with regulation rather than operating purely as a market system.

While these facts have been established, there are many unanswered questions. Theoretical analysis suggests that the observability of different aspects of quality, the relative elasticity of demand with respect to different aspects of quality (and where price is not regulated, price), the level of regulated prices relative to costs, and the extent to which providers are semi-altruistic matters for outcomes. Much of the evidence for Europe does not shed direct light on these important parameters.

These unanswered questions partly arise because of lack of data. For example, several countries introduced competition and/or choice but did not accompany this with any information on the quality of the service providers. In some cases (as in England for GPs) quality rankings which were available were later withdrawn when policy shifted to emphasise cooperation rather than competition. This has meant that it has not been possible in some settings for research to assess the impact of the reform on quality of care. It also has meant that consumers had little information on which to base their choices, thus potentially limiting the impact of pro-choice policies. There has also been a lack of data on the income of consumers, as most medical records are not linked to data on income, so limiting the extent to which researchers can study whether inequalities in healthcare access or outcomes have changed as a result of pro-choice policies. Data on hospital costs, investment and staffing has also been difficult to obtain, making it difficult to assess labour productivity or investment in capital or to assess whether the introduction of for-profit or new types of providers improves outcomes for patients.

There is hope that more data is becoming available. The widespread use of electronic medical records (EMRs) and the increase in consumer-facing websites increases the data available. Providers are able to link EMRs to data on staffing. Many statistics authorities are now making it possible to link tax or employment data to healthcare records. These developments should allow researchers much more scope to assess how pro-choice policies affected hospital production and costs, quality of care and inequality. It should also allow researchers to devote more attention to the impact of new and changing organisational forms in the healthcare

market, such as entry of new forms of providers such as telemedicine and the drive towards integrated care, on outcomes for patients.

In addition to greater exploitation of data there is also a need to go beyond the analytical methods that have been used to date. As noted above, most of the analyses of pro-choice policies have used SCP approaches and policy evaluation has primarily been based on difference-in-difference methods. There has been little investigation of how improvements have come about. And there have been few analyses of the welfare effects of choice policies. To go beyond the current evidence base, and to analyse the impact of policies and to examine whether alternative designs can improve welfare, more structural analytical approaches are needed. Such research is relatively new in the European context but is growing.

Finally, while the greater availability of data and a wider set of analytical tools should allow researchers to examine more outcomes and more behaviours, and undertake counterfactual policy analyses, determining the overall welfare effects of pro-choice policies is not easy. It not only requires better data and different analytical tools but also requires greater understanding of the weights that consumers put on the various dimensions of healthcare (e.g. waiting time versus clinical quality of care) and of the weight (different) producers put on benefits to consumers over and above profit.

8.2 Policy considerations

As noted above, pro-choice policies in Europe have achieved less than their original designers intended. This is partly because designing policies to introduce or increase competition in the provision of healthcare is challenging.²⁰ Patients (or their agents) need information on which to make choices, patients need to be able to use this information and providers need incentives to respond to these choices. Where regulated prices are used, price setting is important, as is the provision of information on quality and other aspects of care. Policies on price and information interact with policies to promote choice as they affect the incentives facing suppliers and demanders, and so the responses to efforts to make greater use of markets. Poor design of these policies can limit the gains from pro-choice policies. Examples include price setting that encourages undertreatment of sicker patients, trying to set 'level' playing fields between different types of supplier when theory suggests that there may be good reasons for differing remuneration, and regulatory constraints on new types of supplier who might provide competition for incumbents. The US experience – and the limited evidence from Europe - shows that the benefits from the promotion of provider competition also requires the enforcement of competition to prevent the creation, strengthening and abuse of dominant positions. However, much of the merger activity in hospital markets appears to be under the radar of the regulatory authorities (as in the USA, Brot et al., 2024). For example, although powers to block mergers in

²⁰ See also Barros et al., (2015).

healthcare markets exist in some European countries, they have not been frequently used (Schmid and Varkevisser, 2016).

Policymakers also need to address how the growing focus on integrated care fits in with pro-choice policies. While it is not necessarily the case that the two are opposed, as it is possible to allow consumers to choose between different integrated care providers, this requires certain conditions to be met – for example, sufficient density of consumers and/or careful design of contracts between providers in an integrated system. More attention needs to be given to these issues. More generally, policymakers need to tailor their strategies based on a careful analysis of how the market is organized. This includes recognizing available policy tools and being aware of possible unintended effects from poorly designed regulations. Effective policy needs to rely on careful analysis. Thoughtful intervention requires a solid grasp of the competitive landscape and the specific context in which firms and consumers operate.

Policy concerns about equity also underline the need for careful monitoring of how provider competition affects different groups of healthcare users. While competition may not be the best instrument for addressing equity concerns (how individuals with different levels of ability to pay are treated under the financing arrangements is likely to be much more important e.g. Van Doorslaer et al., 1999), it is also important that policy makers design systems to allow those who have historically been constrained in their choices to exercise informed choice. Research clearly suggests that simply releasing information will not help those who have historically been constrained in their choices.

Finally, as Siciliani et al. (2022) note, policies to promote market delivery of health care and enhance choice are means to an end, not an end in themselves. Policies which enhance competition can potentially play a useful role in driving up quality and efficiency. But there are also a range of other regulatory arrangements to improve and ensure the quality of providers and avoid waste. Examples include auditing and monitoring mechanisms, comparison of performance and quality indicators, minimum quality standards and pay for performance. Some of these instruments can complement policies to promote competition and choice, as they all rely on good information systems that measure dimensions of performance across different providers. But equally, poor design of these instruments can limit the gains from choice. Policy design to encourage greater use of the market in healthcare needs to take into account how other tools and regulatory arrangements interact with those intended to encourage choice and competition. Recent advances in modelling, together with expanded data availability, careful consideration of institutional contexts, and rigorous research designs, can yield novel insights into how healthcare markets function. These insights should be used to inform more effective healthcare and competition policy.

