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Informal Payments and Moonlighting in Tajikistan's Health Sector

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Abstract

This paper studies the relationship between gender and corruption in the health sector. It uses data collected directly from health workers, during a recent public expenditure tracking survey in Tajikistan's health sector. Using informal payments as an indicator of corruption, women seem at first significantly less corrupt than men as consistently suggested by the literature. However, once power conferred by position is controlled for, women appear in fact equally likely to take advantage of corruption opportunities as men. Female-headed facilities also are not less likely to experience informal charging than facilities managed by men. However, women are significantly less aggressive in the amount they extract from patients. The paper provides evidence that workers are more likely to engage in informal charging the farther they fall short of their perceived fair-wage, adding weight to the fair wage-corruption hypothesis. Finally, there is some evidence that health workers who feel that health care should be provided for a fee are more likely to informally charge patients. Contrary to informal charging, moonlighting behavior displays strong gender differences. Women are significantly less likely to work outside the facility on average and across types of health workers.

This paper—a product of ECA PREM and the Human Development and Public Services Team, Development Research Group—is part of a larger effort in the department to understand corruption in public services especially coping strategies health workers adopt such as informal payments and the holding of other jobs outside the facility. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. Andrew Dabalen may be contacted at adabalen@worldbank.org and Waly Wane at wwane@worldbank.org.

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1. Introduction

The causes and consequences of corruption are well researched and widely known. There is ample cross-country empirical evidence that corruption slows growth, reduces public and private investment (Mauro 1995), and negatively impacts service delivery (World Bank 2004). However, knowledge about what causes individuals to engage in corrupt or illegal activities is scant. Several determinants of individual corruption have been recently proposed among which the most stunning and not least controversial is gender. Proponents of this theory claim that men's proclivity towards corruption is inherently higher than women's. This paper investigates this issue and presents new evidence based on data collected during a public expenditure tracking survey (PETS) in Tajikistan's health sector. It shows that women are no less prone to extorting illegal payments from patients than men once the proper variables, such as power conferred by position for instance, are controlled for.

Men and women certainly display countless obvious physical and physiological differences. Attitudinal gender differences have been an active research matter for sociologists and psychologists for many decades. Although moderate to large differences are acknowledged in some areas (e.g. sexuality and aggression) men and women display more similarities than differences (see Hyde, 2005). Economists started to integrate gender in their analysis only recently and have uncovered interesting gender differences mostly through experiments. This paper studies two important forms of corruption in the health sector (1) informal charging and (2) moonlighting. Informal charging is a bribe-taking practice and is clearly classified as an illegal activity. Moonlighting is a more subtle form of corruption because it is not readily identified as theft or use of public office for private gain. In fact, moonlighting is a strong determinant of absenteeism and workers who collect their salary but do not show up at work can be considered as stealing public money (see Lewis 2006).

The main result of this paper is that with similar power and opportunities, women are equally likely as men to extract bribes by informally charging patients. However, among doctors and doctors only, women are less aggressive than men, i.e., they charge smaller amounts. Women are, on the other hand, significantly less likely to moonlight than men and this holds true even within positions. Finally the paper shows that there is some evidence for the fair wage-

corruption hypothesis but no support for the fair wage-shirking hypothesis. Specifically, workers whose perceived fair wage is much lower than their actual wage are more likely to engage in informal charging but they are not more likely to moonlight.

The paper is organized as follows. Section 2 reviews the literature relevant to this paper. Section 3 describes the Tajikistan PETS data used in the paper and presents summary statistics. Section 4 states the econometric strategy used to identify the impact of gender on informal charges and moonlighting. Section 5 presents the results and section 6 concludes.

2. Related Literature

This section reviews two strands of literature to which this paper is linked. We first address the specific literature of corruption in the health sector before turning to the gender and corruption literature.

2.1 Corruption in Health

The health sector often ranks among the most corrupt in many developing countries. In a survey on corruption perceptions in 23 countries the health sector ranked in the top four in ten countries. The many forms of corruption in the health sector range from the commercialization of public positions to staff absenteeism (see Lewis 2006). Corruption also arises at several levels, from the central government to the health facilities including all intermediary administrative layers. This sub-section focuses on corruption at the front-line service delivery level.

The most pervasive and studied form of corruption at the point of service delivery is informal payments. Informal payments can be broadly defined as direct unofficial payments, in-kind or in cash, from patients to health workers for the latter's personal benefit. The study of informal payments poses major challenges, the first of which is measurement. Users are the most common source of information on informal payments through household surveys and patients' exit polls. Unfortunately, users sometimes have a hard time distinguishing between

formal fees, legal gifts and illegal payments which render the measurement of informal payments extremely difficult. Several authors tried to go around this problem by considering as informal, payments which are made for officially free services (see Chakraborty et al. 2002, Chawla et al. 1998). Some of these payments may sometimes be misclassified as informal especially in countries where gift-giving is an entrenched cultural practice and patients voluntarily present the health workers with a gift.[2] This paper eschews this difficulty by collecting the information on informal payments directly from the health workers who are perfectly able to screen the legal and voluntary from the informal and requested or forced.

The pervasiveness of informal payments in developing and transition economies has attracted a lot of attention because of their potentially detrimental effects on the health sector. Recent studies have shown that informal payments reduce access to health for the poor, worsen health outcomes and reinforce inequities (Killingsworth et al. 1999, Ensor 2004, Falkingham 2004, Gotsadze et al. 2005). Others argue that informal payments act as a barrier to reform (Killingsworth et al. 1999, Lewis 2000, Thompson and Witter 2000), especially when they are entrenched and constitute an important source of income for powerful people in the sector such as doctors (Chawla et al. 1998). Yet, surprisingly others find that informal payments increase performance measured by the time health staff work in the facility (McPake et al. 1999). This is not necessarily a sign of performance and could well be the opportunity cost of staying out of the facility in terms of foregone income from informal payments. Given the importance of informal payments, it is crucial to understand their determinants. The literature has been heavily focused on the users' side to answer who pays informal payments. This paper comes as a complement by looking at the issue from the perspective of the providers themselves controlling for a wide array of health workers' characteristics and the environment in which they operate. The main question this paper intends to address is "do women *take or accept* informal payments less often than men?"

A second form of corruption which is of interest in this paper is moonlighting. Akerlof and Yellen (1990) show theoretically that workers reduce their effort when they perceive to be

[2] Recent household surveys make an extra effort to try and distinguish between formal fees, gifts and informal payments. They also try to draw the difference between voluntary and requested payments (e.g. Albania LSMS 2005).

paid less than their fair wage. The reduction in effort is proportional to the distance between the fair and the actual wage. The fair-wage hypothesis may explain both corruption types considered here: informal payments and moonlighting. As Akerlof and Yellen (1998) state it "when people do not get what they [think they] deserve, they try to get even." Akerlof and Yellen (1990) assume the only instrument at the disposal of the worker to get even is adjusting the level of her effort. In the health sector and maybe others, however, the worker has many instruments to get even. She can withdraw effort and work outside of the workplace, but she can also levy payments on the facility's clients. Van Rijckeghem and Weder (2001) show in a cross-country regression framework that relative civil-service pay is strongly correlated with corruption levels and thereby corroborate the fair-wage and corruption relationship. Van der Gaag et al. (1989) show using household data from Côte d'Ivoire and Peru that civil servants' wage disadvantage is a strong determinant of moonlighting. This paper tests both the fair-wage corruption and fair-wage shirking or moonlighting hypotheses. During the survey, the health workers are directly asked what they consider to be a fair wage for the work they provide.[3] Van Rijckeghem and Weder (2001) use the manufacturing sector's wage as a comparator for all civil-servants; however, the salary a worker considers as fair crucially depends on personal circumstances and characteristics.

2.2 Gender and Corruption

There is a large literature on gender differences in social preferences, risk-taking behavior and taste for or reaction to competition.[4] For social preferences, the available experimental evidence offers a mixed picture with many papers showing that women are less selfish, more altruistic and willing to help others (Eckel and Grossman 1998, Andreoni and Vesterlund 2001, and Seerneels et al. 2005). Other authors however find no differences across genders (Bolton and Katok 1995, Eckel and Grossman 2001, Croson and Buchan 1999); others still

[3] We do not try to assess whether the workers compare themselves to their peers in the facility as Akerlof and Yellen (1990), or in similar health facilities as in Summers (1988), or in the country at large using the manufacturing sector as reference as in Van Rijckeghem and Weder (2001).

