

# The More Private Patients, the Fewer Public Patients? Evaluating the 2014 Hospitals Reform in Ireland

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## Introduction

In Ireland, medical consultants at public hospitals are permitted to treat private patients within public hospitals (Nolan, 2006; HSE, 2008). Notably, patients with private insurance often gain faster access to outpatient consultations and elective inpatient care (OECD, 2018). The provision of private care within public hospitals is not unique to Ireland. Actually, it is also observed in other countries, including the UK, France (Paris et al., 2010), Indonesia (González et al., 2018), and China. Nevertheless, the practice of providing private healthcare within public hospitals has long been a contentious issue in Ireland. On the one hand, from the viewpoint of public patients, this practice can potentially lead to longer waiting times and delayed care. On the other hand, allowing private care in public settings can make public positions more appealing (García-Prado and González, 2007). Moreover, it may also motivate public consultants to treat more public patients and enhance the quality of care when consultants use their public services to increase their prestige for private care (González, 2004). Additionally, the private fees paid to consultants can partially offset contracting. Overall, considering the pros and cons, the consensus in the literature is that the private practice conducted by public consultants needs to be subject to regulation.

In Ireland, two significant reforms have impacted the regulation of private practices within public hospitals. The first reform, known as *the 2008 Consultants' Contact Reform*, placed limitations on the private practices of public consultants. Specifically, since 2008, any newly recruited consultant wishing to engage in private practice is limited to a 20:80 ratio, meaning that private patients can only constitute up to 20% of their total caseload. For consultants recruited before 2008, this ratio is set at 30%. In other words, for every private inpatient, the consultant is required to treat at least four additional public patients to comply with their

contract.<sup>i</sup> The establishment of these ratios (20:80 or 30:70) by the 2008 reform sets the contextual groundwork for our examination of a subsequent reform: *the 2014 Public Hospitals' Wards Reform*.

In contrast to the limitations imposed by the 2008 reform, *the 2014 Public Hospitals' Wards Reform* offers public consultants increased flexibility to engage in private practice. Specifically, in 2013, Ireland set a target for increasing the revenue from private inpatients in public hospitals (HSE, 2014), and announced *the Health (Amendment) Act 2013*, which fundamentally changed the ward allocating in public hospitals, effective from January 2014.<sup>ii</sup> Prior to this reform, public inpatients were typically accommodated in shared public wards, while private patients were confined to separate, single private wards.<sup>iii</sup> However, starting in 2014, the distinction in bed designation was eliminated (Comptroller and Auditor General, 2018), and the clear separation between public and private wards ceased to exist (OECD, 2018). In other words, since 2014, private insurance only offers private patients potentially quicker access to care, without any additional advantages over public patients (OECD, 2018; Flood, 2021). A report by the OECD (2018) mentions that the income in Irish public hospitals from private patients increased by about 20% in 2014, compared to 2013. This reform sparked widespread debate and concern, with fears that private patients might take over beds previously designated for public patients. Media outlets like *The Independent* (2014) reflected public anxiety over the possibility that the reform would cause private patients to be prioritised and would exacerbate public waiting lists.

However, did the reform actually discourage public consultants from treating public inpatients? There are two aspects of this reform that we must consider. Firstly, we consider that the terms of the consultants' contract, which states that public consultants are limited to treating private patients up to 20% (or 30%) of their total patient caseload. Secondly, we also consider the fact that Irish public hospitals experienced a reduction in bed capacity since 2008 (Walsh et al., 2022). This may have negatively impacted the total number of admissions. Therefore, analysing the number of admitted inpatients only may not accurately reflect the impact of the 2014 reform. Thus, to rule out the potential confounding impact of declining hospital bed capacity and focus on the consequences of the 2014 reform, we consider the dynamics of hospitalisation, or the treatment efficiency of hospitals, measured by the Length of Stay (LOS) of patients. In particular, given other conditions, when consultants have a greater motivation to treat patients, they will expedite care for each patient and it will be reflected by a shorter LOS.