References

- Anell, A., Dietrichson, J., Ellegård, L. M., & Kjellsson, G. (2021). Information, switching costs, and consumer choice: Evidence from two randomised field experiments in Swedish primary health care. *Journal of Public Economics*, 196, 104390.
- Armada, F., Muntaner, C., & Navarro, V. (2001). Health and social security reforms in Latin America: The convergence of the World Health Organization, The World Bank, and transnational corporations. *International Journal of Health Services*, 31(4), 729–768. <http://www.jstor.org/stable/45131503>
- Arrow, K. J. (1978). Uncertainty and the welfare economics of medical care. In *Uncertainty in economics* (pp. 345-375). *American Economic Review*, 53(5), 941-973.
- Baker, L. C., Bundorf, M. K., & Kessler, D. P. (2016). *The effect of hospital/physician integration on hospital choice*. *Journal of Health Economics*, 50, 1-8. <https://doi.org/10.1016/j.jhealeco.2016.08.006>
- Baker, L. C., Bundorf, M. K., Royalty, A. B., & Levin, Z. (2014). Physician practice competition and prices paid by private insurers for office visits. *JAMA*, 312(16), 1653-1662.
- Bardey, D., Canta, C., & Lozachmeur, J.-M. (2012). The regulation of health care providers' payments when horizontal and vertical differentiation matter. *Journal of Health Economics*, 31(5), 691-704. <https://doi.org/10.1016/j.jhealeco.2012.04.002>
- Barros, P. P. (2017). Competition policy for health care provision in Portugal. *Health Policy*, 121(2), 141-148. <https://doi.org/10.1016/j.healthpol.2016.12.005>
- Barros, P. P., Brouwer, W. B., Thomson, S., & Varkevisser, M. (2015). Competition among health care providers: helpful or harmful?. *The European Journal of Health Economics*, 17, 229-233. <https://doi.org/10.1007/s10198-015-0736-3>
- Bartlett, W., Propper, C., Wilson, D., & Le Grand, J. (1994). *Quasi-Markets in the Welfare State: The Emerging Findings*. SAUS Publications.
- Beaulieu, N. D., Dafny, L. S., Landon, B. E., Dalton, J. B., Kuye, I., & McWilliams, J. M. (2020). Changes in Quality of Care after Hospital Mergers and Acquisitions. *New England Journal of Medicine*, 382(1), 51–59. <https://doi.org/10.1056/NEJMsa1901383>
- Beckert, W. (2018). Choice in the Presence of Experts: The Role of General Practitioners in Patients' Hospital Choice. *Journal of Health Economics*, 60, 98–117.
- Beckert, W., Christensen, M., & Collyer, K. (2012). Choice of NHS-Funded hospital services in England. *The Economic Journal*, 122(560), 400-417. <https://doi.org/10.1111/j.1468-0297.2012.02496.x>

- Bertranou, F.M. (1998). Are market-oriented health insurance reforms possible in Latin America? The cases of Argentina, Chile and Colombia. *Health Policy*, 47, 19-36.
[https://doi.org/10.1016/S0168-8510\(99\)00006-8](https://doi.org/10.1016/S0168-8510(99)00006-8)
- Besley, T., & Ghatak, M. (2005). Competition and Incentives with Motivated Agents. *American Economic Review*, 95 (3), 616–636.
- Besley, T., & Malcomson, J. M. (2018). Competition in Public Service Provision: The Role of Not-for-Profit Providers. *Journal of Public Economics*, 162, 158-172.
<https://doi.org/10.1016/j.jpubeco.2018.04.004>
- Biørn, E., & Godager, G. (2010). Does quality influence choice of general practitioner? An analysis of matched doctor–patient panel data. *Economic Modelling*, 27(4), 842-853.
<https://doi.org/10.1016/j.econmod.2009.10.016>
- Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, 122(4), 1351-1408.
<https://doi.org/10.1162/qjec.2007.122.4.1351>
- Bloom, N., Propper, P., Seiler, S., and Van Reenen, J. (2015). The Impact of Competition on Management Quality: Evidence from Public Hospitals. *The Review of Economic Studies*, 82(2), 457–489, <https://doi.org/10.1093/restud/rdu045>
- Brand, K., Garmon, C., & Rosenbaum, T. (2023). In the Shadow of Antitrust Enforcement: Price Effects of Hospital Mergers from 2009-2016. *Journal of Law and Economics*, 66, 639–669. <http://dx.doi.org/10.2139/ssrn.4236952>
- Brekke, K. R., Canta, C., Siciliani, L., & Straume, O. R. (2021). Hospital competition in a national health service: Evidence from a patient choice reform. *Journal of Health Economics*, 79, 102509. <https://doi.org/10.1016/j.jhealeco.2021.102509>
- Brekke, K. R., Nuscheler, R., & Straume, O. R. (2006). Quality and Location Choices under Price Regulation. *Journal of Economics & Management Strategy*, 15(1), 207-227.
<https://doi.org/10.1111/j.1530-9134.2006.00098.x>
- Brekke, K. R., Siciliani, L., & Straume, O. R. (2011). Hospital competition and quality with regulated prices. *Scandinavian Journal of Economics*, 113, 444–469.
- Brekke, K. R., Siciliani, L., & Straume, O. R. (2012). Quality competition with profit constraints. *Journal of Economic Behavior & Organization*, 84(2), 642-659.
- Brekke, K. R., Siciliani, L. & Straume, O. R. (2017). Hospital Mergers with Regulated Prices. *Scandinavian Journal of Economics*, 119(3), 597-627.
<https://doi.org/10.1111/sjoe.12191>