[4] Croson and Gneezy (2004) provide a nice survey of this literature which mostly consists of experiments such as prisoner dilemma games, dictator games, ultimatum games, or public good provision games.

find women to be less altruistic (see references in Croson and Gneezy 2004). The literature seems more settled in showing that men are more likely to be overconfident than women who are less willing to enter tournaments and less eager to compete (Barber and Odean 2001, and Gneezy et al. 2003, and Niederle and Vesterlund 2007). The literature also shows that women are more averse to risk than men; a finding which is probably driven by the differences in overconfidence.[5] Women also seem to hold the higher moral grounds when it comes to making ethical decisions in the workplace (Glover et al. 1997, and Reiss and Mitra 1998).

Engaging in corruption is certainly an ethical decision though gender differences in corruption have received little attention from the literature. Two recent seminal papers Dollar et al. (2001) and Swamy et al. (2001) show that women are less likely to be involved in bribery, more willing to strongly condemn corrupt behaviors, and that a greater representation of women in higher executive or legislative public offices reduces countries' overall corruption levels. Dollar et al. (2001) find in a large cross-section of countries that greater representation of women in parliament significantly reduces corruption. They control for important country characteristics that may affect both corruption and women's participation in public life such as the level of economic development, or political and civil freedom. Swamy et al. (2001) use several independent datasets to establish the relationship between gender and corruption. They uncover a strong correlation (they do not claim causality) between gender and corruption using macro-data as Dollar et al. (2001), but more importantly their result is supported by micro-evidence using both firm-level data from a World Bank study in Georgia, and individual-level data from the World Values Surveys.

Few studies so far dispute the findings of Dollar et al. (2001) and Swamy et al. (2001). A notable exception is Sung (2003) who argues that increased women's participation and reduction in corruption have no causal relationship and both are in fact caused by a fairer

[5] See Croson and Gneezy (2004) for references. Although the evidence overwhelmingly supports a higher aversion to risk for women there are important categories of individuals, e.g. managers or professional business persons, for whom women display an equal or even lower aversion to risk than men. Selection issues, whereby more risk-loving women choose these specific jobs may, however, be at play. Most studies also show that gender differences decrease with substantial increases in payoffs. A limited number of studies find no gender differences towards risk.

political system. Sung (2003) shows that if one controls for rule of law, freedom of press, and electoral democracy, then the gender-related variables e.g. percent of women in cabinet, government, and parliaments do no help explain corruption. This result is in line with Treisman (2000) who finds that the length of exposure to democracy helps curb corruption. Mukherjee and Gokcekus (2004) using corruption perceptions of nearly 4,000 public officials in 90 public sector organizations across six countries show that increasing the proportion of women in the public sector reduces corruption only up to the point where women are not the majority. They conclude that corruption in organizations is minimized when genders are equally represented.

Recognizing the obvious problems with cross-country studies Duflo and Topalova (2004) provide further evidence that women care more about public goods, and are less corrupt using village- and household-level data. They take advantage of a policy with built-in randomization, whereby one third of Pradhans' of Gram Panchayatt (GP)[6] positions are reserved for women to provide a gender difference estimate which is less prone to bias. They show that not only are women Pradhans significantly less likely to be corrupt[7] but also villagers in their GP are less likely to report they had to pay a bribe to access public services including medical services. However, despite these achievements, villagers are more likely to be dissatisfied with women Pradhans and poorly rate them. It is very likely that women Pradhans are aware of such a perception bias against them which may provide them with an incentive to work harder, refrain from and rein in corruption as much as they can. Duflo and Topalova (2004) result may therefore merely pick up the additional effort women exert to fight the negative bias instead of women's intrinsic higher standard of honesty.

Because of its illegality, corruption is naturally a risky business. Workers who engage in corrupt activities risk being laid off or punished otherwise (including non-pecuniary sanctions) if caught. One should expect the presence of risk to have a strong impact on the

[6] A Pradhan is the administrative chief of a Gram Panchayatt (GP) which is a collection of 5 to 15 Indian villages with an average total of 10,000 villagers, see Chattopadhyay and Duflo (2004) for more on the GP system and the reservation policy.

[7] It is not clear from DT's paper how the corruption of Pradhans is measured.

willingness to engage in corruption,[8] and that impact to vary with the degree of aversion to risk. Therefore, the results that women are less corrupt than men may merely reflect their higher (on average) aversion to risk. Eckel and Grossman (2003) for instance find that risk matters in their experiments because systematic behavioral differences between men and women tend to vanish with exposure to risk.

To really capture gender differences towards corruption one should either control for individuals' aversion to risk, or observe them in a risk-free environment. We argue that Tajikistan health sector offers such an ideal setting. The accountability vacuum in Tajikistan's health sector, one of the most corrupt in the country,[9] coupled with a strong presence of women in the sector as a whole but also in the top positions such as doctors generate the ideal setting for studying gender differences toward corruption. Indeed, the near-zero probability of detection and the complete absence of even a threat of sanction create a breeding ground for all forms of corruption. The ground becomes even more fertile for corruption when one accounts for the tremendous bargaining power health workers enjoy vis-à-vis their ill clients. It is in such a risk-free environment where men and women are given the same opportunities to engage in corruption *ceteris paribus* that the study of gender differences is the most promising.

3. Data and Descriptive Analysis

The data used in this paper come from the PETS carried out in Tajikistan's health sector during the last two months of 2006. The main objectives of the PETS were to assist the government in improving the public financial system for the management of health resources, and improve service delivery, transparency and accountability in the sector. These

[8] Abbink et al. (2002) show in an experimental bribery game that the threat of a severe penalty significantly reduces the probability of bribe-giving. Moreover, if the first agents still offers a bribe it is smaller in size and is more likely to be rejected by the second party. Olken (2007) also shows in randomized field experiment in Indonesia than increasing government's audits reduce corruption.

[9] Since 2000, Tajikistan has been consistently ranked amongst the most corrupt countries by several agencies such as Transparency International's CPI or the Kaufman, Kraay, and Mastruzzi's Control of Corruption or Voice and Accountability indices. Moreover, the health sector is perceived as the most corrupt sector in Tajikistan according to several public opinion and corruption surveys (see Lewis 2006, Government of Tajikistan 2006).

objectives are achieved through a thorough analysis of the flow of public resources in the sector from the central level to the frontline providers, the final intended beneficiaries. The PETS therefore collected data from government agencies, local government bodies, and a nationally representative sample of public health providers.

The sample frame used is a recent census of public providers constructed during the summer of 2006. There are 316 health facilities in the PETS sample (out of a grand total of 2,559) selected using a stratified sampling strategy. In addition to a general facility survey, in each facility seven health workers have been randomly selected for an in-depth interview. For small facilities with less than seven employees, a take-all strategy has been followed. The final sample of health workers interviewed is 1,278. Each selected health worker answered an extensive structured questionnaire covering her work, household, and perception of the health sector. The questionnaire included a question on the amount of gifts in-kind and other direct payments from patients the health worker made. It also asked about moonlighting and the sector in which the health worker held her second job. Finally, to test for the fair wage-effort theory the health workers were also asked about the salary they thought would be fair for the job they provide in the facility.

Because informal payments are a sensitive issue in Tajikistan due to their illegal nature the collection of information was carefully designed. First, the health workers have been firmly reassured of the confidential nature of the questionnaire's entire content and that it would be impossible to identify them. Second, it was made clear that the firm carrying out the survey was from the private sector and that the data would be the property of the World Bank and not shared with the survey firm or the government except in aggregate form. Finally, the question on informal payments came after other questions on health workers' income sources including salary and bonuses. Unlike most surveys, however, the question about monthly average intake from informal payments was asked as directly as possible. The question was framed in a way that left no ambiguity whatsoever as to what it referred to.[10] Fortunately, the

[10] The exact question is the following "How much did you receive on average per month from gifts in-kind and other direct payments from patients?" The same question was asked in a similar survey in Chad (see Gauthier and Wane 2005) but failed because of a high refusal rate. It would be interesting to understand under which

response rate was quite high with only 87 of the health workers or 6.8 percent refusing to respond. The health workers agreed to disclose their monthly informal payments intake probably partly because it is a widespread common knowledge phenomenon and also because of the sheer lack of accountability in the sector.[11] It is unlikely that the omission of the handful of workers who refused to respond introduce a selection bias. However, we prefer to check whether they differ in some systematic way from the rest of the sample using the large set of variables collected during the survey. We regress each observable on a dummy variable which equals one if the informal payment data is missing. The results are given in table 7 for the full sample, and the sample without the Gorno-Badakhshan Autonomous Oblast (GBAO) region. It is mostly the age-related variables that stand out significant in the regressions. The non-responders are younger, less experienced, and less likely to be married and have children. They are also more likely to work in GBAO. However, as we will see later the results are robust to the exclusion of GBAO. These minor differences do not question the representativeness of our sample.

