Price deflation and the underground organ economy in the Philippines

Roger Lee Mendoza

Cherry Hill, NJ 08003, USA
Address correspondence to Roger Lee Mendoza, E-mail: professrmendoza@gmail.com

ABSTRACT

Background This is the first in-depth study of the illicit human organ trade in the Philippines. The question for analytical investigation is why the underground organ commerce thrives, despite meager support and compensation for commercial donors (or vendors).

Methods Quantitative survey results were obtained from a probability sample of living Filipino kidney vendors ($P = 0.95; \alpha = 0.05$). The kidney trade was studied because it has the highest level of demand among all tradeable human organs in the Philippines and globally.

Results The study finds that deflated vendor compensation, lower than global kidney purchase prices, and relative stability in kidney supply obtained from a combination of the socio-economic characteristics of Filipino vendors and the asymmetric information available to them. The high degree of ambiguity and continuity between legitimate organ donations and underground buy-and-sell operations poses major challenges to effective regulation and law enforcement on the part of the Philippine government.

Conclusions Any reform effort will need to effectively address the fine distinction between two different but overlapping organ procurement markets, and brokered trading, with minimal transaction costs, based on asymmetric information. Policy lessons and insights from the Philippine experience that are transferable to other countries, particularly in the developing world, are noted in this study.

Keywords asymmetric information, broker, kidney, nephrectomy, organ, organ scout, price deflation, transaction costs, underground economy, vendor

Introduction

This is a study about the illegal organ traffic. The global demand for kidneys is the highest among all human organs. Trafficked kidneys alone represent as high as 20% of worldwide kidney transplants, and higher in many developing countries.\(^1\) The current shortage in legitimate (i.e., non-commercial) kidney donors is expected to worsen in the near future due to the increasing incidence of diabetes and hypertension (key risks of kidney disease) and the epidemic rise of patients who have been diagnosed with end-stage renal disease (ESRD), where both kidneys permanently fail to work. ‘Medical tourism’ programs in developing countries further stimulate kidney (and organ) trafficking by offering patients timely and affordable access to health care not otherwise possible in their home countries, while providing vital resources for economic development to destination countries.\(^2\)

The Philippines offers a useful case study. In 2005, the World Health Organization (WHO) named it as one of the top five country destinations for organ commerce. It was projected to rise to the top three or four destination countries in 2007, when tighter restrictions on foreign recipients take effect in China and Pakistan. The question we seek to investigate in this study is why the underground organ trade thrives in the Philippines despite meager support and compensation for commercial donors or vendors. The vendors whom we studied were living Filipinos who had sold their kidneys in exchange for cash and other compensation. We also seek to determine what policy lessons may be gained from the Philippine experience in organ transplantation that may be transferable to other countries.
Methods

Pre-tested and interviewer-administered questionnaires were developed by our survey research team for a multistage probability sample of 131 living Filipino kidney vendors. The surveys aimed to determine their socio-demographic characteristics and the nature of their underground trade. Interviews and two follow-up site visits were conducted in April–May 2008. A total of 121 responded to the surveys (representing 92.4% of randomized vendors). The high participation rate was most likely helped by the high level of unemployment/underemployment among kidney vendors, many of whom were eager to take part in our survey. Survey results presented in this paper equate to a ±4 percentage points margin or error at the 95% confidence level.

An Excel-generated worksheet was used to statistically identify the random household numbers containing at least one kidney vendor. The households selected were located in the two most populated and largest kidney-supplier regions, Metro Manila and the adjacent Calabarzon Region. Public visibility of kidney buy-and-sell transactions was a defining characteristic of the underground kidney economy in the Philippines that we discovered during the survey pretest and aided the development of our sampling frame. For example, kidney vendors in the Philippines can be easily identified in terms of their geographic concentration (certain slum areas are known as Kidney Towns/Villages or No-Kidney Islets), identifying physical characteristics (e.g. tattoos) and references (e.g. kidney-related monikers).