- Brekke, K. R., Siciliani, L., & Straume, O. R. (2024). Competition, quality and integrated health care. *Journal of Health Economics*, 95, 102880.
<https://doi.org/10.1016/j.jhealeco.2024.102880>
- Brot, Z., Cooper, Z., Craig, S. V. & Klarnet, L., (2024). Is There Too Little Antitrust Enforcement in the US Hospital Sector? *American Economic Review: Insights*, 6(4), 526-542.
- Brot-Goldberg, Z., Cooper, Z., Craig, S. V., Klarnet, L., Lurie, I., & Miller, C. L. (2024). Who Pays for rising health care prices? Evidence from hospital mergers. NBER Working Paper 32613.
- Brown, Z., Hansman, C., Keener, J., & Veiga, A. (2023). *Information and Disparities in Health Care Quality: Evidence from GP Choice in England*. NBER Working Paper No. W31033.
<https://ssrn.com/abstract=4393373>
- Bruni, M. L., Ugolini, C., & Verzulli, R. (2021). Should I wait or should I go? Travelling versus waiting for better healthcare. *Regional Science and Urban Economics*, 89, 103697.
- Bundorf, M. K., Chun, N., Goda, G. S., & Kessler, D. P. (2009). Do markets respond to quality information? The case of fertility clinics. *Journal of health economics*, 28(3), 718-727.
- Burgess, S., Greaves, E., Vignoles, A., & Wilson, D. (2015). What Parents Want: School Preferences and School Choice. *Economic Journal*. Volume 125, pp. 1262–1289
- Capps, C., Dranove, D., & Ody, C. (2018). The effect of hospital acquisitions of physician practices on prices and spending. *Journal of health economics*, 59, 139-152.
<https://doi.org/10.1016/j.jhealeco.2018.04.001>
- Capps, C., Dranove, D., & Satterthwaite, M. (2003). Competition and market power in option demand markets. *RAND Journal of Economics*, 737-763.
- Chernew, M. E. & Newhouse, J. P. (2011). Health Care Spending Growth, in M.V. Pauly, T.G. McGuire, & P.P. Barros (Eds.) *Handbook of Health Economics*. Oxford, United Kingdom: North Holland, 1-43. <https://doi.org/10.1016/B978-0-444-53592-4.00001-3>
- Choné, P. (2017). Competition policy for health care provision in France. *Health Policy*, 121(2), 111-118. <https://doi.org/10.1016/j.healthpol.2016.11.015>
- Choné, P., & Wilner, L. (2015). Spatial nonprice competition: A network approach. CREST Working Paper. 2015. <https://www.tse-fr.eu/sites/default/files/TSE/documents/sem2016/io/chone.pdf>
- Choné, P. & Wilner, L. (2022). Financial Incentives and Competitive Pressure: The Case of the Hospital Industry. *Journal of the European Economic Association*, 20(2), 626–666.
<https://doi.org/10.1093/jeea/jvab031>

- Choné, P., Evain, F., Wilner, L., & Yilmaz, E. (2013). *Introducing activity-based payment in the hospital industry: Evidence from French data*. CESifo Working Paper No. 4304
- Cookson, R., Laudicella, M., & Li Donni, P. (2013). Does hospital competition harm equity? Evidence from the English National Health Service. *J Health Econ* 2013 32(2), 410-22. <https://doi.org/10.1016/j.jhealeco.2012.11.009>
- Cooper, Z., Craig, S., Gaynor, M., and Van Reenen, J. (2019). The Price Ain't Right? Hospital Prices and Health Spending on the Privately Insured. *Quarterly Journal of Economics*, 134(1), 51–107. <https://doi.org/10.1093/qje/qjy020>
- Cooper, Z., Gibbons, S., & Skellern, M. (2018). Does competition from private surgical centres improve public hospitals' performance? Evidence from the English National Health Service. *Journal of Public Economics*, 166, 63-80.
- Cooper, Z., Gibbons, S., Jones, S., & McGuire, A. (2011). Does hospital competition save lives? Evidence from the English NHS patient choice reforms. *The Economic Journal*, 121(554), F228-F260.
- Currie, J., Li, A., & Schnell, M. (2023). *The Effects of Competition on Physician Prescribing*. NBER, Working Paper No. 30889.
- Cutler, D. M., & McClellan, M. (2001). Is Technological Change In Medicine Worth It?. *Health Affairs*, 20(5).
- Cutler, D. M., Huckman, R. S., & Landrum M. B. (2004). The Role of Information in Medical Markets: An Analysis of Publicly Reported Outcomes in Cardiac Surgery. *American Economic Review*, 94(2), 342-346. <https://doi.org/10.1257/0002828041301993>
- Dafny, L. (2009). Estimation and Identification of Merger Effects: An Application to Hospital Mergers. *Journal of Law and Economics*, 52(3), 523–550.
- Dahlstrad, A. (2022). *Defying distance: The Provision of Services in the Digital Age*. CEP LSE Discussion paper 1889.
- Dahlstrad, A., Le Nestour, N., & Michaels, G. (2023). *Online versus In-Person Services: Effects on Patients and Providers*. CEPR Discussion Paper, September 15, 2023.
- Dietrichson, J., Ellegård, L. M., & Kjellsson, G. (2020). Patient choice, entry, and the quality of primary care: Evidence from Swedish reforms. *Health Economics*, 29(6), 716–730. <https://doi.org/10.1002/hec.4015>
- Dillender, M., Lo Sasso, A. T., Phelan, B. J., & Richards, M. R. (2024). Occupational Licensing and the Healthcare Labor Market. *Journal of Human Resources*, Forthcoming <https://doi.org/10.3368/jhr.0722-12450R2>