The paper uses two measures of corruption. First we consider the average monthly intake of informal payments an individual health worker reports. Informal payments are very hard to measure from household surveys because the general public has a hard time distinguishing the legitimate fees from illegal ones. An advantage of the procedure used by the survey is that health workers' knowledge in that regard is perfect. They clearly know what is formal from what is not and therefore we can be confident that we are only capturing informal payments intended for the personal use of the staff that collects them. Second, we ask the health workers whether they supply labor outside the facility and the average number of hours they provide on a weekly basis. Moonlighting is clearly a strong determinant of absenteeism and one can legitimately think that health workers are in fact "stealing" public money if it displaces facility work.

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circumstances people respond to such direct questions but this is out of the scope of this paper and is left for future research.

[11] We found out after the data collection effort that Miller et al. (2000) carried out a qualitative survey with a similar (in spirit) question in four countries (Ukraine, Bulgaria, Slovakia, and Czech Republic). They use data from 1,307 interviews with various public officials such as health workers (292 in the sample), teachers, police officers, customs officials, passport officials, court officials, etc. They found that 89 percent of health workers were willing to confess accepting "money or expensive gifts" from patients.

There are a number of caveats to be noted. Since our data on informal charging and moonlighting is self-reported the results in the subsequent analyses may simply reflect the willingness to acknowledge corrupt behavior not its *true* incidence.[12] This is even more so because Tajik health workers operate in a risk-free environment and probably take advantage of all opportunities to take a bribe or moonlight whereas only a fraction of them truthfully report that behavior. Second, it is possible that health workers who did admit to informally charging patients still under-report the amount they extract. Therefore, a scenario where women are more honest in acknowledging informal charges but less candid in reporting the amount of their intake is thus possible.

Summary Statistics

The following tables show the variables of interest for the different types of positions health workers hold and across the regions.

Table 1: Women Presence in Tajikistan's Health Sector (%)

	% FemaleHead	Doctor	Nurse/Feldsher	Administrator	Hospital Attendant	All
Dushanbe	40.0	42.9	95.8	75.0	100.0	67.2
Sogd	27.9	34.0	85.4	53.2	90.0	66.3
Khatlon	29.4	21.3	80.5	50.0	98.8	64.3
RRS	33.3	38.7	76.5	46.9	100.0	66.1
GBAO	61.3	66.7	100.0	60.0	100.0	86.2
Tajikistan	33.2	33.7	83.9	51.9	97.8	67.3

Source: Authors' calculations from Tajikistan Health PETS 2006 data
Note: Gorno-Badakhshan Autonomous Oblast (GBAO) and Rayon under Republican Subordination (RRS) are regions

Table1 presents summary statistics about the presence of women in the health sector. The sector is dominated by women who constitute 67.3 percent of the overall health workforce. Women, however, make up only 33.2 percent of the heads of facility and 33.7 percent of the doctors. GBAO has both the highest proportion of female doctors (2 out of three doctors are women) and the highest proportion of women-headed facilities with 61.3 percent. Women

[12] Swamy et al. (2001) face a similar issue.

occupy around 84 percent of the nurse and about half of the administrative positions. The attendants who are at the bottom of the ladder are almost exclusively women.

Table 2: Prevalence of Informal Payments (%)

	Doctor	Nurse/Feldsher	Administrator	Hosp. Att	All
Dushanbe	77.1	75.0	50.0	25.0	71.6
Sogd	56.7	52.5	40.4	16.7	48.8
Khatlon	72.2	74.7	46.4	23.8	60.2
RRS	71.0	64.7	37.5	19.0	53.8
GBAO	4.8	4.3	0.0	0.0	2.8
Men	67.8	63.0	40.0	75.0	60.4
Women	55.0	59.0	37.1	17.2	46.8
Tajikistan	63.5	59.6	38.5	18.5	51.2

Source: Authors' calculations from Tajikistan Health PETS 2006 data
Note: Gorno-Badakhshan Autonomous Oblast (GBAO) and Rayon under Republican Subordination (RRS) are regions

Despite female domination, Tajikistan's health care system is characterized by a high level of informal charges as shown by table 2. Indeed, more than half the health workers admit to informally charging patients. The raw averages show a clear gender gap with 60.4 percent of men reporting informally charging patients compared to 46.8 percent for female workers. Health workers in Dushanbe, the capital city, are more likely to resort to informal charges than elsewhere in the country followed by the Khatlon region.

Table 3: Magnitude of Informal Payments [Full Official Salary] (in Somonis per month)

	Doctor	Nurse/Feldsher	Administrator	Hosp. Att	All
Dushanbe	131.6 [73.9]	59.2 [58.7]	42.5 [73.3]	54.0 [58.3]	95.7 [67.5]
Sogd	32.8 [56.7]	16.1 [39.5]	25.9 [49.1]	16.2 [28.0]	22.4 [44.8]
Khatlon	64.0 [58.1]	28.9 [43.4]	32.4 [46.3]	8.1 [29.1]	34.1 [44.9]
RRS	31.6 [67.0]	22.1 [41.8]	18.0 [52.9]	4.2 [27.8]	20.8 [47.8]
GBAO	3.8 [58.7]	1.7 [43.8]	0.0 [43.4]	0.0 [33.0]	1.5 [44.4]
Men	64.4 [60.9]	28.0 [43.8]	24.7 [50.2]	122.5 [53.5]	48.2 [54.8]
Women	27.0 [61.7]	21.6 [42.4]	25.4 [46.7]	6.0 [29.2]	19.4 [42.7]
Tajikistan	51.8 [61.20	22.7 [42.7]	25.1 [48.4]	8.6 [29.7]	28.8 [46.6]

Source: Authors' calculations from Tajikistan Health PETS 2006 data
Note: Gorno-Badakhshan Autonomous Oblast (GBAO) and Rayon under Republican Subordination (RRS) are regions

One would naturally expect the frequency of contact with the patients and the level of responsibilities in the health facility to be positively correlated with both the prevalence and intensity of informal charges. For instance, hospital attendants who do not provide care are probably the least able to extract money from patients, whereas doctors who can refuse to see patients or oblige them to sustain long waiting times wield more power and therefore can

demand or command more. This is confirmed by tables 2 and 3 which show that doctors and nurses charge more often than the other categories of staff. Doctors also levy a significantly higher amount, almost twice the national average. Though administrators charge less often than nurses, they collect a bit more money from informal payments. Hospital attendants indeed have limited extortion power; they fare best in Khatlon with an average 6.2 somonis a month and do not have access to this source of income in Dushanbe and GBAO. The average health worker supplements her income with 28.8 somonis a month from direct charges on the patients.

Informal payments are important both by their extent and scale. Table 3 shows that the average monthly intake from informal payments represents 61.8 percent of the sector per capita monthly wage bill including allowances and other supplements. Doctors in Dushanbe make almost twice, 1.8 times, their salary from informal payments. Men charge more aggressively and levy about 2.5 times the amount of informal payments collected by women. These numbers appear more in line with the reality of corruption than the amounts involved in experimental studies. It is in fact rare in experiments that the average gain of participants exceeds $10 which probably may not impact on people's behavior. Finally, the status of GBAO is noteworthy. Only 2.8 percent of the health workers and 4.8 percent of the doctors admit they resort to informal charges for income generation. Also, none of the administrators or hospital attendants confessed charging patients. Moreover, the average monthly levy in GBAO is just 1.5 somonis.