## Summary Statistics

To study the above research question, we use the Hospital In-Patient Enquiry (HIPE) administrative inpatients dataset, provided by the Healthcare Pricing Office (HPO). The

timeframe selected for our research spans from January 2009 to December 2015.<sup>iv</sup> We focus on the discharge records of adult inpatients, excluding data pertaining to maternity care, day cases treatment, overseas patients, and certain public hospitals that underwent structural changes during the study period.<sup>v</sup> Specifically, we compare the patients who were admitted via Emergency Department (ED) to patients who were admitted electively. The rationale is that admissions via ED to public hospitals are primarily based on medical necessity rather than their private insurance status.<sup>vi</sup> In other words, we consider that *the 2014 hospital wards reform* only impacted patients who were admitted electively, rather than patients who were admitted via ED.

Figure 1 below shows the monthly percentage of private patients in public hospitals admitted electively or via ED from January 2009 to December 2015. Here we observe an overall decline in the share of private patients admitted through elective admissions.<sup>vii</sup> On average, the proportion of private patients who were admitted electively was 28% prior to the 2014 reform. This fell to 27% post-reform. This trend in the raw data does not support the concern that consultants would treat a higher percentage of private patients after the reform. The proportion of private patients admitted via ED also declined moderately over the period. On average, 21% of private patients were admitted via ED before the reform and 20% did so afterwards. Additionally, the ratio in the ED was relatively lower and more stable over the period, validating our hypothesis that the 2014 reform did not affect the admission decision in ED.

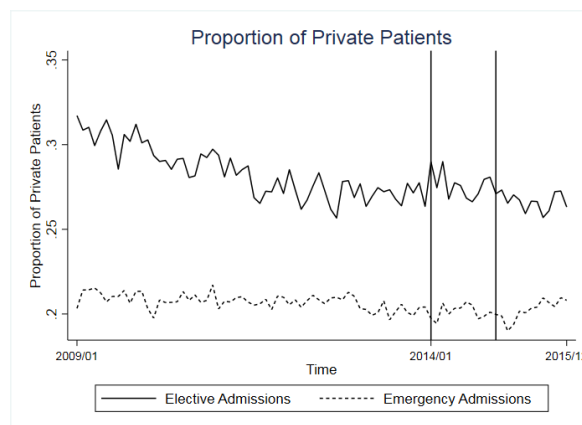


Figure 1: The proportion of private patients admitted via ED and admitted electively

Figure 2 below presents the total number of inpatient admissions per month over the time period, categorised by their type of admission. The raw data show consistent trends over time for patients admitted either electively or through the ED. In particular, prior to 2014, the average annual count of elective admissions (excluding day-cases etc.) was 20,828. This figure declined to 19,644 following the reform. For ED admissions, the numbers were 7,270 before

2014 and declined to 6,930 afterwards. However, it is important to note that Ireland had been reducing the bed capacity in public hospitals since 2008 (Walsh et al., 2022). Therefore, with a reduced capacity, Irish public hospitals have been managing nearly the same volume of patients, indicating an improvement in efficiency.

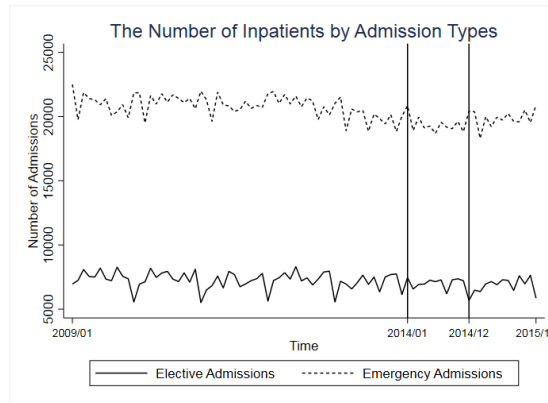


Figure 2: The number of inpatients admitted via ED and admitted electively

Figure 3 below displays the average LOS for inpatients, segmented by their types of admission. The LOS for both admission categories decreased over the period. Specifically, the LOS for elective admissions was 5.73 days before the reform, which then reduced to 5.62 days. For inpatients admitted via ED, the LOS was on average 6.71 days prior to the reform and changed to 6.78 days after the reform.