Results

Vendor profile

Table 1 indicates that practically all kidney vendors in the Philippines are males. Vendor median age is 31.0 (34.3 for females), which suggests preferential recruitment of younger (and presumably healthier) vendors. Using the Philippine government’s socio-economic stratification system, survey results in Table 1 show that between 84.5% and 92.5% of these vendors belong to the lower-income Class D (e.g. farmers, drivers, servants and construction workers who live from day to day) and Class E (extremely poor, such as street peddlers, temporary laborers and beggars), regardless of their age, gender and geographic location. The vast majority of surveyed vendors reported annual incomes below the poverty line.

The vulnerability of the poor to exploitation by organ trafficking syndicates in many developing countries has also been attributed to their limited education.3,4 Our survey data appear to support that finding, with over one-third of vendors (37.3–45.3%) not reaching high school, although a public educational system exists up to the secondary level. Only slightly one-half of them either reached or completed high school.

Finally, kidney vendors are equally likely to be single (including widowed and legally separated) and married (including common-law and similar relationships). However, the presence of dependents (financially supported children, siblings, parents and other family members) appears to significantly increase the propensity to sell a kidney regardless of marital status.

Organ trading

Table 2 indicates the relatively open or undisguised process of vendor introduction and entry into the kidney black market. At least 75.3–83.3% of surveyed kidney vendors indicated that they either did not know it was illegal to sell their kidneys or were unaware of the existence of anti-trafficking and anti-trading legislative measures, which are written in English and strict legalese. Among the most common voluntary search, strategies employed by vendors were publicly displayed posters, word of mouth and Internet postings. Two-thirds (65.4–73.4%) indicated that they were directly and openly approached by third parties, which included brokers, syndicates/gangs, matching agencies and some physicians. One-half (45.6–53.6%) were also recommended by family members, friends and local officials to these third parties.

Table 1 Vendor socio-demographic profile (n = 121)

<table>
<thead>
<tr>
<th>Gender</th>
<th>98.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1.6</td>
</tr>
<tr>
<td>Class &lt;b&gt;</td>
<td>1.7</td>
</tr>
<tr>
<td>A, B, C</td>
<td>57.9</td>
</tr>
<tr>
<td>D</td>
<td>30.6</td>
</tr>
<tr>
<td>Highest educational attainment</td>
<td>40.5</td>
</tr>
<tr>
<td>None</td>
<td>8.3</td>
</tr>
<tr>
<td>Elementary/some elementary</td>
<td>50.4</td>
</tr>
<tr>
<td>High school/some high school</td>
<td>8.3</td>
</tr>
<tr>
<td>College/some college/vocational</td>
<td>8.3</td>
</tr>
<tr>
<td>Marital status by dependents</td>
<td>5.8</td>
</tr>
<tr>
<td>Single, no dependents</td>
<td>42.1</td>
</tr>
<tr>
<td>Single, w/dependents</td>
<td>43.0</td>
</tr>
<tr>
<td>Married, no dependents</td>
<td>5.8</td>
</tr>
<tr>
<td>Married, w/dependents</td>
<td>43.0</td>
</tr>
</tbody>
</table>

<sup>a</sup>Total <i>&lt;</i>100 due to non-response rate.

<sup>b</sup>Annual income from all sources using consumer market segments used by survey research firms and the Philippine government.
One key finding from this survey concerns the multi-layered network of broker–vendor relationships in the underground kidney trade. Prospective vendors from the marginalized sectors (Metro Manila slum areas and farming and fishing villages of the Calabarzon provinces) are usually connected to kidney recipients (buyers) by third parties acting as brokers or agents. Some brokers operate individually (including some licensed doctors), whereas others are agencies and organized groups (e.g., syndicates). Fee-based ‘kidney scouts’ are often contracted and deployed by these brokers to depressed areas. After accepting the terms of trade, the recruits are introduced to the vast client network run by the broker. These include individuals and groups who handle the vendors’ meals, transportation and accommodation, facilities that conduct pre-testing and evaluation, attending doctors/hospitals (many of them top-notch) and matching agencies. According to many of the surveyed kidney vendors, local politicians and wards as well as the local police usually get involved in the kidney trade when their own family members and friends function as brokers or scouts. Contributions in cash and in-kind are made to these government officials by doctors, hospitals and other agencies in exchange for recommending them to handle various aspects or phases of kidney transplantation.