Table 4: Probability of Moonlighting (%)

	Doctor	**Nurse/Feldsher**	**Administrator**	**Hosp. Att**	**All**
Dushanbe	25.7	20.8	25.0	0.0	22.4
Sogd	25.8	19.0	27.7	23.3	22.6
Khatlon	17.6	9.5	17.9	8.8	12.8
RRS	33.9	36.5	34.4	9.5	30.3
GBAO	14.3	2.2	0.0	0.0	3.7
Men	29.4	37.0	31.1	50.0	31.6
Women	12.8	13.0	12.4	9.2	12.1
Tajikistan	23.8	16.9	21.4	10.1	18.5

Source: Authors' calculations from Tajikistan Health PETS 2006 data
Note: Gorno-Badakhshan Autonomous Oblast (GBAO) and Rayon under Republican Subordination (RRS) are regions

Around 18.5 percent of the health workers admit that they work outside the facility to supplement their low income. The highest rate of moonlighting is observed in the RRS with 30.3 percent. Dushanbe where the average health worker earns almost twice the average wage comes in third place following Sogd. This probably reflects the better outside opportunities offered in the capital city. Although, GBAO's health workers have the lowest wages, only 3.7 percent of them provide labor for pay outside their facility. There is again a significant gender gap since male workers are more than twice as likely [that is,19.5 percentage points more likely] to supplement their income by working elsewhere than women. Doctors and administrators also moonlight more when compared to other staff members.

What kind of labor are moonlighters more likely to perform? The most common activity, practiced by 53.5 percent of the respondents, is holding of an agricultural job, followed by the private provision of care done by 23.6 percent of the interviewees. In Dushanbe, 62.5 percent of moonlighters provide care for their private benefit. Some of the health workers are employed by another private (6.5 percent) or another public (6.5 percent) provider. On average, the health workers provide 21 hours per week for outside facility activities. Less than 15 percent of the workers hold two or more jobs outside the facility.

Table 6 presents summary statistics for the variables used in the analysis along with a test of equality of means between genders. Except for the level of satisfaction, the altruism measure, and the community characteristics, female health workers differ from their male counterparts in all other respects. They are less likely to resort to informal charges, engage less often in outside activities, be in higher proportions in the rural facilities, etc. Will the raw differences resist to a more complete multivariate analysis?

4. Econometric Specification

We will investigate the determinants of the propensity to engage in informal charging and moonlighting using a simple probit approach. The basic specification for this model is:

$$\begin{aligned}\Pr(ILLACT_{ifc}=1) = \Phi(&\alpha + \beta_1 F_{ifc} + \beta_2 FHD_{fc} + \beta_3 FSH_{fc} + \gamma \cdot PAY_{ifc} + \delta \cdot FAIR_{ifc} \\ &+ POS \cdot \lambda' + X_{ifc} \cdot \eta' + Z_{fc} \cdot \theta' + Y_c \cdot \zeta' + \varepsilon_{ifc})\end{aligned} \quad (1)$$

Where Φ is the normal cumulative distribution function, and $ILLACT_{ifc}$ denotes whether health staff i, working in facility f, located in community c has engaged in the relevant corrupt activity under study i.e. either informal charging or moonlighting. The β's are our main coefficients of interest. On the gender-related variables of interest, F_{ifc} is the female dummy, FHD_{fc} the dummy for female-headed facility, and FSH_{fc} is the proportion of women in the facility. The other two variables we focus on are $FAIR_{ifc}$ which is the ratio between the perceived fair salary and the actual salary of the health worker, and PAY_{ifc} a dummy indicating whether the health worker thinks that a user fees policy should be in place. *POS* represents the vector of dummies for the position (doctor, nurse, or administrative staff) held by the health worker within the facility to test whether this has any impact on the likelihood of corruption. We also control for a whole set of individual, X_{ifc}, facility, Y_{fc}, and community, Z_c characteristics. Finally, ε_{ifc} is the stochastic error term.

The β coefficients capture the various effects of gender on corruption. We expect all of them to be negative since the literature consistently finds women to be less corrupt, female leaders to rein in corruption more aggressively, and the share of women in an organization or the labor force to also lead to reduced levels of corruption.

Opportunities and capacity to extract bribes and moonlight may depend on the position of the health worker and the environment. Because they treat patients and prescribe drugs, doctors have more power for extracting payments from patients than, say, hospital attendants whose position barely affords them the capacity to impose on patients. Any gender effect may be masked if all women are bunched together. To account for this possibility, the specification given by equation (1) needs to be slightly changed.

$$\begin{aligned}\Pr(ILLACT_{ifc}=1) = \Phi(&\alpha + \sum_j \beta_{1j}\cdot POS_j \cdot F_{ifc} + \beta_2 FHD_{fc} + \beta_3 FSH_{fc} + \gamma \cdot PAY_{ifc} \\ &+ POS\cdot\lambda' + \delta\cdot FAIR_{ifc} + X_{ifc}\cdot\eta' + Z_{fc}\cdot\theta' + Y_c\cdot\zeta' + \varepsilon_{ifc})\end{aligned} \quad (2)$$

Specification (2) is simply (1) where the gender dummy has been replaced with its interactions with the different possible positions. The β_1 coefficients capture the gender difference by type of staff. A negative coefficient when interacted with the variable "doctor"

would indicate a lower propensity to charge patients for female doctors relative to male doctors. The results for this specification are given in column 6 for the whole sample and column 7 when GBAO is excluded in tables 8, 9, 10 and 11.

We used first a probit approach because the decision to engage in corruption is important by itself. It is also of paramount interest to pin down the determinants of the levels of informal charges health workers levy on a monthly basis. For that purpose, we will use both a simple OLS approach and a corner solution models such as the Tobit because of possible clustering around zero income from informal payments. The basic specifications are thus:

$$INFAMT_{ifc} = \alpha + \beta_1 \cdot F_{ifc} + \beta_2 FHD_{fc} + \beta_3 FSH_{fc} + \gamma \cdot PAY_{ifc} + POS \cdot \lambda' + \delta \cdot FAIR_{ifc} + X_{ifc} \cdot \eta' + Z_{fc} \cdot \theta' + Y_c \cdot \zeta' + \varepsilon_{ifc} \quad (3)$$

$$INFAMT_{ifc} = \alpha + \sum_j \beta_{1j} \cdot POS_j \cdot F_{ifc} + \beta_2 FHD_{fc} + \beta_3 FSH_{fc} + \gamma \cdot PAY_{ifc} + POS \cdot \lambda' + \delta \cdot FAIR_{ifc} + X_{ifc} \cdot \eta' + Z_{fc} \cdot \theta' + Y_c \cdot \zeta' + \varepsilon_{ifc} \quad (4)$$

$INFAMT_{ifc}$ is the amount of income the health worker received from informal payments. In all the regressions, the standards errors are corrected for clustering at the facility level. We choose to cluster at such a low level because of the strong possibility of differences in the tolerance for corruption at the facility level. For instance, in some facilities health workers may collude and adopt a tacit rule that charging patients is just ok. By contrast, in another it may be that the head of the facility is a bit more stringent about corruption. One may think that clustering at the facility level may artificially reduce the size of the standard errors because of correlations at a higher administrative level. All the regressions have thus been run with errors clustered at the jamoat level. The results remained essentially unchanged and we therefore report only the first set of results.

4.1 Control Variables

There are number of possible variables that could impact the willingness of health workers to engage in corrupt practices and are potential confounding factors. We therefore control for a wide variety of community, facility, household, and individual characteristics.

4.1.1 Community Characteristics

We control for three important community characteristics the facility is located and the health worker lives in. We use data from the recent Tajikistan map which combines data from the 2000 census and the 2003 LSMS. We control for the size of the community by including the number of households. We control also for the level of development of and inequality in the community by including the average household's total consumption per capita adjusted for regional prices and its Gini coefficient. Socio-economic variables may impact the willingness and the ability to charge patients. Indeed, one may think that health workers are less reluctant to charge wealthier people, in part because, the latter are likely more able to defend themselves against such predatory practices. Which effect dominates is then an empirical question we tackle next. Moonlighting is more likely in wealthier communities with more vibrant local economies which increases the opportunity cost of time. We also control for regional characteristics by including dummy variables for the 5 regions of Tajikistan, using Dushanbe as the reference.

4.1.2 Facility Characteristics

For a fixed supply of patients, the higher the number of health workers in the facility the more intense the competition for bribe extraction. It could also reduce the likelihood of asking informal payments because there are more "eyes" that monitor. We therefore control for the size of the facility. A related variable is the type of the facility. It has been shown by several studies (see e.g. Lewis 2007) that informal payments are more likely in in-patients services. This may be due to the frailty of hospitalized patients who come with severe illnesses which reduce their refusal power and make them more willing to pay for care. Finally, we introduce a dummy for facilities that operate in rural areas.