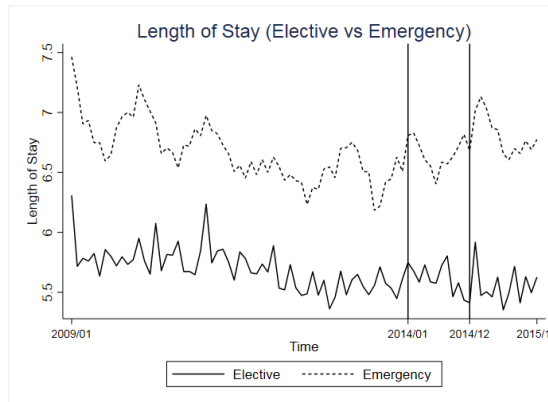


Figure 3: The mean LOS of inpatients admitted via ED and admitted electively

It is important to note that the aforementioned descriptive information does not equate to empirical evidence for assessing the impact of the 2014 reform. This is because the above figures of raw data encompass various confounding factors, including technological

improvements, as well as reductions in bed capacity and staff. To tackle these challenges and offer a robust evaluation of the reform, we employ the difference-in-differences method.

## Method

Using a difference-in-differences approach, we consider each hospital to comprise of two departments. The “elective department” encompasses patients admitted on an elective basis, designated as the “treatment group”. Conversely, the “emergency department” consists of patients admitted via the ED, identified as the “control group”. We evaluate three perspectives of the 2014 reform: the proportion of private patients, the number of public patients, and the LOS of patients.

We first compare the proportion of private patients between “elective department” and “emergency department”, before and after the 2014 reform. To account for the different characteristics of hospitals such as their advantageous specialties and their teaching status, we include hospital fixed effects. To capture temporal influences such as the population growth and the development of technology, we include time fixed effects. Moreover, considering that hospital departments might handle different types of patients differently in different periods, we also include time-varying controls at the hospital department level, such as the monthly ratio of medical card holders. Finally, to account for yearly variations across hospitals, such as changes in bed capacity and staffing levels, we introduce hospital-by-year fixed effects. Our second approach is also based on the same setting at the level of hospital department. Here we conduct a comparison of the number of public inpatients between “elective departments” and “emergency departments”. Our third approach is to explore the analysis at individual level, specifically patients’ LOS. Here we further control for personal characteristics that could influence the outcome, including gender, age group, marital status, illness types, ICU experiences, procedure experiences, and the seniority of the consultant.

To understand how the patient’s LOS reflects the number of admissions in public hospitals, we apply Little’s Law.<sup>viii</sup> Specifically, Little’s Law shows that a simultaneous decrease in the LOS for both public and private patients must be associated with an increase in public patient admissions. The reasoning is straightforward: a reduction in LOS suggests that each patient’s treatment duration is shortened, implying that hospitals have additional capacity to treat more patients. Furthermore, due to the contractual obligations of consultants (20:80 or 30:70 ratio), there must be an increase in the number of treated public patients.

## Main Results

### **The impact on the proportion of private patients**

Firstly, our research focuses on analysing the percentage of private patients. Our findings indicate that the reform does not change the proportion of private patients in the “elective department”, compared to that of the “emergency department”. Consequently, there is no evidence supporting the concern that public consultants would treat a larger fraction of private patients and that the public patients were crowded out due to the reform. This outcome is due to consultants adhering to the 20:80 or 30:70 ratio stipulated in their contracts, which prevents them from seeing an increased share of private patients.