Table 2 further indicates that at least two-thirds of the vendors were paid less than US $3000.00 (in 2008 market values) for selling their kidneys. The median cash compensation for sold kidneys was approximately US $2133.00 based on our survey. These findings tend to confirm that Philippine black market prices for kidneys are among the lowest globally. In contrast, the reported minimum asking price in the USA (US $30 000.00 in 2007) was about 15 times higher, whereas in Israel, it was as much as US $10 000–US $20 000, US $7500–US $8000 in Turkey, US $6000 in Brazil and US $2700 in Moldova and Romania.5

When asked why they accepted the low prices they were offered, almost everyone indicated a desperate need for cash and lack of pricing information (e.g., did not know the fair rate, personally thought the price was high enough or the ‘going rate’, used their low incomes as reference point etc.). In most instances, the black market price was fixed or negotiated by brokers. Such information asymmetry—at the vendor’s expense—helps sustain low vendor compensation in the Philippine kidney commerce. In turn, our survey findings suggest that the difference between fixed compensation ceilings and the relatively lower market prices that kidney buyers are willing to pay represents the economic incentive to broker an organ trade. Asymmetric information refers to the greater quantity and/or better quality of information available to one party (e.g., brokers or buyers) in a market transaction.

In addition to monetary compensation, several vendors indicated that they received various ‘gratuities’ (or valuable considerations) as part of their reward package. These included medical insurance, life insurance, livelihood assistance and/or payments in-kind (e.g., food baskets). However, it was atypical for vendors to have commensurate knowledge of and receive all types of gratuities allowed under governing Philippine regulations (which do not prescribe a definite set of gratuities). This form of information asymmetry also helps brokers set kidney selling prices lower than most prevailing rates in the global underground trade.

Philippine health policy prohibits kidney donations to (genetically and emotionally) unrelated recipients. However, of those we surveyed, only 3.5–11.5% donated to whom they claimed were related recipients (mostly family members and friends). In contrast, 85.2–93.2% of vendors and recipients were unrelated. Table 2 further indicates that between 56.3% and 64.3% of surveyed vendors sold their kidneys to foreign buyers or buyers of foreign descent. Only 18.3–
26.3% sold to Filipinos or buyers of Philippine descent. These findings demonstrate the fourth major aspect of the underground kidney trade in the Philippines: a publicly visible, brokered and compensation-based system that generally involves unrelated sellers and buyers, most of whom are foreigners.

**Post-transplant outcomes**

Although several vendors indicated two or more objectives in Table 2, the need for (immediate) cash was undoubtedly the primary consideration for kidney selling (86.1–94.1%) due to heavy debts, unpaid bills and financially dependent family members. Ironically, when we asked if they felt their total compensation (including any gratuities) improved their financial condition (savings, income, employment prospects and overall economic outlook), between 76.2% and 90.0% replied in the negative, as Table 3 shows. The cash compensation they received was mostly used up to pay debts and household expenses in a matter of days or weeks following nephrectomy (surgical extraction of a kidney). In addition, Table 3 indicates that organ sales yielded neither material nor lifestyle improvements from the perspective of over 84% of sampled vendors. The mere promise or expectation of financial stability offered by brokers and scouts in recruiting vendors appears to overcome any possible health risks and limited prospects for economic improvement from the perspective of vendors. Without sufficient means to validate the (asymmetric) information provided to them by brokers and scouts, our surveyed vendors find their deflated cash compensation attractive enough to sell their kidneys.