4.1.3 Household and Individual Characteristics

The most difficult variables to control for are at the household and individual levels. It is for instance impossible in cross-country analyses to include these important controls. Even studies based on firm-level surveys or experimental data rarely include additional

characteristics beyond education level. We control for a rich set of variables which are potentially confounding factors.

At the household level, we introduce a dummy capturing whether the health worker is the single wage-earner in the household. The presence of another wage earner probably reduces the pressure to earn more especially through illegal means. We may then expect only-wage-earners to engage more often in informal charging everything else equal. The same argument also works for moonlighting.

At the individual level, we control for age because it is widely believed that younger individuals are more likely to engage in illegal activities. Akerlof (1998) unveils fundamental differences between married and single men, with the latter more likely to engage in substance abuse, be crime-victims, and also indulge in criminal activities and be incarcerated. We introduce a dummy for married health workers to control for these effects. There is less evidence on the impact of parenthood on the participation in illegal spheres. A recent notable exception is Folland (2006) who finds that exogenous shocks in an individual's social capital such as marriage or a new child change her attitude toward risk and reduces likelihood of engaging in crime or unhealthy behavior. Corman et al. (2006) on the other hand find that the birth of a child with a serious health problem increases the father's likelihood to become or remain involved in illegal activities. The presence of children creates countervailing incentives. On one hand, the more children one has the higher the necessary income to make a decent living, hence the more likely it is for workers to charge patients. On the other hand, because charging patients is illegal and entails social stigma which one would like to shield her children from, this plays counter to the first effect and decreases the willingness to engage in such practices. We therefore control for the number of children.

Finally, we include controls for experience in the health sector, whether the worker is satisfied working in the facility, her willingness to leave the facility, a dummy indicating whether her main reason for choosing the health sector was to help others, and a dummy variable for altruism if she financed the health care needs of non-household members.

4.2 Results

4.2.1. Likelihood of Informally Charging Patients

Table 8 presents the results of the probit regressions of informal charging. The controls are introduced sequentially to better identify the impact of each. The first four columns show that women are significantly less likely to engage in informal charging than men. The coefficient is strong and stable at around 10 percent despite controlling for location, community, facility, and individuals characteristics. The introduction of individual characteristics more than doubles the explanatory power of the model with the Pseudo R-square jumping to 0.22 in model 4 up from 0.11 in model 3. This underscores the importance of controlling for individual characteristics to understand corruption incidence. The female dummy loses significance as soon as one control for the position of the health worker. Doctors and nurses are about 20 percent more likely to charge than administrative staff who themselves are 17 percent more likely to resort to informal payments than hospital attendants. It looks therefore, like it is the power provided by position that matters for engaging in corrupt activity. Indeed the hypothesis that doctors, nurses and administrators are equally likely to charge patients informally is strongly rejected (p-value <0.00001). The gender-effect is totally trumped by the introduction of the staff's position. To probe this result further, we compare women to their male peers by replacing the female dummy with its interactions with the various positions. The results of this new specification are shown in column 6 for the whole sample and column 7 when GBAO is excluded. The results slightly change with the coefficient on doctor strengthening in size and precision, whereas the coefficients on nurse and administrators weaken but remain strong. Doctors are now significantly more likely to engage in informal charging than nurses by about 10 percentage points. None of the interaction variables is significant meaning that with equal bargaining power and opportunities to extract bribes women are just as likely as men to abuse that power for their personal benefit. We cannot reject the equality of the three interaction terms to zero (the p-value of the test is 0.59).

Contrary to the results obtained by Swamy et al. (2001) for private firms and Duflo and Topalova (2004) for public administrations, female leadership does not reduce the incidence of corruption as the female-head dummy coefficient is insignificant in all regressions. Moreover, the proportion of women in the facility has no impact whatsoever on the likelihood of informal charging, countering the results obtained by Swamy et al. (2001) and Dollar et al. (2001) that greater (political) representation of women reduces corruption. To test the Gokcekus and Mukherjee (2004) proposition of an optimal share of women we included in all the specifications a quadratic for that variable. The latter is significant in none of the regressions and leaves essentially unaffected all the results. We then dropped the quadratic term in the remaining analysis.

The fair wage-corruption hypothesis gains some traction. As a matter of fact the coefficient on the ratio of fair to actual salary is very strong and stable across all the models. The higher the distance between the perceived fair salary and the actual remuneration of the health worker, the more likely she is to informally charge patients. Though the coefficient is small, the effect is sizeable because at the average (median) level of the ratio, the likelihood of extracting informal payments increases by 5 percent (4.2 percent). The high incidence of informal payments combined with the small coefficient on fair-wage corroborates the finding of Van Rijckeghem and Weder (2001) that to eradicate this practice solely by relying on salary increase would necessitate an increase in the wage bill beyond the government's fiscal capacity. Finally, it is important to note that health workers who believe that user fees should be instituted are more likely to charge patients. This has important policy implications since it means that the institution of user fees, which is usually equated to the "formalization" of informal payments, may in fact reduce the prevalence of such practices. Even though in several places informal charges and user fees happily co-exist the sheer existence of the latter may induce health workers to refrain from frequently charging.

Because GBAO look very much like an outlier region in many respects, column 7 replicates the model in column 6 where the health workers from GBAO have been taken out of the sample. The results are, however, quite robust to the exclusion of GBAO.

4.2.2 Levels of Informal Charges

We now turn to the analysis of the absolute amounts health workers informally charge patients per month. As table 3 shows, informal payments constitute an important source of income for health workers. They levy on average 28.8 somonis (median is 5) per month or 60.4% of the monthly average salary. If we condition on actually collecting informal payments, the average income goes up to 56.3 somonis (median is 30) a month or 1.2 times the average salary. We first investigate the determinants of the levels of informal payments collected with a simple OLS and then with a Tobit model because of the many health workers who report zero income from informal payments.

Although women are equally likely to informally charge patients than men, they seem to charge much less aggressively. The female dummy is negative and significant across all the specifications. However, facilities headed by female and the proportion of women in the facility do not have any significant effect on the level of informal charges. Doctors raise significantly more money from informal payments than any other group of health workers. This is reminiscent of the Miller et al. (2000) finding that "tips" such as flowers, and chocolate went to the nurses whereas doctors received "money and expensive presents". Though female doctors seem to charge patients less than their male colleagues, this does not hold for nurses and administrators. Health workers who think that patients should pay for care also charge more aggressively. Finally, although fair wage perceptions do not seem to impact the level of informal charges in the simple OLS regressions, they do matter when one considers the censored models. The farther the fair wage is from the actual salary, the more aggressive the health worker becomes in charging patients. The coefficient is, however, not very robust.

4.2.3 Likelihood of Moonlighting

Finally, we explore the determinants of moonlighting behavior. Unlike informal charging, there are strong gender differences for moonlighting. Indeed, women are significantly less likely than men to engage in work outside of the facility or hold a second job. The female

dummy coefficient is strong and stable across all the specifications and shows that women are around 18 percent less likely to moonlight. Contrary to the informal payments model, the coefficient on the female dummy does not change much after the introduction of all the controls including all the dummy variables for the worker's position in the facility. The position in the facility is not a significant determinant of moonlighting as shown by the results in column 5. Regressions 1 to 5 show that women are on average significantly less likely to moonlight. Introducing the interactions effects in model 6, we show that this result holds even within work categories. We can in fact safely reject the hypothesis that there are no gender differences in moonlighting across positions (see test 3 with p-value<0.0001). Women doctors, nurses, and administrators are all significantly less likely to moonlight than their male colleagues. However, we cannot reject the hypothesis that gender differences in moonlighting behavior are identical across positions. Therefore, the difference between male and female doctors is the same as that between men and women nurses. The result that women are less likely to moonlight may appear surprising given the fact that they are just equally likely to engage in informal charging if one considers both activities as illegal. One possible reason for the difference maybe that women supply more hours of labor for household's production, a claim our data do not, unfortunately, allow us to evaluate. It is also noteworthy that there is less moonlighting in female-headed facilities again contrary to the informal payments models.