### **The impact on the number of public admissions**

Secondly, our analysis delves into the impact of the 2014 reform on the number of public admissions at the level of hospital departments. Our results reveal that after excluding the influence of other factors, the reform led to a significant 20.5% additional increase in the number of public admissions in the “elective department” compared to those in the “emergency department”. To eliminate the concern that this increase predominantly occurred in smaller hospitals, we exclude the smallest 10% of hospitals based on their average admission numbers and still observed similar outcomes. Furthermore, to mitigate the potential confounding influence of bed capacity changes, as previously discussed, we employed hospital-by-year fixed effects to accurately reflect annual variations in bed capacity.

### **The impact on the LOS of patients**

Finally, we implement our analysis at the individual-level by examining the effect of the 2014 reform on patients’ LOS. Unlike the admission number analysis, the LOS analysis for each patient is less susceptible to the change in bed capacity. This approach is grounded in Little’s Law, which posits that observed reductions in LOS for both private and public patients imply an increase in public admissions. With the further consideration of patient’s characteristics, our individual-level analysis indicates that the 2014 reform significantly shortened the LOS for both private and public patients, by approximately 0.46 and 0.49 days, respectively. Figure 4 and 5 depict the dynamic effects of this reform on the LOS of public and private patients respectively: the policy had no substantial impact on patients’ LOS prior to 2014, but it markedly reduced their LOS starting from 2014. We can observe similar results between the sample from public and private patients. Therefore, based on Little’s Law, the individual level analysis also confirms that the reform effectively increased the number of public admissions.

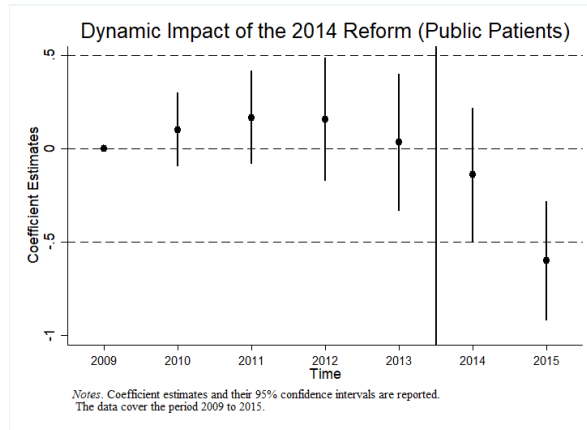


Figure 4: The dynamic impact of the 2014 reform on the LOS of public patients

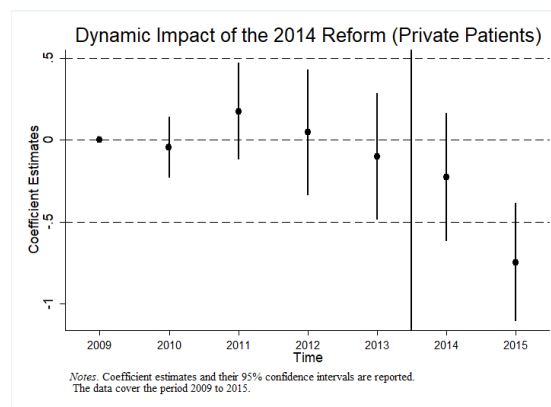


Figure 5: The dynamic impact of the 2014 reform on the LOS of private patients

## Stability and Robustness of the Results

To further ensure the stability and robustness of the results, we have implemented several checks to mitigate any factors that might potentially skew our results.