The post-nephrectomy health status of kidney vendors has increasingly become the subject of concern among health experts and policy-makers in medical tourism destination countries due to the unintended consequences of kidney selling. These consequences include various health risks and compromised renal function of poorly or randomly selected vendors and inadequate post-nephrectomy care offered to them. In the case of our sample, we found it rare for vendors to receive some type of post-operative care (follow-up check-ups/testing, monitoring/documentation, treatment for complications and anti-rejection drug prescriptions) once fully compensated. Completion of the pre-determined cash payment and gratuities typically serves as the terminal point in the underground kidney commerce. Only between 8.4% and 16.4% were offered some form of post-operative care. Less than 12% actually received it partially or in full. Inadequate or inferior vendor information about the value of post-nephrectomy care and support not only supports deflation of vendor compensation and lower buyer/purchase prices. It also offers brokers and buyers an obligation-free arrangement once the stipulated vendor payment is completed.

In terms of post-transplant health condition/risks, 61.3–69.3% of vendors reported various lingering issues in performing labor-intensive work. Over one-third of these vendors reported deterioration in health status due to problems or complications that eventually arose (e.g. hypertension, infections and mental/emotional issues). Over one-half said that they would not have proceeded with nephrectomy had they been aware/forewarned of its health-related consequences and would not recommend to anybody selling their organs or tissues.

One could infer from these findings that the concept of a ‘donor’ (term used/preferred by vendors) in the underground kidney trade refers to the living organ source, rather than to the socio-psychological role in which altruism, particularly among legitimate (genetically or emotionally related) donors and recipients, is supposed to be embedded. The vendors, mostly from impoverished farming and fishing villages of the Calabarzon Region and the slum/squatter areas of Metro Manila, sell for immediate personal gain. Kidney or organ buyers are usually wealthy patients from the Philippines and high-income countries who find kidneys in the Philippines both highly accessible and inexpensive. After transplantation is completed, vendors and buyers go their own separate ways without expecting to have any other future contact/relationship.

<table>
<thead>
<tr>
<th>Table 3 Vendor post-nephrectomy outcomes (n = 121)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-operative carea</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Health statusb</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Economic/financial statusa</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

aTotal < 100 due to non-response rate.
bTotal > 100% due to multiple responses.
Discussion

Main findings of the study

The underground kidney (and organ) trade in the Philippines creates and sustains its own socio-economic puzzle: pricing and transactions involving transplantable kidneys do not generally depend on the forces of supply and demand, but upon third party brokerage. The market power of brokers, in turn, obtains from the incapacity of the kidney vendor and buyer to transact directly. The transaction costs of using the market for a direct trade may be simply too high. Transaction costs refer to costs that are not directly related to the production and transport of a commodity. They include the costs of information searches, contracting, bargaining, marketing, advertising, policing and enforcement of contracts. For example, wealthy Filipinos are unlikely to visit poor and unsafe areas, while foreigners have limited time and resources to search for compatible donors. In either case, the transaction costs involved in organ procurement could be minimized simply by availing of the services of a broker or some other third party. Even if there were amenable sellers and willing buyers, the kidney trade is not guaranteed to take place as efficiently as could be possible under other, more favorable market circumstances.

Hence, although neither consumers nor producers, kidney brokers financially benefit the most from illicit, but overt, buy-and-sell transactions almost without fear of legal sanction or retribution. Scarcity has long been a key driver of the global kidney market. But in countries like the Philippines, patients are dealing with signs of relative surplus if they transact illicitly given the ease with which healthy organs from live sellers can be found, the open and tolerated nature of brokerage transactions, the comparatively low kidney purchase prices (further helped by a weak Philippine currency), transplantation in accredited, first-rate medical facilities, and conscious or unconscious participation of government officials and agencies in the organ trade. These conditions suggest why underground organ trading exists and persists in developing countries like the Philippines, but rarely in developed, western countries, despite the prevailing shortages in the supply of kidney donors and the high level of demand for healthy kidneys worldwide.

