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Decentralization of health care systems and health outcomes: Evidence from a natural experiment

Dolores Jiménez-Rubio [a, *], Pilar García-Gómez [b]

[a] University of Granada, Spain, Facultad de Ciencias Económicas y Empresariales, s/n, 18071, Granada, Spain
[b] Erasmus University Rotterdam and Tinbergen Institute, The Netherlands

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ABSTRACT

While many countries worldwide are shifting responsibilities for their health systems to local levels of government, there is to date insufficient evidence about the potential impact of these policy reforms. We estimate the impact of decentralization of the health services on infant and neonatal mortality using a natural experiment: the devolution of health care decision making powers to Spanish regions. The devolution was implemented gradually and asymmetrically over a twenty-year period (1981–2002). The order in which the regions were decentralized was driven by political factors and hence can be considered exogenous to health outcomes. In addition, we exploit the dynamic effect of decentralization of health services and allow for heterogeneous effects by the two main types of decentralization implemented across regions: full decentralization (political and fiscal powers) versus political decentralization only. Our difference in differences results based on a panel dataset for the 50 Spanish provinces over the period 1980 to 2010 show that the lasting benefit of decentralization accrues only to regions which enjoy almost full fiscal and political powers and which are also among the richest regions.

1. Introduction

In recent years many countries have moved towards more decentralization of their health care systems (in this paper decentralization is synonymous with devolution). While decentralization is very often politically motivated, it can have important effects on relevant welfare dimensions such as efficiency in the provision of public services, equity and economic growth (Ahmad et al., 2008). In this paper, we evaluate the effects of decentralization on health outcomes such as infant and neonatal mortality.

The beneficial impact of decentralization is based on the assumptions that decentralization can improve the information of local decision makers about local circumstances, stimulating prompt and effective responses to local needs, and is an effective channel for people to express their preferences making local decision makers more accountable to local citizens' demands (Oates, 1999). In theory, locally managed health services should improve health access and ultimately, increase population's health (Bankauskaite and Saltman, 2007). Recent theories suggest that decentralization also plays an important role in strengthening democracy in some cases (Weingast, 2009), which may in turn have a deep impact on population health (see e.g. Besley and Kudamatsu, 2006). Decentralization might help to reduce inequalities within regions since local authorities have in principle better information about local needs and are better placed to respond by focusing for instance on vulnerable groups (Cavalieri and Ferrante, 2016).

However, successful implementation of decentralization requires a complex balance between political, fiscal and administrative policies. In order to promote responsiveness of policy makers, decentralization should encompass a clear division of responsibilities and a transparent system of accountability (World Bank, 2013). While intergovernmental fiscal transfers may be required on equity grounds to compensate for different revenue capacities at the local level, there is a risk that too much reliance on grants places little pressure on local governments to reduce costs as it could be difficult for voters to identify and penalize the causes of local inefficiencies in the use of resources (Rodden, 2003). In fact, there is some recent research suggesting that decentralization funded primarily through grants is likely to lead to a high local government size, while decentralization funded through own taxes (especially when there is a tax separation scheme) favours the containment of local public expenditure (Liberati and Sacchi, 2013).

Potential gains to be realised from decentralization are also conditional on the existence of decentralization of political

* Corresponding author.
E-mail addresses: dolores@ugr.es (D. Jiménez-Rubio), garciagomez@ese.eur.nl (P. García-Gómez).

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decision-making authority, and in particular, effective channels for the individuals to express their preferences, and incentives for the policymakers to respond to those preferences (Khaleghian, 2004; Bossert and Mitchell, 2011). The potential benefits of decentralization have to be balanced against the presence of spillover effects and public good characteristics, diseconomies of scale, and heterogeneity of preferences (Besley and Coate, 2003). In health care in particular, decentralization may generate inefficient location of facilities such as hospitals by local decision makers accountable to local electors, more inefficient pricing of inputs and higher and more complex levels of administrative paperwork than a centralized health system and in some instances possibly service duplication. Decentralization of health services with important externalities, such as immunization services, could result in "free-riding behavior" by local jurisdictions on the immunization status of their neighbours (Khaleghian, 2004). Finally, decentralization may result in increased inequalities in health and health care services if local regions rely on user fees to finance their services or reduce the coverage of the universal health package. Therefore, the effects of decentralization on population outcomes are difficult to sign a priori.