### Could the reduction in LOS be caused by the decrease in hospitals' bed capacity?

A study by Walsh et al. (2022) suggests that the LOS in hospitals is positively correlated with the availability of hospital beds. This raises a question: Is the observed decrease in LOS a result of the 2014 reform, or is it due to a reduction in the bed capacity of Irish hospitals since 2008? Our primary model incorporates hospital-by-year fixed effects to address this issue. This accounts for annual variations in each hospital, such as bed capacity and the number of support staff. Furthermore, we execute an alternate model that excludes these hospital-by-year fixed effects, and it similarly shows a reduction in LOS by an average of about 0.3 days. To further



rule out any confounding factors that happened before 2014 (e.g., the reduction of the bed capacity since 2008), thereby skewing our findings, we have carried out a series of placebo tests. We limit our data to the period from February 2009 to November 2013 and re-run our primary regression analysis for every conceivable implementation month (58 regressions in total). In this case, we anticipate no significant results, as a fictitious and incorrect reform time is assumed. After testing each possible falsified implementation time, we consistently find that all these results are insignificant, thereby reinforcing the reliability of our primary findings.

### **Does a shorter LOS imply reduced quality of care?**

A subsequent question is whether the shortened LOS indicates a decline in the quality of care. Ideally, hospital quality metrics like the 30-day readmission rate would be the preferred measure. However, due to the unavailability of this variable, we opt for the second-best option: the probability of death, as a proxy for the quality of care. We reanalyse the impact of 2014 reform on mortality rates. Our findings show no evidence that the reduced LOS compromises care quality, as indicated by data from the overall patient sample, as well as subsets of public and private patients.

### **Conclusion and policy implications**

Our study reveals that the 2014 reform reduced the LOS for both public and private patients, suggesting an increase in the number of public patients receiving treatment in Irish public hospitals. This outcome may be attributed to the reform granting consultants more leeway to see private patients in public hospitals. To treat an additional private patient, consultants are obliged by their contract to treat four more public patients, thereby enhancing work efficiency in public hospitals and leading to a decreased LOS for all patients. Additionally, our findings indicate that the reform achieves Pareto efficiency, implying that the increase in public patient numbers does not come at the expense of other parties or the quality of care, as evidenced by the unchanged probability of death.

Our research addresses the public concerns about the 2014 reform that consultants may prioritise private patients. We do not find evidence supporting the above concern. On the contrary, our results show that more public patients were treated. This is because consultants are bound by their contracts to treat more public patients in response to each additional private patient they see. In fact, allowing consultants some flexibility in treating private patients, when properly managed and contractually regulated, can be an effective way to enhance their motivation. This approach could lead to beneficial effects for public patients and the realisation of a Pareto efficient outcome.



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## References

- Beaumont Hospital (2009). Beaumont Hospital Patient Information Book (A4 version) [Online]. Available from: [http://www.beaumont.ie/files/2009/docs/20090729100331\\_Beaumont\\_Hospital\\_Patient\\_Info.pdf](http://www.beaumont.ie/files/2009/docs/20090729100331_Beaumont_Hospital_Patient_Info.pdf) [accessed 04 January 2024]
- Comptroller and Auditor General, 2018. Report on the Accounts of the Public Services 2017 [online]. Available from: [http://opac.oireachtas.ie/AWDData/Library3/CAGdoclaid280918a\\_114755.pdf](http://opac.oireachtas.ie/AWDData/Library3/CAGdoclaid280918a_114755.pdf) [accessed 06 January 2024]
- Flood, K., 2021. High Court: HSE cannot make patients liable for private hospital charges until they clearly consent [online]. Irish Legal News. Available from: <https://www.irishlegal.com/articles/high-court-hse-cannot-make-patients-liable-for-private-hospital-charges-until-they-clearly-consent> [accessed 06 January 2024]
- García-Prado, A. and González, P., 2007. Policy and regulatory responses to dual practice in the health sector. *Health Policy*, 84(2-3), pp.142-152.
- González, P., 2004, Should physicians' dual practice be limited? An incentive approach. *Health Economics*, 13(6), pp.505-524.
- Gonzalez, P., Montes-Rojas, G., & Pal, S. (2018). Dual practice of health workers: Theory and evidence from Indonesia. Available at SSRN 2975485.
- Guo, X., 2023. Hospital Efficiency and Consultants' Private Practices: Analysing the Impact of a Voluntary Reform. UCD School of Economics working paper series 2023.
- HSE. (2008). Consultant contract implementation guidance to health service management on the implementation of consultant contract 2008 (Online). Available from: <https://www.hse.ie/eng/staff/resources/terms-conditions-of-employment/ccontract/consultant-contract-implementation---guidance-to-health-service-management-on-the-implementation-of-consultant-contract-2008;-vol-11-15th-august-2008-.pdf> [accessed 04 January 2024]

