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20 July 2021

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Acknowledgements: We thank UNDP Vietnam office for providing us the data of Viet Nam Governance and Public Administration Performance Index (PAPI). We also thank Yasuharu Shimamura and Ikumi Morooka for their constructive comments. This work was supported by JSPS (Japan Society for the Promotion of Science) KAKENHI Grant Numbers 18K12784, 19H00619, 20H01506, and 21K01455.

Conflict of interest: The authors declare no conflicts of interest.

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Abstract

Although various theoretical predictions have been made, empirical evidence on the impact of bribery remains limited, especially in the health sector. This study explores how the perception of bribery is associated with health service utilization in Vietnam by using provincial panel data during 2012–2018. We found that a higher perception of bribery is associated with fewer inpatient days, suggesting that bribery potentially influences the deterioration of welfare services. However, no such effect on the number of consultations at health facilities and the number of inpatients was detected. In addition, we found that a strong general anti-corruption campaign would offset the negative effects of bribery on the number of inpatient days.

Keywords: bribery, health service utilization, anti-corruption campaign, Vietnam

JEL Classification Codes: I12, I18, I19

1. Introduction

In the context of public health care, bribery can be defined as informal payments in the form of cash or in-kind transfers to service providers in addition to official payments (Lewis, 2007). Indeed, bribery accounts for a large proportion of the health care expenses for patients in developing and emerging countries (Balabanova and McKee, 2002; Belli et al., 2004; Falkingham, 2004; Killingsworth et al., 1999; Szende and Culyer, 2006). Theoretically, bribery may enhance efficiency. For example, Méon and Weill (2010) highlighted the potential of bribery to ‘‘grease the wheels’’ of an economy by compensating for weak institutions, an idea that is consistent with studies of public choice theory. Meanwhile, theories of negative consequences are discussed in the corruption literature. For instance, Guriev (2004) demonstrates that the base quality of health care services might be intentionally reduced by service providers with the aim of eliciting more payments. However, despite the various theoretical predictions, empirical evidence on the impact of bribery remains limited, especially in the health sector.

The first contribution of this study to the literature is to fill in this research gap by using provincial panel data from Vietnam. Specifically, we examine health outcomes and direct perceptions of bribery in the health care sector. The most closely related study, Mavisakalyan et al. (2021), used a self-assessed health index, which limits the quality of the health outcomes. In contrast, we use the following three utilization-based objective health outcomes: (1) the number of consultations at health facilities, (2) the number of inpatients, and (3) the number of inpatient days. Further, Mavisakalyan et al. (2021) asked about experiences paying bribes in the past 12 months. Meanwhile, our bribery proxy is from a separate perception-based survey that is not affected by the issue of sample selection.

The second contribution to the literature is to investigate the influence of a general anti-corruption campaign on the health sector. Since 2016, the Vietnamese government has been conducting a substantive anti-corruption campaign to tackle corruption. Even top-ranked officials, including the Deputy Prime Minister, members of the Politburo, and members of the Central Committee of the Communist Party of Vietnam (CPV-CC, hereafter), who had previously been immune from investigation and were essentially untouchable, have been targeted in the campaign. Investigations were launched in 2016 and criminal corruption charges were filed in 2017 and 2018. In Vietnam, the CPV-CC, particularly the Politburo members, has absolute power to decide who leads what agencies and organizations, from the grassroots to the highest levels of government. Therefore, the impact of arrests could be tremendous, especially in provinces where politicians hold absolute power or in their home province. Vietnamese politicians

have been reported to show home-biased regional favoritism (Do et al. 2017, Vu and Yamada 2017). Therefore, in this study, we examine the impact of the general anti-corruption campaign on the health sector by using information on top-ranked politicians who were arrested and convicted crimes as a result of this campaign.

2. Data

We used various sources of information in order to construct a panel data set on Vietnamese provinces from 2012 to 2018. We obtained province-level health outcomes from the Health Statistics Yearbooks published by the Ministry of Health of Vietnam. The three outcome variables are as follows: (1) the number of consultations at health facilities of all kinds, (2) the number of inpatients, and (3) the number of inpatient days per year in each province. The population size of each province was also obtained from the Health Statistics Yearbooks. Our analysis does not include Hanoi because the Ministry of Health noted that the corresponding statistical figures were not updated annually.