- Dinerstein, M., & Smith, T. D. (2021). Quantifying the supply response of private schools to public policies. *American Economic Review*, 111(10), 3376-3417. <http://doi.org/10.1257/aer.20151723>
- Dixon, A., Appleby, J., Robertson, R., Burge, P., Devlin, N., & Magee, H. (2010). *Patient choice: how patients choose and how providers respond*. The King's Fund.
- Docteur, E., & Oxley, H. (2003). *Health-care systems: lessons from the reform experience*. OECD Health Working Papers No. 9. OECD Economics Department Working Papers No. 374.
- Douven, R., Burger, M., & Schut, F. (2020). Does managed competition constrain hospitals' contract prices? Evidence from the Netherlands. *Health Economics, Policy and Law*, 15(3), 341-354. <https://doi.org/10.1017/s1744133119000215>
- Dranove, D., and Jin, G. Z. (2010). Quality disclosure and Certification: Theory and Practice. *Journal of Economic Literature*, 48(4), 935-963. <https://doi.org/10.1257/jel.48.4.935>
- Dranove, D., & Sfekas, A. (2008). Start spreading the news A structural estimate of the effects of New York hospital report cards. *Jnl Health Econ.*, 27(5), 1201-1207, <https://doi.org/10.1016/j.jhealeco.2008.03.001>
- Dranove, D., Kessler, D., McClellan, M., & Satterthwaite, M. (2003). Is more information better? The effects of "report cards" on health care providers. *Journal of Political Economy*, 111(3), 555-588. <https://doi.org/10.1086/374180>
- Dunn, A., Fernando, L., & Liebman, E. (2024). *How Much Are Medical Innovations Worth? A Detailed Analysis Using Cost-Effectiveness Studies*. Bureau of Economic Analysis Working paper 0132.
- Empel, G., Gravelle, H., & Santos, R. (2023). Does quality affect choice of family physician? Evidence from patients changing general practice without changing address. *Economic Modelling*, 126, 106395. <https://doi.org/10.1016/j.econmod.2023.106395>
- Epple, D., Romano, R. E., & Urquiola, M. (2017). School vouchers: A survey of the economics literature. *Journal of Economic Literature*, 55(2), 441-492. <https://doi.org/10.1257/jel.20150679>
- Epstein, A. (2010). Effects of report cards on referral patterns to cardiac surgeons. *Journal of Health Econ.*, 29(5), 718-731. <https://doi.org/10.1016/j.jhealeco.2010.06.002>
- European Federation of Public Service Unions (EPSU) (2014). *Health and Social Services: The Impact of Competition and Marketisation*. EPSU Publications.
- European Observatory on Health Systems and Policies (2015). *Italy: Health System Review*. Health Systems in Transition, 17(6), 1–134

- European Observatory on Health Systems and Policies (2017). *Denmark: Health System Review*. Health Systems in Transition, 19(2), 1–134.
- European Observatory on Health Systems and Policies (2018). *United Kingdom: Health System Review*. Health Systems in Transition, 20(5), 1–162.
- European Observatory on Health Systems and Policies (2019). *France: Health System Review*. Health Systems in Transition, 21(5), 1–218.
- European Observatory on Health Systems and Policies (2020). *Health system reviews (HiT series)*. World Health Organization Regional Office for Europe.
- European Observatory on Health Systems and Policies. (2016). *Norway: Health System Review*. Health Systems in Transition, 18(2), 1–162.
- Feng, Y., Pistollato, M., Charlesworth, A., Devlin, N., Propper, C., & Sussex, J. (2015). Association between market concentration of hospitals and patient health gain following hip replacement surgery. *Journal of Health Services Research & Policy*, 20(1), 11–17. <https://doi.org/10.1177/1355819614546032>
- Frank, R., & Larimaud, K. (2009). Choice, price competition and complexity in markets for health insurance. *Journal of Economic Behaviour and Organisation*, 71(2), 550–562. <https://doi.org/10.1016/j.jebo.2009.04.005>
- Fryer Jr, R. G. (2017). The production of human capital in developed countries: Evidence from 196 randomized field experiments. In *Handbook of economic field experiments (Vol. 2)* (pp. 95–322). North-Holland. <https://doi.org/10.1016/bs.hefe.2016.08.006>
- Gaynor, M., & Town, R. J. (2011). Competition in Healthcare markets in Barros, P, Pauly, M and McGuire, T (eds) *Handbook of health Economics Vol. 2* pp 499–637. Elsevier.
- Gaynor, M., & Town, R. J. (2012). *The impact of hospital consolidation – Update*. The Synthesis Project, Robert Wood Johnson Foundation, Policy Brief No. 9.
- Gaynor, M., Ho, K., and Town, R. (2015). The Industrial Organization of Health-Care Markets. *Journal of Economic Literature*, 53(2), 235–284. <https://doi.org/10.1257/jel.53.2.235>
- Gaynor, M., Laudicella, M., & Propper, C. (2012). Can governments do it better? Merger mania and hospital outcomes in the English NHS. *Journal of Health Economics*, 31(3), 528–543. <https://doi.org/10.1016/j.jhealeco.2012.03.006>
- Gaynor, M., Moreno-Serra, R., and Propper, C. (2013). Death by market power: reform, competition, and patient outcomes in the National Health Service. *American Economic Journal: Economic Policy*, 5(4), 134–166. <https://doi.org/10.1257/pol.5.4.134>

- Gaynor, M., Propper, C., and Seiler, S. (2016). Free to choose? Reform, choice, and consideration sets in the English National Health Service. *American Economic Review*, 106(11), 3521-3557. <https://doi.org/10.1257/aer.20121532>
- Gaynor, M., Sacarny, A., Sadun, R., Syverson, C., and Venkatesh, S. (2023). The Anatomy of a Hospital System Merger: The Patient Did Not Respond Well to Treatment. *Review of Economics and Statistics*, October 2023, 1-28. https://doi.org/10.1162/rest_a_01384
- Glaeser, E., & Shleifer, A. (2001). Not-for-profit entrepreneurs. *Journal of Public Economics* 81, 99–115.
- Gobillon, L., & Milcent, C. (2017). Competition and hospital quality: evidence from a French natural experiment. IZA Discussion Papers Series, No. 10476.
- Godager, G., Iversen, T., & Ma, C.-T. A. (2015). Competition, gatekeeping, and health care access. *Journal of Health Economics*, 39, 159–170. <https://doi.org/10.1016/j.jhealeco.2014.11.005>
- Gowrisankaran, G., Nevo, A., and Town, R. (2015). Mergers When Prices are Negotiated: Evidence From the Hospital Industry. *American Economic Review*, 105(1), 172–203. <https://doi.org/10.1257/aer.20130223>
- Gravelle, H., Liu, D., Propper, C., & Santos, R. (2019). Spatial competition and quality: Evidence from the English family doctor market. *Journal of Health Economics*, 68, 102249. <https://doi.org/10.1016/j.jhealeco.2019.102249>
- Gutacker, N., Siciliani, L., Moscelli, G., & Gravelle, H., (2016). Choice of Hospital: Which Type of Quality Matters? *Journal of Health Economics*, 50, 230–246. <https://doi.org/10.1016/j.jhealeco.2016.08.001>
- Haas-Wilson, D. and Garmon, C. (2011). Hospital Mergers and Competitive Effects: Two Retrospective Analyses. *International Journal of the Economics of Business*, 2011, 18(1), 17–32. <https://doi.org/10.1080/13571516.2011.542952>
- Halbersma, R. S., Mikkers, M. C., Motchenkova, E., & Seinen, I. (2011). Market structure and hospital–insurer bargaining in the Netherlands. *The European Journal of Health Economics*, 12, 589-603. <https://doi.org/10.1007/s10198-010-0273-z>
- Halonen-Akatwijuka, M., & Propper, C. (2024). Competition, equity and quality in public services. *European Economic Review*, 164, 104719. <https://doi.org/10.1016/j.euroecorev.2024.104719>
- Halonen-Akatwijuka, M., & Propper, C. (2008). Competition and decentralisation in government bureaucracies. *Journal of Economic Behavior & Organization* 67 (3-4), pp 903-916