HSE. (2014). Health Service, National Service Plan (Online). Available from: <https://www.hse.ie/eng/services/publications/serviceplans/national-service-plan-2014.pdf> [accessed 01 February 2024]

Independent.ie, 2014. Hospitals to charge private patients for use of public beds [online]. Available from: <https://www.independent.ie/irish-news/health/hospitals-to-charge-private-patients-for-use-of-public-beds-30712604.html> [accessed 06 January 2024]

Little, J.D., 1961. A proof for the queuing formula:  $L = \lambda W$ . *Operations research*, 9(3), pp.383-387.

Nolan, B., 2006. The interaction of public and private health insurance: Ireland as a case study. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 31(4), pp.633-649.

OECD, 2018. Assessing Private Practice in Public Hospitals [online]. Available from: <https://assets.gov.ie/26530/88ebd7ddd9e74b51ac5227a38927d5f9.pdf> [accessed 06 January 2024]

Valentelyte, G., Keegan, C. and Sorensen, J., 2022. A comparison of four quasi-experimental methods: an analysis of the introduction of activity-based funding in Ireland. *BMC Health Services Research*, 22(1), pp.1-12.

Walsh, B., Smith, S., Wren, M.A., Eighan, J. and Lyons, S., 2022. The impact of inpatient bed capacity on length of stay. *The European Journal of Health Economics*, pp.1-12.

Whyte, R., Connolly, S. and Wren, M.A., 2020. Insurance status and waiting times for hospital-based services in Ireland. *Health Policy*, 124(11), pp.1174-1181.

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<sup>i</sup> See Whyte et al. (2020) and Guo (2023) for discussions of this reform.

<sup>ii</sup> The original law document is available here: <https://www.irishstatutebook.ie/eli/2013/act/31/enacted/en/print#sec9>

<sup>iii</sup> This may have exceptions. For example, Beaumont Hospital (2009) states that, in some situations where a private ward is not available, a private patient may be placed in a public bed temporarily. However, this patient will be transferred to a private ward at the earliest time.

<sup>iv</sup> Ireland introduced Activity-Based Funding payment system in 2016 (Valentelyte et al., 2022). To avoid of potential confounding impacts, we restrict our sample by 2015.

<sup>v</sup> The 2014 reform was targeted on inpatient care, leading us to concentrate on inpatients admitted to hospital wards. Since day cases typically do not require an overnight stay in a bed, we exclude them from our analysis. Nonetheless, to eliminate the chance that hospitals might reclassify some mildly ill patients—who should have been treated as inpatients—to day-case status, we additionally control for the complexity of patients' illnesses in

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our evaluation of their LOS, and our findings remain consistent.

<sup>vi</sup> For the admission criteria in the ED, please see here: <https://www2.hse.ie/emergencies/the-emergency-department-ed/>. See also Walsh et al. (2022).

<sup>vii</sup> The decreasing trend of proportion of private patients who admitted electively is owing to a voluntary contract reform in 2008 aiming to reduce the public waiting list. Whyte et al. (2020) find there is no evidence supporting that the 2008 reform reduced the waiting time gap between public and private patients. Thus, to avoid of any confounding impact of the 2008 reform, we restrict our sample to since 2009.

<sup>viii</sup> According to queuing theory, Little's Law states that  $L = \lambda W$ . It means that given the capacity  $L$ , the number of people in the queuing system ( $\lambda$ ) is negatively correlated with the average time that each individual spends in the system ( $W$ ). See Little (1961) for the proof.