Just as informally charging patients, moonlighting can be another way for a worker who perceives herself as being unfairly remunerated to get even. It is noteworthy that neither the fair to actual salary ratio nor the recognition that user fees should be imposed impact the likelihood to moonlight. Therefore, the behavior of Tajik health workers who evolve in a complete vacuum of accountability with high relative levels of corruption lends support for the fair wage- corruption hypothesis but does not support the fair wage-shirking hypothesis.

Starting with Conway and Kimmel (1998) the literature shows that moonlighting is often due to restrictions in hours of labor supplied. Moonlighters would actually like to work more hours but are permitted to do so in their primary job by their employer. Moonlighting is thus just an optimal response to this constraint. This theory does not hold for Tajikistan health

workers because moonlighters report to work as many hours in the facility than those who do not hold a second job. It is more likely in this case that the lack of accountability and oversight drive moonlighting. Krishnan (1990) shows using the second wave of the US Survey of Income and Program Participation that husbands are less likely to moonlight when their wives also are in the labor force. We test a similar proposition here by including a dummy variable for the presence of at least one other wage earner in the health worker's household.[13] We find that the presence of another wage earner has no significant impact on moonlighting.

5. Conclusion

A large and growing literature strongly and consistently suggests that women are less corrupt than men. This paper, using a unique dataset on health workers in Tajikistan, shows that with equal power and equal opportunities, women are in fact just as likely as men to engage in corrupt activities. The result is obtained in an arguably ideal setting for testing gender differences towards corruption. Indeed, Tajik health workers operate within a risk-free environment which features a near-zero probability of corruption detection and no risk of sanction either through job loss of other non-pecuniary punishment. It is in these kinds of environments that the willingness to engage in corruption truly manifests itself allowing for an easier and more precise estimation of its determinants. Contrary to the literature, the paper also shows that female-headed health facilities experience the same incidence of informal charging. Although women appear to have the same propensity for extracting informal payments from patients, they are still shown to be less aggressive than men and collect smaller amounts. Women are also less likely than men to work outside the facility or hold a second job.

The paper presents some other interesting findings. For instance it presents evidence that workers who perceive themselves as unfairly rewarded for their effort will try to get even not by withdrawing effort but by engaging in corrupt activity if they have the opportunity. Another noteworthy finding that emerges is that workers who think that patients should get care for a fee are more likely to charge patients and charge significantly more. This may

[13] We do not restrict this other wage earner to be the health worker's spouse however.

serve as a rationale for countries contemplating the institution of a user fees policy in their health sector to gauge workers' perception about the gratuity of services.

The well documented low level of women's representation in legislative bodies and executive cabinets across the world may partly be due to the fact that women display less self-confidence and are more reluctant to compete (Barber and Odean 2001, and Niederle and Vesterlund 2007). Indeed, seats in legislatures are up for grabs through competitive elections. This constitutes a strong rationale to institute quotas in the name of gender equality as France did for its legislative bodies or Mexico City and Lima for their police corps. However, based on the findings of this paper one should not expect the mere institution of such a policy to cause lower levels of corruption or higher growth. Corruption certainly must be fought using more conventional means such as carrots and sticks.

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Table 5: **DATA DESCRIPTION**

Variable Name	Variable Description
INFPAY	Dummy for Receipt of Informal Payments
INFAMT	Average Monthly Amount of Informal Payments Collected
MOONL	Dummy for Moonlighting
FEMALE	Dummy for Woman
FEMHD	Dummy indicating a Female-Headed Facility
FEMSHR	Proportion of Women in Facility
HEALTH WORKER POSITION	
DOCTOR	Dummy indicating Employee is a Doctor
FEMDOC	Interaction Female x Doctor
NURSE	Dummy indicating Employee is a Nurse/Feldsher
FEMNURSE	Interaction Female x Nurse
ADMIN	Dummy indicating Employee is a Administrator
FEMADMIN	Interaction Female x Administrator
FACILITY CHARACTERISTICS	
RURAL	Dummy indicating Facility is Rural
SIZE	Number of Health Workers in Facility
TYPE	Categorical variable for the type of facility (Hospital, Medical House, etc.)
SOGD	Sogd Region Dummy
KHATLON	Khatlon Region Dummy
RRS	Rayons under Republican Subordination Dummy
GBAO	GBAO Region Dummy
HEALTH WORKER CHARACTERISTICS	
AGE	Age of Health Worker
AGE2	Age Squared
EXPER	Experience in the Health Sector
EXPER2	Experience Squared
MARRIED	Dummy for Married
NKIDS	# of Children
WGEARN	Dummy indicating there is at Least One Other Wage-Earner in Household
FAIR	Ratio of Fair over Actual Salary
QUIT	Dummy indicating the Health Worker Willingness to Leave Facility
SATISF	Dummy indicating the Health Worker is Satisfied of her Work
PAY	Dummy indicating the Health Worker thinks Patients Must Pay for Care
ALTR	Dummy indicating Spending Money for Others' Health Needs
HELPOTH	Dummy indicating that Help Others is Reason for Choosing Health Sector
COMMUNITY CHARACTERISTICS	
NHHLDS	Number of Households in Community – Census 2000
MCONS	Average Household Total Consumption – Census 2000
AGINI	Community Consumption Gini Coefficient – Census 2000

Table 6: **SUMMARY STATISTICS AND COMPARISON OF MEN AND WOMEN**

	All Health Workers			Mean			
	Mean	**S.D.**	**Median**	**Male**	**Female**	**Difference**	**T-test**
# Observations	1191	1191	1191	389	802		
INFPAY	0.51	0.5	1	0.6	0.47	0.13	4.454***
INFAMT	28.84	71.04	5	48.24	19.43	28.81	6.685***
MOONL	0.18	0.39	0	0.32	0.12	0.2	8.372***
FEMALE	0.67	0.47	1	0	1		
FEMHD	0.23	0.42	0	0.07	0.31	-.23	-9.263***
FEMSHR	69.93	20.68	69.23	60.91	74.3	-13.39	-10.996***
DOCTOR	0.27	0.44	0	0.55	0.14	0.41	16.750***
FEMDOC	0.09	0.29	0	0	0.14		
NURSE	0.42	0.49	0	0.21	0.53	-0.32	-10.919***
FEMNURSE	0.35	0.48	0	0	0.53		
ADMIN	0.16	0.36	0	0.23	0.12	0.11	4.958***
FEMADMIN	0.08	0.27	0	0	0.12		
RURAL	0.68	0.47	1	0.63	0.7	-0.07	-2.105***
SIZE	75.98	137.87	19	85.96	71.14	14.82	1.741**
SOGD	0.28	0.45	0	0.29	0.27	0.02	0.491
KHATLON	0.39	0.49	0	0.42	0.37	0.05	1.789**
RRS	0.19	0.39	0	0.19	0.18	0.01	0.447
GBAO	0.09	0.29	0	0.04	0.12	-0.08	-4.447***
AGE	40.84	9.65	41	42.62	39.98	2.64	4.465***
EXPER	16.92	9.94	16.33	17.82	16.48	1.34	2.194***
SATISF	0.76	0.43	1	0.76	0.76	-0.002	-0.085
ALTR	0.68	0.46	1	0.69	0.68	0.0069	0.240
QUIT	0.54	0.50	1	0.61	0.51	0.1016	3.314***
HELPOTH	0.71	0.45	1	0.77	0.68	0.0929	3.333***
PAY	0.34	0.47	0	0.39	0.31	0.0739	2.535***
MARRIED	0.8	0.4	1	0.98	0.71	0.27	11.192***
NKIDS	3.42	2.15	3	4.2	3.04	1.16	9.025***
WGEARN	0.58	0.49	1	0.48	0.63	-0.15	-5.061***
FAIR	11.84	12.92	8.33	15.93	9.86	6.07	7.8015***
NHHLDS	6703.93	9368.22	2479	7304.54	6412.61	891.9	1.542
MCONS	46.52	14.39	45.16	46.19	46.69	-.495	-0.557
AGINI	0.31	0.02	0.31	0.31	0.31	-.0002	-0.162

Table 7: Regression of the Variables on Missing Dummy (=1 if infpay not missing)