- Handel, B. and Ho, K. (2021). Industrial Organisation of Health Care Markets. NBER Working Paper 29137.
- Handel, B., Kolstad, J., Minten, T., & Spinnewijn, J. (2024). The Socioeconomic Distribution of Choice Quality: Evidence from Health Insurance in the Netherlands. *American Economic Review*, 6(3), 395–412. <https://doi.org/10.1257/aeri.20230314>
- Heijink, R., Mosca, I., and Westert, G. (2013). Effects of regulated competition on key outcomes of care: cataract surgeries in the Netherlands. *Health Policy*, 113(1-2), 142-150. <https://doi.org/10.1016/j.healthpol.2013.06.003>
- Herr, A. (2011). Quality and Welfare in a Mixed Duopoly with Regulated Prices: The Case of a Public and a Private Hospital. *German Economic Review*, 12(4), 422-437. <https://doi.org/10.1111/j.1468-0475.2010.00527.x>
- Ho, K. (2006). The welfare effects of restricted hospital choice in the US medical care market. *Journal of Applied Econometrics*, 21(7), 1039-1079.
- Ho, K., & Lee, R.S. (2019). Equilibrium Provider Networks: Bargaining and Exclusion in Health Care Markets. *American Economic Review*, 109(2), 473–522. <https://doi.org/10.1257/aer.20171288>
- Huitfeldt, I., Marone, V., & Waldinger, D. C. (2024). Designing Dynamic Reassignment Mechanisms: Evidence from GP Allocation. NBER Working Paper No. 32458. <https://www.nber.org/papers/w32458>
- Islam, M. K., & Kjerstad, E. (2017). The ambiguous effect of GP competition: The case of hospital admissions. *Health economics*, 26(12), 1483-1504. <https://doi.org/10.1002/hec.3439>
- Iversen, T., and Luras, H. (2011). Patient Switching in General Practice. *Journal of Health Economics*, 30(5), 894–903. <https://doi.org/10.1016/j.jhealeco.2011.07.008>
- Kaufman, B. G., Spivack, B. S., Stearns, S. C., Song, P. H., & O'Brien, E. C. (2019). Impact of accountable care organizations on utilization, care, and outcomes: a systematic review. *Medical Care Research and Review*, 76(3), 255-290. <https://doi.org/10.1177/1077558717745916>
- Kelly, E. & Stoye, G. (2020). The impacts of private hospital entry on the public market for elective care in England. *Journal of Health Economics* 73, 102353. <https://doi.org/10.1016/j.jhealeco.2020.102353>
- Kessler, D. P., & McClellan, M. B. (2000). Is Hospital Competition Socially Wasteful? NBER Working Paper 7266. <https://doi.org/10.3386/w7266>
- Kifmann, M. (2017). Competition policy for health care provision in Germany. *Health Policy*, 121(2), 119-125. <https://doi.org/10.1016/j.healthpol.2016.11.014>

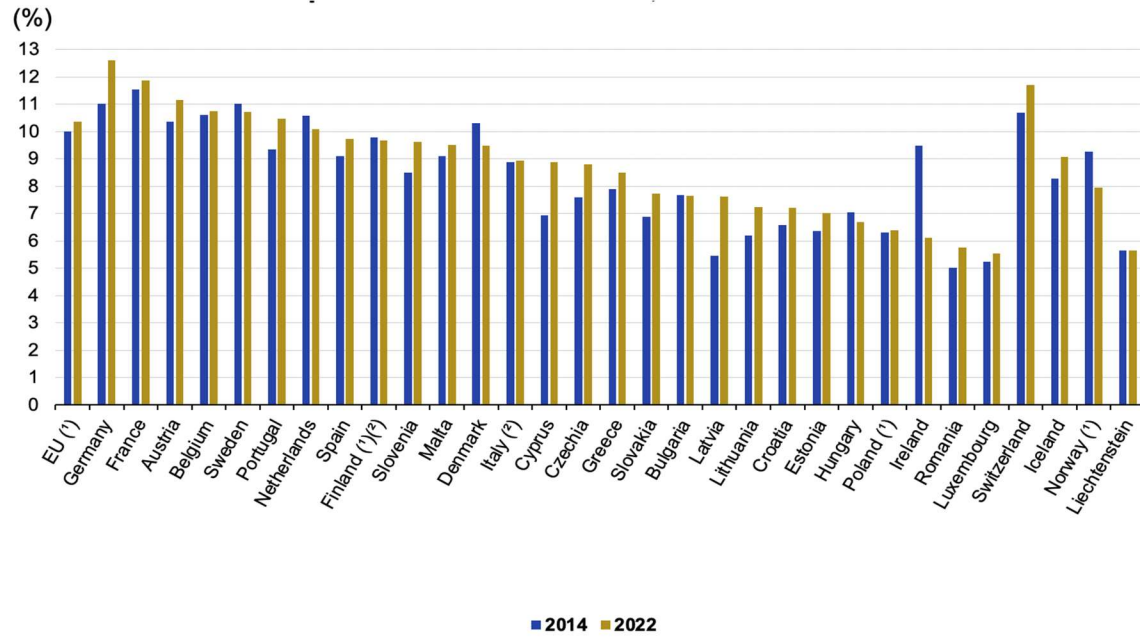
- Konetzka, R. T., Stuart, E. A., & Werner, R. M. (2018). The effect of integration of hospitals and post-acute care providers on Medicare payment and patient outcomes. *Journal of Health Economics*, 61, 244-258. <https://doi.org/10.1016/j.jhealeco.2018.01.005>
- Kuklinski, D., Vogel, J., & Geissler, A. (2021). The impact of quality on hospital choice. Which information affects patients' behavior for colorectal resection or knee replacement?. *Health Care Management Science*, 24, 185-202.
- Laine, L. & Ma, C. A. (2017). Quality and competition between public and private firms. *Journal of Economic Behavior & Organization*, 140, 336-353. <https://doi.org/10.1016/j.jebo.2017.05.012>
- Levaggi, L., & Levaggi, R. (2024). Spatial Competition Models in Health Care Markets: A Review. *Review of Industrial Organization*, 65(3), 721-743. <https://doi.org/10.1007/s11151-024-09978-6>
- Luyten, E., & Tubeuf, S. (2025). Equity in healthcare financing: A review of evidence. *Health Policy*, 152. <https://doi.org/10.1016/j.healthpol.2024.105218>
- Maarse, H., and Jeurissen, P. (2024). Healthcare reform in the Netherlands: after 15 years of regulated competition. *Health Economics, Policy and Law*, 1-12. <https://doi.org/10.1017/s1744133123000385>
- Markowitz, S. & Smith, A. J. D. (2023). Nurse Practitioner Scope of Practice and Patient Harm: Evidence from Medical Malpractice Cases and Adverse Action Reports. NBER Working Paper 31109. <https://doi.org/10.3386/w31109>
- Mason, A., Goddard, M., Weatherly, H., & Chalkley, M. (2015). Integrating funds for health and social care: an evidence review. *Journal of Health Services Research & Policy*, 20(3), 177-188. <https://doi.org/10.1177/1355819614566832>
- Moscelli, G., Gravelle, H. S. E., & Siciliani, L. (2021). Hospital competition and quality for non-emergency patients in the English NHS. *The RAND Journal of Economics*, 52(2), 382-414. <https://doi.org/10.1111/1756-2171.12373>
- Moscelli, G., Gravelle, H. S. E., Siciliani, L., & Santos, R. (2018). Heterogeneous Effects of Patient Choice and Hospital Competition on Mortality. *Social Science & Medicine*, 216, 50–58. <https://doi.org/10.1016/j.socscimed.2018.09.009>
- Moscone, F., Siciliani, L., Tosetti, E., & Vittadini, G. (2020). Do public and private hospitals differ in quality? Evidence from Italy. *Regional Science and Urban Economics*, 83, 103523. <https://doi.org/10.1016/j.regsciurbeco.2020.103523>