The implications of this study are not meant to suggest that public advocacy and legal and regulatory initiatives to address underground kidney trading are unimportant. One main effect has been to draw attention to third-party brokerage and wage and price deflation that perpetuate market inequities and dent reforms in the allocation of transplantable kidneys. Another raises the intertwining issues of institutional capacity and corruption within government agencies in the enforcement of applicable laws and regulations. Finally, these findings underscore the need for governments to actively regulate in an otherwise private transaction between buyers and sellers.

What is already known on this topic

An underground economy refers to profitable exchanges and transactions involving illegal commodities. Studies show that a combination of high levels of demand for these commodities and stiff government restrictions on their ‘provision’ (legality, financing and pricing) and/or ‘production’ (service delivery, operations and management) encourages the growth of underground economies or black markets.

Broad consensus on the part of the government and the people, as to which commodities should be traded legally and how, as well as an overall change in public responsiveness, is critical since underground economies cannot be eradicated by government action alone.

The current academic and policy debate centers on the legitimacy (or at least permissible extent) of the profit-motive behind kidney transplantation. Black market kidney (or organ) trading is illegal because governments consider it to be repugnant. It also leads to negative/harmful behavior among individuals, such as cash-strapped hospitals and facilities selling operations that they are ill-equipped to perform. As several studies show, these behavioral and ethical implications (policy costs) outweigh from the standpoint of most governments the benefits to be derived from a legally constituted, compensation-based—albeit regulated—kidney market. Other studies further stress the indirect or spillover effects of legalizing compensated kidney donations (e.g. health inequities and unfair access to required medical care).

A growing number of economists and medical scholars, on the other hand, support legalization due to the extremely limited kidney supply, unreliability of the altruistic organ donation model represented by the Gift of Life program, wait-list inefficiencies, health risks and actual hazards to ESRD patients, and economic incentives that give rise to black markets alongside a legal system of transplantation, especially in developing countries. They advocate using markets to increase supply, lower costs and diminish social anxiety toward organ selling.

What this study adds

This is the first in-depth study of the illicit kidney trade in the Philippines based on survey data. One critical issue in organ black markets, which the scholarly literature tends to overlook in the current bipolar debate between supporters and opponents of compensated organ transplants, concerns
and P2 represents a broker's excessive profit margin. Outside a country like the Philippines. The area between P* and P1 is competitive with other organ suppliers, both within and outside a country like the Philippines. The area between P* and Q1. When brokers set a ceiling to a vendor's compensation or asking price (P*), which is well below the fair market price, an incentive arises for brokers to offer a lower buyer price (P3), if only to be competitive with other organ suppliers, both within and outside a country like the Philippines. The area between P* and P2 represents a broker's excessive profit margin. Brokers profit even more if they choose to set the buyer's price at a higher rate to take advantage of global scarcities (the arrow in Figure 1 denotes the possibility of a purchase price equal to or greater than fair market price). Shortages in kidney or organ vendors do not necessarily occur despite price equal to or greater than fair market price). Shortages in kidney or organ vendors do not necessarily occur despite the powerful effect of information asymmetries in breeding and supporting the underground organ trade. They render underground organ markets practically indistinguishable from legitimate methods of organ procurement. As this study suggests, information asymmetries: 1) encourage brokerage trading; 2) help sustain lower organ purchase prices; and 3) facilitate vendor compensation-fixing without necessarily creating shortages in organ supply.

Figure 1 provides a summary illustration. The fair market price for a healthy kidney or organ (as exemplified by global black market prices) is where supply and demand levels meet (i.e., the intersection of P1 and Q1). When brokers set a ceiling to a vendor's compensation or asking price (P*), which is well below the fair market price, an incentive arises for brokers to offer a lower buyer price (P3), if only to be competitive with other organ suppliers, both within and outside a country like the Philippines. The area between P* and P2 represents a broker's excessive profit margin. Brokers profit even more if they choose to set the buyer's price at a higher rate to take advantage of global scarcities (the arrow in Figure 1 denotes the possibility of a purchase price equal to or greater than fair market price). Shortages in kidney or organ vendors do not necessarily occur despite their meager compensation and support because information flows asymmetrically from brokers and buyers to financially needy vendors. A few factors beyond the broker's control, such as the weak purchasing power of the Philippine currency vis-a-vis most foreign buyers' currencies, contribute in keeping compensation ceilings attractive to poor vendors.