	Full Sample		GBAO Excluded	
	Coef on Samp	Robust t-stat	Coef on Samp	Robust t-stat
MOONL	-0.047	(1.21)	-0.042	(0.95)
FEMALE	0.028	(0.59)	0.003	(0.05)
FEMHD	0.09	(1.76)*	0.067	(1.33)
FEMSHR	2.765	(1.13)	-0.552	(0.21)
DOCTOR	-0.076	(1.76)*	-0.108	(2.34)**
FEMDOC	-0.023	(0.79)	-0.045	(1.72)*
NURSE	0.026	(0.44)	0.035	(0.53)
FEMNURSE	0.036	(0.64)	0.038	(0.61)
ADMIN	0.061	(1.32)	0.103	(1.91)*
FEMADMIN	0.033	(0.99)	0.05	(1.28)
PAY	-0.085	(1.66)*	-0.111	(2.06)**
RURAL	0.094	(1.85)*	0.111	(1.97)**
SIZE	-24.841	(1.53)	-38.514	(3.12)***
SOGD	-0.118	(2.80)***	-0.107	(2.16)**
KHATLON	0.026	(0.47)	0.087	(1.42)
RRS	0.01	(0.22)	0.039	(0.73)
GBAO	0.104	(2.35)**	--	--
OTHER HOSPITAL	-0.041	(1.31)	-0.043	(1.25)
POLYCLINIC	-0.041	(1.67)*	-0.054	(2.07)**
SUB	-0.047	(1.38)	-0.024	(0.60)
SVA	0.017	(0.42)	0.06	(1.19)
FAP	0.137	(2.44)**	0.093	(1.54)
OTHER	0.028	(0.88)	0.038	(0.97)
AGE	-8.542	(8.40)***	-8.59	(7.30)***
EXPER	-9.869	(9.92)***	-9.762	(8.50)***
MARRIED	-0.202	(3.87)***	-0.206	(3.64)***
NKIDS	-1.237	(4.65)***	-1.264	(4.09)***
WGEARN	-0.029	(0.52)	-0.025	(0.40)
QUIT	0.048	(0.80)	0.032	(0.47)
SATISF	-0.07	(1.28)	-0.034	(0.62)
ALTR	-0.202	(3.54)***	-0.202	(3.16)***
HELPOTH	-0.022	(0.44)	-0.041	(0.75)
NHHLDS	-2,347.60	(2.79)***	-2,260.82	(2.31)**
MCONS	-0.364	(0.25)	0.83	(0.51)
AGINI	0.003	(1.05)	-0.001	(0.33)

Note:

1. Each line is a regression of the variable listed on the dummy indicating that the information on informal charging is missing because the respondent refused to answer the question and a constant term.
2. Standard errors are clustered at the facility level.

Table 8: Probit Regression Results for Informal Charges – Marginal Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female (β_1)	-0.106***	-0.105***	-0.109***	-0.099**	-0.024		
	(3.09)	(3.08)	(3.15)	(2.51)	(0.53)		
Female head (β_2)	0.022	0.021	0.008	-0.017	-0.032	-0.036	-0.026
	(0.48)	(0.47)	(0.15)	(0.29)	(0.57)	(0.62)	(0.44)
Proportion women (β_3)			3.35E-4	-3.9E-4	-0.001	-0.001	-0.001
			(0.29)	(0.32)	(0.76)	(0.89)	(0.62)
Doctor (λ_1)					0.375***	0.407***	0.382***
					(5.22)	(5.83)	(5.78)
Female x Doctor (β_{11})						-0.074	-0.09
						(1.10)	(1.32)
Nurse (λ_2)					0.341***	0.312***	0.300***
					(5.09)	(3.68)	(3.62)
Female x Nurse (β_{12})						0.043	0.04
						(0.58)	(0.55)
Administrator (λ_3)					0.178***	0.168**	0.161**
					(2.63)	(2.21)	(2.20)
Female x Admin. (β_{13})						0.036	0.026
						(0.42)	(0.31)
Fair/Actual Salary				0.005***	0.005***	0.005***	0.005***
				(3.35)	(3.10)	(3.05)	(3.10)
Patients should pay				0.131***	0.110**	0.112***	0.108**
				(3.19)	(2.56)	(2.61)	(2.53)
Location Controls	YES	YES	YES	YES	YES	YES	YES
Community Controls	NO	YES	YES	YES	YES	YES	YES
Facility Controls	NO	NO	YES	YES	YES	YES	YES
Individual Controls	NO	NO	NO	YES	YES	YES	YES
Position in Facility	NO	NO	NO	NO	YES	YES	YES
Interaction Effects	NO	NO	NO	NO	NO	YES	YES
Observations	1191	1191	1191	1191	1191	1191	1082
Pseudo R-squared	0.1	0.1	0.11	0.22	0.24	0.24	0.17
Log Likelihood	-741.72	-739.24	-730.39	-646.53	-627.98	-627.18	-615.87
Test 1: $\lambda_1=\lambda_2=\lambda_3=0$ (p-value)					0.0000	0.0000	0.0000
Test 2: $\lambda_1=\lambda_2=\lambda_3$ (p-value)					0.0003	0.0017	0.0022
Test 3: $\beta_{11}=\beta_{12}=\beta_{13}=0$ (p-value)						0.5872	0.4934
Test 4: $\beta_{11}=\beta_{12}=\beta_{13}$ (p-value)						0.3836	0.3161

Robust z-statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Notes:
1. Robust standard errors in parentheses.
2. Location controls are the dummies for the 5 regions of Tajikistan, Sogd, GBAO, Khatlon, and the RRS Dushanbe serves as the reference region. GBAO is not included in regression 7.
3. Community controls are number of households, average household total consumption, and the Gini of consumption. All variables are computed at the jamoat level using the 2002 census. The jamoat is the lowest administrative level; 104 of the 356 jamoats in Tajikistan are included in the survey.
4. Facility controls include the size of the facility, the type of the facility, whether the facility is rural.
5. Individual controls include age, experience in the health sector with their squares, whether the health worker is married and the number of children, the health worker's satisfaction working in the facility, her willingness to quit the facility, the reason she chose to work in the health sector, whether she used her own money to cater to the health needs of non-members of her household, and whether there is at least one other wage earner in the health worker's household. Finally we include a dummy for whether the health worker thinks that patients should pay for the care they receive, and the ration between the salary the health worker considers fair and her own salary.
6. Position controls are dummies variables for doctor, nurse/feldsher, and administrative staff. The hospital attendants are the reference category.

Table 9: Probit Regression Results for Moonlighting – Marginal Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female (β_1)	-0.182***	-0.182***	-0.200***	-0.184***	-0.185***		
	(7.23)	(7.36)	(7.85)	(6.15)	(5.28)		
Female head (β_2)	-0.024	-0.029	-0.067**	-0.076**	-0.076**	-0.079**	-0.081**
	(0.81)	(1.01)	(2.17)	(2.41)	(2.41)	(2.55)	(2.25)
Proportion women (β_3)			0.001**	0.002**	0.002**	0.002**	0.002**
			(2.02)	(2.30)	(2.34)	(2.35)	(2.30)
Doctor (λ_1)					0.012	0.183***	0.189***
					(0.26)	(3.54)	(3.34)
Female x Doctor (β_{11})						-0.100***	-0.129***
						(2.82)	(3.35)
Nurse (λ_2)					0.033	0.218***	0.238***
					(0.81)	(3.97)	(3.91)
Female x Nurse (β_{12})						-0.164***	-0.187***
						(4.29)	(4.42)
Administrator (λ_3)					0.035	0.237***	0.263***
					(0.75)	(3.84)	(3.84)
Female x Admin. (β_{13})						-0.110***	-0.127***
						(2.75)	(2.80)
Fair/Actual Salary				0.001	0.001	0.001	0.001
				(1.27)	(1.28)	(1.31)	(1.18)
Patients should pay				0.021	0.023	0.022	0.03
				(0.85)	(0.90)	(0.89)	(1.06)
Location Controls	YES	YES	YES	YES	YES	YES	YES
Community Controls	NO	YES	YES	YES	YES	YES	YES
Facility Controls	NO	NO	YES	YES	YES	YES	YES
Individual Controls	NO	NO	NO	YES	YES	YES	YES
Position in Facility	NO	NO	NO	NO	YES	YES	YES
Interaction Effects	NO	NO	NO	NO	NO	YES	YES
Observations	1278	1278	1278	1191	1191	1191	1082
Pseudo R-squared	0.11	0.12	0.14	0.14	0.14	0.14	0.12
Log Likelihood	-541.79	-533.61	-523.66	-488.47	-487.87	-489.09	-473.94
Test 1: $\lambda_1=\lambda_2=\lambda_3=0$ (p-value)					0.7147	0.0001	0.0001
Test 2: $\lambda_1=\lambda_2=\lambda_3$ (p-value)					0.7374	0.5013	0.3737
Test 3: $\beta_{11}=\beta_{12}=\beta_{13}=0$ (p-value)						0.0000	0.0000
Test 4: $\beta_{11}=\beta_{12}=\beta_{13}$ (p-value)						0.6187	0.8000