- Muralidharan, K., & Sundararaman, V. (2015). The aggregate effect of school choice: Evidence from a two-stage experiment in India. *The Quarterly Journal of Economics*, 130(3), 1011-1066. <https://doi.org/10.1093/qje/qjv013>
- Newhouse, J. (1970). Toward a theory of nonprofit institutions: an economic model of a hospital. *American Econ. Rev.* 60 (1), 64–74.
- Nielson, C. A. (2021). Targeted Vouchers, Competition Among Schools, and the Academic Achievement of Poor Students. Working Papers 2021-48, Princeton University. Economics Department.
- Nolte, E., & Pitchforth, E. (2014). What is the evidence on the economic impacts of integrated care? European Observatory on Health Systems and Policy, Policy Summary 11.
- OECD (2023). *Health at a Glance 2023: OECD Indicators*. OECD Publishing. <https://doi.org/10.1787/7a7afb35-en>
- OECD (2025). *OECD Data Explorer (OECD Statistical database)*. <https://data-explorer.oecd.org/>
- Okunade, A. A. & Murthy, V. N. R. (2002). Technology as a ‘major driver’ of health care costs: a cointegration analysis of the Newhouse conjecture. *Journal of Health Economics*, 21(1), 147-159. [https://doi.org/10.1016/S0167-6296\(01\)00122-9](https://doi.org/10.1016/S0167-6296(01)00122-9)
- Or, Z., Rococco, E., Touré, M., & Bonastre, J. (2022). Impact of competition versus centralisation of hospital care on process quality: a multilevel analysis of breast cancer surgery in France. *International journal of health policy and management*, 11(4), 459-469. <https://doi.org/10.34172/ijhpm.2020.179>
- Pilny, A., & Mennicken, R. (2014). Does hospital reputation influence the choice of hospital? Ruhr Economic Paper, (516). <https://doi.org/10.4419/86788591>
- Pope, D. G. (2009). Reacting to rankings: Evidence from “America's Best Hospitals”. *Journal of Health Economics*, 28(6), 1154-1165. <https://doi.org/10.1016/j.jhealeco.2009.08.006>
- Propper, C., Burgess, S., & Gossage, D. (2008). Competition and Quality: evidence from the NHS Internal Market 1991-99. *Economic Journal* 118, 138-170.
- Propper, C., Burgess, S., & Green, K. (2004). Does competition between hospitals improve the quality of care?: Hospital death rates and the NHS internal market. *Journal of Public Economics*, 88(7-8), 1247-1272. [https://doi.org/10.1016/S0047-2727\(02\)00216-5](https://doi.org/10.1016/S0047-2727(02)00216-5)
- Roos, A. F., O'Donnell, O., Schut, F. T., Van Doorslaer, E., Van Gestel, R., & Varkevisser, M. (2020). Does price deregulation in a competitive hospital market damage quality? *Journal of Health Economics*, 72. <https://doi.org/10.1016/j.jhealeco.2020.102328>