The resilience of price deflation further owes to the low transaction costs and the relative insulation (from legal sanctions) of commodity brokerage. Low transaction costs facilitate organ commerce by ensuring ease of information search and exchange, speed of bargaining and contracting, price-fixing, transplantation in regulation-compliant and top-quality hospitals, and direct involvement by politicians and law-enforcers. They help produce low selling prices for kidneys and low compensation of vendors and organ scouts. Hence, consensus may exist within the government and among Filipinos concerning the need to eradicate kidney trafficking. Yet, there is also considerable conflict within government agencies and hospitals because various authorities directly benefit from ensuring that kidney trafficking persists. Corruption needs to be addressed. Effective law enforcement helps connect legislation to the regulation of economic behavior.

The dividing line between the underground and legal transplant systems becomes razor-thin when several participants (matching agencies, foundations, hospitals, doctors and law-enforcers) in one system consciously or unconsciously perform the same roles or functions in the other with relative ease. Kidney patients pay huge sums for new kidneys, but most of them go to brokers, including some doctors/medical facilities, for locating and transporting poor donors. Without brokers operating in a relatively unrestrained market, it is doubtful if many poor vendors will find kidney buyers. Without incentives (e.g. cash rewards) to report these brokers and their vast networks, and swift government action, the underground kidney trade will continue to flourish, entrench market inequalities based on asymmetric information and dent government reform efforts.

The Philippine experience thus yields valuable public health policy insights that are transferable to other countries, particularly in the developing world: (i) grassroots-based educational and health promotion strategies are vital considering vendors' socio-demographic profile and limited awareness of legal prohibitions and health risks; (ii) a carefully designed mix of supply-side and demand-side incentives complements law-enforcement (e.g. cash incentives to report buy-and-sell transactions and swift government action with on-the-spot media coverage); (iii) criminal deterrence is insufficient and costly in the absence of creative policing and prosecution strategies to cope with ever-changing trading environments (e.g. online, sham marriages between foreign patients and Filipino vendors) and rules (e.g. sub-contracting); (iv) donor post-operative care and long-term health deserve equal attention (e.g. making organ recipients partly responsible for donors' health care promotes a more equitable transplantation model); and (v) policy debate should not be confined to legitimacy issues (e.g. prohibition and punishment of compensated donations), but should address other relevant aspects of transplantation, including better renal care programs, promotion of cadaveric (brain-death and cardiac-death) organ donations, the health hazards of illicit organ-selling and sources of information asymmetries.

Collectively, these policy implications underscore the need to evaluate government action in terms of its net effect on...
participants in the underground organ commerce. A carefully designed mix of effective regulation and law-enforcement and public education should raise the costs and lower the benefits of brokered organ trading. It should also encourage the exchange of useful and symmetric information concerning organ donation and transplantation. Otherwise, organ traders will likely find it economically inefficient to distinguish between what is legal and prohibited in organ donation and transplantation.

Limitations of this study
Further research into the kidney black market in the Philippines may need to inquire into the extent and effectiveness of legal and regulatory compliance. Resource constraints did not allow the researchers to adequately examine the various policy initiatives that the Philippine government has taken to curtail the illegal kidney trade and how these policies relate to empirical findings, such as those derived from our survey. This study therefore did not address what ambiguity of regulations may exist and whether it amounts to a driving force behind depressed vendor compensation, lower organ purchase prices and the growth of the illegal organ trade.

Acknowledgements
The author acknowledges with thanks the participation of our survey respondents from Metro Manila and the Calabarzon region, and the undergraduate and graduate students from the University of the Philippines and Miriam College who constituted the survey research team. The author is equally grateful to the three anonymous peer reviewers who offered valuable comments and suggestions in improving this paper.

References
21 Friedman A. Payment for living organ donation should be legalized. BMJ 2002;333:746–8.