Robust z-statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes:

1. Standard errors are clustered at the facility level.
2. Location controls are the dummies for the 5 regions of Tajikistan, Sogd, GBAO, Khatlon, and the RRS Dushanbe serves as the reference region. GBAO is not included in regression 7.
3. Community controls are number of households, average household total consumption, and the Gini of consumption. All variables are computed at the jamoat level using the 2002 census. The jamoat is the lowest administrative level; 104 of the 356 jamoats in Tajikistan are included in the survey.
4. Facility controls include the size of the facility, the type of the facility, whether the facility is rural.
5. Individual controls include age, experience in the health sector with their squares, whether the health worker is married and the number of children, the health worker's satisfaction working in the facility, her willingness to quit the facility, the reason she chose to work in the health sector, whether she used her own money to cater to the health needs of non-members of her household, and whether there is at least one other wage earner in the health worker's household. Finally we include a dummy for whether the health worker thinks that patients should pay for the care they receive, and the ration between the salary the health worker considers fair and her own salary.
6. Position controls are dummies variables for doctor, nurse/feldsher, administrative staff. The hospital attendants are considered as the reference category.

Table 10: Regression (OLS) Results for Amount of Informal Charges

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female (β_1)	-28.23***	-27.96***	-27.47***	-25.02***	-18.01***		
	(4.66)	(4.70)	(4.64)	(4.04)	(2.90)		
Female head (β_2)	5.92	5.867	8.706	6.22	4.998	4.294	3.984
	(1.04)	(1.01)	(1.65)	(1.20)	(0.99)	(0.88)	(0.68)
Proportion women (β_3)			-0.03	-0.037	-0.067	-0.102	-0.111
			(0.24)	(0.31)	(0.56)	(0.87)	(0.86)
Doctor (λ_1)					18.317**	41.532***	43.686***
					(2.38)	(4.08)	(4.11)
Female x Doctor (β_{11})						-36.35***	-37.87***
						(3.24)	(3.15)
Nurse (λ_2)					2.177	7.93	9.042
					(0.38)	(1.10)	(1.20)
Female x Nurse (β_{12})						-4.004	-3.859
						(0.73)	(0.67)
Administrator (λ_3)					4.305	10.361**	13.028**
					(0.83)	(2.11)	(2.42)
Female x Admin. (β_{13})						3.022	2.657
						(0.37)	(0.28)
Fair/Actual Salary				0.181	0.14	0.129	0.114
				(1.35)	(1.02)	(0.90)	(0.80)
Patients should pay				11.492**	9.583**	9.952**	10.781**
				(2.42)	(2.01)	(2.09)	(2.05)
Location Controls	YES	YES	YES	YES	YES	YES	YES
Community Controls	NO	YES	YES	YES	YES	YES	YES
Facility Controls	NO	NO	YES	YES	YES	YES	YES
Individual Controls	NO	NO	NO	YES	YES	YES	YES
Position in Facility	NO	NO	NO	NO	YES	YES	YES
Interaction Effects	NO	NO	NO	NO	NO	YES	YES
Observations	1191	1191	1191	1191	1191	1191	1082
Pseudo R-squared	0.1	0.1	0.12	0.14	0.15	0.15	0.14
Test 1: $\lambda_1=\lambda_2=\lambda_3=0$ (p-value)					0.0053	0.0004	0.0003
Test 2: $\lambda_1=\lambda_2=\lambda_3$ (p-value)					0.0019	0.0014	0.0017
Test 3: $\beta_{11}=\beta_{12}=\beta_{13}=0$ (p-value)						0.0117	0.0177
Test 4: $\beta_{11}=\beta_{12}=\beta_{13}$ (p-value)						0.0086	0.0142

Robust t-statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes:

1. Standard errors are clustered at the facility level.
2. Location controls are the dummies for the 5 regions of Tajikistan, Sogd, GBAO, Khatlon, and the RRS Dushanbe serves as the reference region. GBAO is not included in regression 7.
3. Community controls are number of households, average household total consumption, and the Gini of consumption. All variables are computed at the jamoat level using the 2002 census. The jamoat is the lowest administrative level; 104 of the 356 jamoats in Tajikistan are included in the survey.
4. Facility controls include the size of the facility, the type of the facility, whether the facility is rural.
5. Individual controls include age, experience in the health sector with their squares, whether the health worker is married and the number of children, the health worker's satisfaction working in the facility, her willingness to quit the facility, the reason she chose to work in the health sector, whether she used her own money to cater to the health needs of non-members of her household, and whether there is at least one other wage earner in the health worker's household. Finally we include a dummy for whether the health worker thinks that patients should pay for the care they receive, and the ration between the salary the health worker considers fair and her own salary.
6. Position controls are dummies variables for doctor, nurse/feldsher, administrative staff. The hospital attendants are considered as the reference category.

Table 11: Regression (TOBIT) Results for Amount of Informal Charges – Marginal Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female (β_1)	-30.3***	-29.9***	-29.7***	-29.1***	-16.6**		
	(6.11)	(6.03)	(5.88)	(5.08)	(2.55)		
Female head (β_2)	2.253	2.131	2.326	1.513	0.555	0.109	0.466
	(1.10)	(1.04)	(0.98)	(0.64)	(0.23)	(0.05)	(0.22)
Proportion women (β_3)			-0.581	-10.061	-17.347	-22.081	-17.450
			(0.04)	(0.75)	(1.29)	(1.64)	(1.34)
Doctor (λ_1)					20.40***	28.52***	29.13***
					(4.70)	(6.91)	(6.84)
Female x Doctor (β_{11})						-4.54***	-4.65***
						(3.56)	(3.76)
Nurse (λ_2)					20.81***	22.14***	21.63***
					(3.42)	(2.91)	(2.84)
Female x Nurse (β_{12})						-0.173	-0.385
						(0.03)	(0.08)
Administrator (λ_3)					5.799**	6.617**	6.535**
					(2.37)	(2.84)	(2.33)
Female x Admin. (β_{13})						0.638	0.481
						(0.41)	(0.32)
Fair/Actual Salary				5.823**	4.755	4.795	5.056*
				(1.97)	(1.61)	(1.63)	(1.68)*
Patients should pay				9.018***	7.189***	7.461***	7.446***
				(3.41)	(2.70)	(2.81)	(2.76)
Location Controls	YES	YES	YES	YES	YES	YES	YES
Community Controls	NO	YES	YES	YES	YES	YES	YES
Facility Controls	NO	NO	YES	YES	YES	YES	YES
Individual Controls	NO	NO	NO	YES	YES	YES	YES
Position in Facility	NO	NO	NO	NO	YES	YES	YES
Interaction Effects	NO	NO	NO	NO	NO	YES	YES
Observations	1191	1191	1191	1191	1191	1191	1082
Pseudo R-squared	0.02	0.02	0.03	0.04	0.04	0.04	0.03
Log Likelihood	-4009.84	-4008.95	-3996.78	-3945.45	-3933.12	-3929.76	-3903.83
Test 1: $\lambda_1=\lambda_2=\lambda_3=0$ (p-value)					0.0000	0.0000	0.0000
Test 2: $\lambda_1=\lambda_2=\lambda_3$ (p-value)					0.0029	0.0000	0.0000
Test 3: $\beta_{11}=\beta_{12}=\beta_{13}=0$ (p-value)						0.0042	0.0023
Test 4: $\beta_{11}=\beta_{12}=\beta_{13}$ (p-value)						0.0100	0.0073

Robust t-statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes:

1. Location controls are the dummies for the 5 regions of Tajikistan, Sogd, GBAO, Khatlon, and the RRS Dushanbe serves as the reference region. GBAO is not included in regression 7.
2. Community controls are number of households, average household total consumption, and the Gini of consumption. All variables are computed at the jamoat level using the 2002 census. The jamoat is the lowest administrative level; 104 of the 356 jamoats in Tajikistan are included in the survey.
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5. Position controls are dummies variables for doctor, nurse/feldsher, administrative staff. The hospital attendants are considered as the reference category.