- Roos, A-F. (2022). *Mergers and Competition in the Dutch Healthcare Sector*. PhD Thesis, Tilburg University.
- Rosenau, P. V., & Lako, C. J. (2008). An Experiment with Regulated Competition and Individual Mandates for Universal Health Care: The New Dutch Health Insurance System. *Journal of health politics, policy and law*, 33(6), 1031–1055. <https://doi.org/10.1215/03616878-2008-033>
- Rotarou, E.S., & Sakellariou, D. (2017). Neoliberal reforms in health systems and the construction of long-lasting inequalities in health care: A case study from Chile. *Health Policy*, 121(5), 495-503. <https://doi.org/10.1016/j.healthpol.2017.03.005>
- Rouse, C. E., & Barrow, L. (2009). School vouchers and student achievement: Recent evidence and remaining questions. *Annu. Rev. Econ.*, 1(1), 17-42. <https://doi.org/10.1146/annurev.economics.050708.143354>
- Santos, R., Gravelle, H., & Propper, C. (2017). Does quality affect patients' choice of doctor? Evidence from England. *The Economic Journal*, 127(600), 445–494. <https://doi.org/10.1111/eoj.12282>
- Schaumans, C. (2015). Prescribing behavior of general practitioners: Competition matters. *Health Policy*, 119(4), 456–463. <https://doi.org/10.1016/j.healthpol.2014.12.018>
- Schmid, A. and Varkevisser, M. (2016). Hospital merger control in Germany, the Netherlands and England: Experiences and challenges. *Health Policy*, 120(1), 16-25. <https://doi.org/10.1016/j.healthpol.2015.11.002>
- Scott, A., & Sivey, P. (2022). Motivation and competition in health care. *Health Economics*, 31(8), 1695–1712. <https://doi.org/10.1002/hec.4533>
- Siciliani, L., & Straume, O. R. (2019). Competition and equity in health care markets. *Journal of Health Economics*, 64, 1-14. <https://doi.org/10.1016/j.jhealeco.2018.12.002>
- Siciliani, L., Chalkley, M., & Gravelle, H. (2022). *Does provider competition improve health care quality and efficiency? Expectations and evidence from Europe*. WHO, Health systems and Policy Analysis, Policy Brief 48. <https://www.ncbi.nlm.nih.gov/books/NBK589277/>
- Singleton, J. D. (2019). Incentives and the Supply of Effective Charter Schools. *American Economic Review*, 109(7), 2568–612. <https://doi.org/10.1257/aer.20171484>
- Skellern, M. (2017). The hospital as a multi-product firm: The effect of hospital competition on value-added indicators of clinical quality. LSE CEP Discussion Papers (CEPDP1484); London, UK.
- Street, A., O'Reilly, J., Ward, P., & Mason, A. (2011). DRG-based hospital payment and efficiency: theory, evidence, and challenges. In R. Busse, A. Geissler, W. Quentin, and M. Wiley

- (Eds.) *Diagnosis-related groups in Europe: Moving towards transparency, efficiency and quality in hospitals* (pp. 93-114). European Observatory on Health Systems and Policies Series. Maidenhead: Open University Press.
- Tay, A. (2003). Assessing competition in hospital care markets: the importance of accounting for quality differentiation. *Rand J. Econ.*, 34(4), 786-814.
<https://doi.org/10.2307/1593788>
- U.S. Department of Justice & FTC. (2023). *Merger Guidelines § 2.1*. U.S. Department of Justice: Antitrust Division
- Van de Ven, W. P. M. M. (1996). Market-oriented health care reforms: trends and future options. *Social Science & Medicine*, 43(5), 655-666. [https://doi.org/10.1016/0277-9536\(96\)00111-6](https://doi.org/10.1016/0277-9536(96)00111-6)
- Van Doorslaer, E., Wagstaff, A., Van der Burg, H., Christiansen, T., Citoni, G., Di Biase, R., Gerdtham, U.G., Gerfin, M., Gross, L., Häkkinen, U., John, J., Johnson, P., Klavus, J., Lachaud, C., Lauritsen, J., Leu, R., Nolan, B., Pereira, J., Propper, C., Puffer, F., & Winkelhake, O. (1999). The redistributive effect of health care finance in twelve OECD countries. *Journal of Health Economics*, 18(3), 291-313. [https://doi.org/10.1016/S0167-6296\(98\)00043-5](https://doi.org/10.1016/S0167-6296(98)00043-5)
- Varkevisser, M., van der Geest, S. A., & Schut, F. T. (2012). Do patients choose hospitals with high quality ratings? Empirical evidence from the market for angioplasty in the Netherlands. *Journal of Health Economics*, 31(2), 371-378.
<https://doi.org/10.1016/j.jhealeco.2012.02.001>
- Wagstaff, A., Van Doorslaer, E., Van der Burg, H., Calogne, S., Christiansen, T., Citoni, G., Gerdtham, U. G., Gerfin, M., Gross, L., Häkkinen, U., Johnson, P., John, J., Klavus, J., Lachaud, C., Lauritsen, J., Leu, R., Nolan, B., Péran, E., Pereira, J., Propper, C., Puffer, F., Rochaix, L., Rodríguez, M., Schellhorn, M., & Winkelhake. (1999). Equity in the finance of health care: Some further international comparisons. *Journal of Health Economics* 18(3), 263-290. [https://doi.org/10.1016/S0167-6296\(98\)00044-7](https://doi.org/10.1016/S0167-6296(98)00044-7)
- World Bank (1992). *Chile - Health Sector Reform Project (English)*. World Bank Group.
<http://documents.worldbank.org/curated/en/41341146801111960>
- World Health Organization Regional Office for Europe. (2020). *Eurohealth: Health Systems and Policy Analysis*. Vol. 26, No. 2.
- Zeltzer, D., Einav, L., Rashba, J., & Balicer, R. D. (2024). The Impact of Increased Access to Telemedicine. *Journal of the European Economic Association*, 22(2), 712–750.
<https://doi.org/10.1093/jeaa/jvad035>