Data on province-level bribery was obtained from the Viet Nam Governance and Public Administration Performance Index (PAPI) 2012–2018. Conducted annually, PAPI is a unique household survey that captures public perception of and people's experience with bribery in the public sector, including government agencies, schools, and hospitals at all levels. PAPI uses multistage and random sampling methods in order to ensure national representativeness. Since it began surveying all provinces in 2011, PAPI has collected the views of about 13,000–14,000 Vietnamese every year.[1] Responses to the survey item asking whether participants agreed with the statement "People like me have to pay a bribe to receive medical treatment in the district's hospitals" were used to measure the perception of bribery in the health sector of a given province. Specifically, we aggregated the responses in order to derive the percentage of respondents who gave an affirmative answer to the question in the province as the perception of bribery. When the percentage was high, we regarded the province as being a highly corrupt (bribe-prevalent) area. This is a common approach to asking such a sensitive question without identifying 'who' has paid bribes (Matsushima and Yamada, 2016).

The province-level health insurance coverage rate was computed using Vietnam Household Living Standard Survey (VHLSS) data from 2012, 2014, 2016, and 2018. Because the VHLSS is conducted biannually, the coverage rate for other years was estimated by interpolation. The health insurance coverage rate is an important control because 2012–2018 corresponded to the period in which the government worked very

[1] The latest PAPI report is available at https://papi.org.vn/eng/bao-cao/ (accessed on June 29, 2021).

actively to expand universal health insurance coverage (Matsushima et al., 2020).

To construct a proxy for the potential influence of the general anti-corruption campaign in 2016, we relied on the information in several popular news articles.[2] The initiator of the campaign was Nguyen Phu Trong, the General Secretary of the Communist Party of Vietnam (the most powerful position in Vietnam). The campaign, which was nicknamed "burning the oven" (after Nguyen Phu Trong's famous statement "once the [anti-corruption] oven is burned, even fresh wood [of corruption] will catch fire"), targeted all types of corruption and was not limited by geographical borders. Five provinces, namely Da Nang, Phu Tho, Thai Binh, Ha Giang, and Ho Chi Minh, were either the home provinces or former working provinces of indicted members of the CPV-CC.[3] That is, they must have held the top position, first ranked, in their former working province during 2011–2016. We created a dummy variable for these five provinces in 2017 and 2018 in order to investigate the potential influence of the general anti-corruption campaign.

Table 1 shows the descriptive statistics for the main variables.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
The number of consultations at health facilities (thousand)	431	3055.98	4110.46	426.82	37944.16
The number of inpatients (thousand)	429	207.89	200.24	37.29	1713.62
The number of inpatient days (thousand)	420	1284.66	1271.76	180.32	10454.17
Perception of bribery (%)	432	39.45	12.42	10.82	69.50
Dummy for 5 provinces associated with punished top-ranked politicians in 2017 and 2018	432	0.02	0.15	0	1
ln(Population/1000)	432	7.06	0.53	5.71	9.06
Health insurance coverage rate (%)	432	75.76	12.75	39.21	98.14

Authors' calculations

3. Empirical model and estimation results

We employed a panel fixed-effects model at the province level in order to examine the relationship between the perception of bribery and health-service utilization as follows:

[2] The following two sources are particularly informative: https://vnexpress.net/nhung-uy-vien-trung-uong-khoa-xii-bi-ky-luat-dang-4201394.html and https://www.bbc.com/vietnamese/resources/idt-1a9d5151-f77e-45c4-9dfe-c19c663be8df (both accessed on June 29, 2021).

[3] Hanoi was on the list, but we excluded it from our analysis due to data limitations.

$$y_{it} = \alpha + \beta Bribery_{it} + \gamma AntiCorruption_{it} + x'_{it}\delta + \theta_t + \mu_i + \varepsilon_{it}. \qquad (1)$$

Here, y_{it} is one of the following three utilization-based health outcomes in province i in year t: the number of consultations at health facilities, the number of inpatients, and the number of inpatient days. $Bribery_{it}$ is the perception of bribery in province i in year t, which is our main variable of interest. $AntiCorruption_{it}$ takes 1 for the five provinces (associated with the arrested members of the CPV-CC) named in the previous section in 2017 and 2018, and 0 otherwise. x_{it} is a vector of other control variables (health insurance coverage rate and log of population [thousand]). θ_t and μ_i are the year and province fixed effects, respectively. Standard errors are clustered at the province level. Our parameter of interest is β, whereas γ is used for further analysis in order to investigate the possible spillover effect of the anti-corruption campaign on health service utilization.