An increasing number of studies have investigated the association between fiscal decentralization and various measures of population's health, especially infant mortality (Robalino et al., 2001; Habibi et al., 2003; Asfaw et al., 2007; Cantarero and Pascual, 2008; Jiménez-Rubio, 2011a; Uchimura and Jütting, 2009). Overall, the existing evidence shows that fiscal decentralization (proportion of resources locally spent or raised) is negatively correlated with infant mortality, especially when it is associated with a high degree of discretion of sub national governments in managing their revenue and spending (e.g. Jiménez-Rubio, 2011b; Soto et al., 2012; Cavalieri and Ferrante, 2016). However, possibly due to the lack of data, the outcomes associated to other types of decentralization different to the fiscal one have received less attention. An exception is a recent study which exploits the different timing of decentralization reforms across Spanish regions and finds no evidence of a positive impact of exposure to decentralization on a wide range of indicators of self-perceived satisfaction on primary and hospital care for the period 1996–2009 (Antón et al., 2014).

Spain is an interesting case study as devolution was implemented gradually and asymmetrically over a twenty-year period starting in 1981 (López-Casasnovas et al., 2005) and the order in which the regions were decentralized was driven by political reasons and not by population health (Maino et al., 2007; Rico and Costa-Font, 2005; Antón et al., 2014). In particular, a vast literature has examined the association between health services decentralization in Spain and efficiency, diversity or inequality (López-Casasnovas et al., 2005), or specific dimensions such as health outcomes (Cantarero and Pascual, 2008), inequality in health measures (Montero-Granados et al., 2007) or the level of satisfaction with health services (Antón et al., 2014), among others. In general, the literature for Spain finds that decentralization is correlated with better health outcomes, and has promoted some policy innovation without sizeable effects in regional disparities. However, excluding the study by Antón et al. (2014), previous studies for Spain do not fully exploit the quasi-experimental nature of the decentralization reforms therefore not providing causal relationships. While the study by Antón et al. (2014) offers an interesting and novel approach to assess the impact of decentralization of health services in Spain, it fails to include information regarding the devolutions that took place during the 1980s and early 1990s (as their data starts only 15 years after the first decentralization transfer to Catalonia) and it does not address the heterogeneity across Spanish regions in the type of decentralization. Our results show that this heterogeneity is crucial to understand the effects of decentralization on health outcomes.

Our paper improves upon previous studies by exploiting the exogenous differences in the path of the decentralization process across Spanish regions to explore the effect of decentralization of the health care system on infant mortality rates. Infant mortality is considered to be a good proxy of population health, reflecting both children's health and pregnant women's health, and is sensitive to policy reforms such as decentralization. In addition to the standard measure of infant mortality commonly employed in the previous literature, we use neonatal mortality rates. While infant mortality is likely to be strongly associated to socioeconomic factors, neonatal mortality is assumed to be a more closely related indicator of the quality of the health care system (Nolte et al., 2009). Given the gradual implementation of decentralization in Spain we use a quasi-experimental methodology based on differences-in-differences estimations which are more likely to reflect causal estimates than evidence found in most of the previous literature using other empirical methods. Moreover, our approach avoids relying upon fiscal proxies for decentralization based on health care expenditures or revenues which fail to capture other important dimensions of the complex decentralization process such as political accountability or responsiveness to local needs. In addition, we exploit the asymmetric implementation of health care decentralization in Spain in order to allow for an heterogeneous effect of the different types of decentralization reforms —full decentralization (fiscal as well as political decentralization funded through own sources of revenue) versus political decentralization only (funded primarily through transfers) - which may have a distinct effect on local government spending behaviour (see e.g. Liberati and Sacchi, 2013).

We find that decentralization improved both infant and neonatal mortality rates, but only on regions subject to both fiscal and political decentralization, and the effect is sizeable: decentralization in fully accountable regions has stimulated roughly a 1.1 reduction in the number of deaths of children under one year of age per thousand live births, and around a 0.8 reduction in the number of deaths of children under a month of age per thousand live births. We provide some evidence showing that this effect is not due to the higher income of regions with full decentralization, as similar results are not found among rich regions with political decentralization only.

Short-run and long-run effects of decentralization may be different as implementation of regional specific policies may not immediately follow decentralization. Therefore, we allow the effect to be dynamic over time which unravels important differences between the two types of decentralization.

Finally, although data are insufficient to investigate the factors underpinning these results, we show that supply changes measured by number of General Practitioners (GPs) per 100,000 population are one plausible mechanism. Our results show that full decentralization increased this rate by 25.9. However, other mechanisms should also be important as the positive effect of full decentralization on health outcomes remains after controlling for the rate of medical practitioners.

2. Institutional background: decentralization of health services in Spain

The Spanish National Health Service (SNHS) has been mainly funded out from taxes since the Health Care General Act was implemented in 1986 replacing the previous system based on social contributions and extending health care coverage to virtually all the population (García-Armesto et al., 2010).

Health expenditure in Spain reached US$ 3027 purchasing power parity (PPP) per capita and 9.54% of gross domestic product