Figure 1: Health expenditure as a share of GDP in 2014 and 2022 in Europe



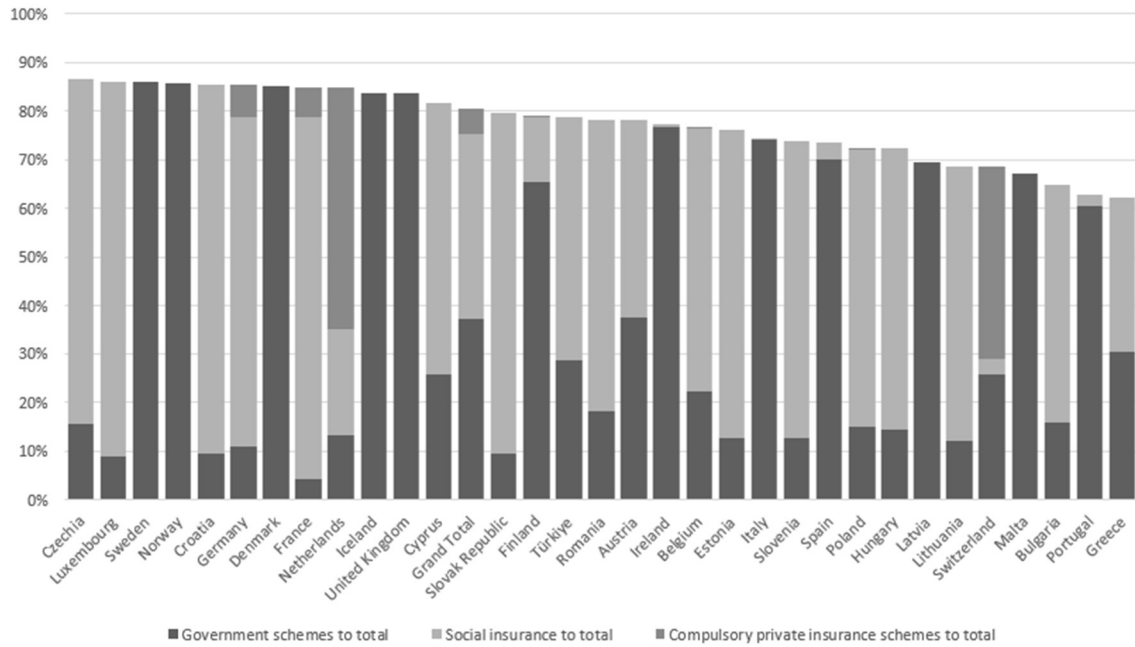
(*) 2022: provisional.

(*) Break in series.

(*) 2014: not available.

Source: Eurostat 2023.

Figure 2: Health expenditure from public and publicly mandated sources as share of total health expenditure in Europe 2021



Source: OECD Health Statistics 2023; WHO Global Health Expenditure Database

Table 1: European Pro-competition and choice policies since 2000

Country	Pro-Competition Policies	Pro-Choice Policies	Date(s)
Netherlands	Regulated competition model; insurers compete for enrollees; liberalization of investments	Annual choice of insurer; provider choice within insurer networks	2006, extended 2008–2012
UK	Market-style NHS reforms; Payment by Results (PbR); private provider entry	Patient choice of hospital; GP registration flexibility	2002–2010 (Blair/Cameron governments)
Germany	Selective contracting; competition among sickness funds	Freedom to choose among statutory insurers and providers	2004–2007 (Health Insurance Competition Strengthening Act)
France	Private sector involvement; selective contracting	Patient choice of GP and specialist; bypass gatekeeping	2004 (Hospital Plan), 2009 (HPST Law)
Sweden	Privatization of primary care in some regions; competitive tendering	Patient choice in primary and elective care	2009 (Freedom of Choice Act)
Denmark	Competitive tendering; decentralization	Free hospital choice; GP choice within municipality	2002–2007 (Structural Reform)
Finland	Service vouchers; competitive procurement	Choice in primary and some specialist care	2009–2013 (Health Care Act)
Portugal	Public-private partnerships (PPPs); competitive tendering	Patient mobility across regions; provider choice	2002–2006 (PPP expansion)
Norway	Activity-based funding; competition for specialist contracts	Free hospital choice within regions; GP list choice	2002 (Hospital Reform)
Italy	Regional competition; accreditation of private providers	Choice of GP and hospital within region	2001–2005 (Regionalization reforms)
Austria	Selective contracting; encouragement of private providers	Freedom to choose among insurers and providers	2005–2010 (Health Reform Packages)
Belgium	Competition among sickness funds; performance-based payments	Free choice of provider and insurer	2002–2007 (Health Insurance Reform)
Switzerland	Strong insurer competition; risk equalization schemes	Annual choice of insurer; broad provider access	2000 (LAMal implementation)

Sources: European Observatory (2016–2020), EPSU Report (2014), WHO Eurohealth (2020)

Table 2: Theoretical analyses of competition in European healthcare market

	Question addressed in paper	Key Assumptions of model
Should competition be introduced?		
Besley and Malcomson (2018)	What are the implications of entry by for-profit providers where for-profit providers will under-provide an unobserved dimension of quality.	Quality has two dimensions, neither of which are contractible; prices are set by regulator; continuum of consumers with utility from both dimensions of quality
Halonen-Akatwijuka and Propper (2008)	When should a self- interested politician choose competition or monopoly?	Non-contractible quality; motivated providers who get benefit from managerial control and provision of quality; self-interested politician gets utility from higher service quality and disutility from raising taxes to pay for provision
Brekke et al. (2011)	How does competition affect hospital quality when prices are regulated and providers are semi-altruistic?	Hospitals are semi-altruistic; patients choose based on location and quality; quality has a single dimension; prices are regulated
Brekke et al. (2012),	How do profit constraints affect provider behaviour when there is quality and price competition?	Providers are profit-constrained; quality has a single dimension; consumers choose based on location, quality, and price.
Brekke et al (2017)	The effect of hospital mergers on quality and cost-efficiency	Hospitals are semi-altruistic; patients choose based on location and quality; quality has a single dimension; prices are regulated
Herr (2011)	Should provision be public or private in a duopoly with regulated prices	Single dimension of quality, Hotelling framework, regulated price
Competition and price regulation		
Bardey et al. (2012)	How should payment schemes be designed	Providers heterogeneous in quality and service; quality is non-verifiable; consumers incur transport costs and value quality; regulator maximizes welfare.
Brekke et al. (2006)	How price regulation affects firms' decisions	Firms choose location and quality; consumers incur transport costs and value quality; regulator maximises total welfare

Table 2 cont.

Competition and the distribution of care across consumers		
Siciliani and Straume (2019)	How does spatial heterogeneity affect inequality in provision across patients, in terms of gap between hospitals in quality (postcode inequality) and health outcomes	Hospitals compete on single dimension of quality; hospitals differ in terms of efficiency; patient heterogeneity in illness severity
Halonen-Akatwijuka and Propper (2024)	How does consumer heterogeneity determine whether a regulator who cares about inequality should introduce competition	Motivated providers; non-contractible single dimension quality; providers derive greater private benefit from serving one type of consumer