Table 2 shows the estimation results. Columns 1, 3, and 5 do not include $AntiCorruption_{it}$, whereas columns 2, 4, and 6 do. Comparing columns 1 and 2, 3 and 4, and 5 and 6, the coefficient of $Bribery_{it}$ is very stable regardless of whether $AntiCorruption_{it}$ is included. For the number of consultations at health facilities, the point estimate is positive but statistically insignificant. For the number of inpatients, although the point estimate of $Bribery_{it}$ is negative, it is still statistically insignificant. For the number of inpatient days, the point estimate of $Bribery_{it}$ is negative and statistically significant at the 10% level. This implies that a higher perception of bribery is associated with fewer inpatient days. This could be interpreted as evidence of a negative influence of bribery because patients might stay at a hospital longer only if they have paid a corresponding bribe. Hence, a lower level of bribery would improve welfare for inpatients.

Next, we turn to $AntiCorruption_{it}$. The coefficients of $AntiCorruption_{it}$ are positive and statistically significant for the number of inpatients (column 4) and the number of inpatient days (column 6). Hence, the anti-corruption campaign was effective at increasing inpatient-related utilization. In particular, we tested whether the anti-corruption campaign's impact was significantly relevant enough to eliminate the negative impact of bribery on the number of inpatient days. Hence, our null hypothesis is a joint one for each of the five provinces (i) in 2017 and 2018 ($t = 2017\ or\ 2018$).

$$\hat{\beta} Bribery_{it} + \hat{\gamma} = 0 \qquad (2)$$

Here, $\hat{\beta}$ and $\hat{\gamma}$ are the estimated parameters in Equation 1. Table 3 show the results of

the joint tests. The perception of bribery in terms of percentage for each of the five provinces in 2017 and 2018 is shown in columns 1 and 2, whereas the corresponding F-statistics for Equation 2 are shown in columns 3 and 4. The null hypotheses can be rejected because the F-statistics are very small (less than 1). These test results suggest that the anti-corruption campaign's impact was indeed significant enough to wipe out the negative influence of bribery on the number of inpatient days.

Table2: Main estimation results using fixed-effect models

	Number of number of consultations at health facilities		Number of inpatients		Number of inpatient days	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Bribery	0.8722	0.8754	-0.2302	-0.2451	-5.6632*	-5.7138*
	(5.3103)	(5.3080)	(0.5147)	(0.4986)	(3.3287)	(3.3272)
AntiCorruption		-12.2621		56.1829**		188.4093*
		(259.8666)		(24.1962)		(95.7073)
Healthinsurance coverage rate	-4.7368	-4.7775	-0.3158	-0.1321	-4.5295	-3.8999
	(7.9621)	(8.2340)	(0.6835)	(0.6705)	(5.2040)	(4.9825)
Population (log)	-14.0298	-13.8004	10.2471	9.1933	-54.0324	-57.6530
	(87.0254)	(85.3193)	(12.9159)	(12.1709)	(40.3409)	(39.9776)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Province fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	431	431	429	429	420	420
R-squared	0.032	0.032	0.203	0.221	0.063	0.068
Number of provinces	62	62	62	62	62	62

Standard errors clustered at province-level are in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Joint hypothesis test of bribery and the anti-corruption campaign for the number of inpatient days

	Perception of bribery (Bribery, %)		F-statistics for the joint test (2) in the text	
	2017	2018	2017	2018
Da Nang	27.78	32.39	0.09	0.00
Phu Tho	34.08	25.14	0.00	0.21
Thai Binh	55.91	48.17	0.59	0.34
Ha Giang	42.94	38.30	0.18	0.06
Ho Chi Minh	30.83	30.00	0.01	0.03

Source: authors' calculations

4. Conclusion

This study showed that bribery might have a negative influence on the number of inpatient days, leading to deterioration of welfare among inpatients. However, the results also showed that the strong general anti-corruption campaign improved welfare

and offset the negative effects of bribery. Therefore, the policy implication is that a strong initiative aimed at combatting corruption would be very helpful for the health sector.

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