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ORIGINAL ARTICLE

Colombia's organ trade: Evidence from Bogotá and Medellín

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Abstract
Aim This quantitative study seeks to determine why the underground organ commerce exists and thrives in Colombia, and how it responds to global donor shortages, public opposition and government initiatives to curtail it. Policy lessons and insights from the Colombian experience in organ donation and transplantation are identified in this study.
Subjects and Methods Statistical random samples of 169 living and paid Colombian donors (or vendors) were apportioned between the key organ supplier cities of Bogotá and Medellín based on population. A pre-tested and interviewer-administered questionnaire was designed for organ vendors in these multi-stage samples. Qualitative analysis of pertinent Colombian laws and regulations forms the other half of this study.
Results Survey results from Bogotá and Medellín tend to indicate shared demographic characteristics between Colombian vendors and their counterparts in developing countries that are major destinations for organ trafficking. The organ trade in Colombia is generally open, brokered and without price competition and provisions for vendors' postoperative care, which help attract many foreign buyers. These factors also increase the vulnerability of vendors to unscrupulous third parties. The study finds that public indifference, state/institutional incapacity, corruption, and constantly changing trade environments, rules and operations subvert the legal and regulatory framework for organ donation and transplantation, which in Colombia is rather unique for its extent of coverage, complexity and detail.
Conclusion The empirical evidence obtained from Bogotá and Medellín offers a challenge for governments to look beyond the availability of legal and regulatory restraints and remedies. Why and how these can be effectively undermined by organ trade participants without necessarily affecting or reversing their economic behavior are pressing issues that demand immediate attention.

Keywords Broker · Cadaveric · Living donor · Organ transplantation · Organ vendor · Underground trade

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Introduction

Objectives, significance and setting

This is a study about the illegal traffic in human organs. Trafficked kidneys, livers, lungs and other body parts constitute at least 20 percent of worldwide transplants, and this rate is higher in many developing countries (WHO 2004; Steering Committee 2008). The current shortage in both living and deceased organ donors is expected to worsen in the near future. This owes to the increasing global incidence of diabetes, hypertension (key risks of kidney disease), hepatitis B and C (key risks of liver disease), and various chronic abdominal organ illnesses. In recent years, there has also been an epidemic rise in the number of patients with end-stage renal disease (ESRD) and end-stage liver disease (ESLD), where kidneys and livers fail to perform permanently (Hamer and El Nahas 2006; Lim and Kim 2008; Interlandi 2009).

Colombia—South America's second most populated country—offers a useful case illustration. Its first organ (kidney) transplant was performed in 1966, but it was not until 25 years later that the first wave of organ trafficking was widely reported by the Colombian press. By 2005, the World Health Organization (WHO) had listed Colombia as one of the top five country destinations for organ trafficking.

It has ranked third or fourth worldwide since 2008, when tighter restrictions on foreign organ recipients took effect in China and Pakistan (WHO 2005).

This is the first study of Colombia's underground organ commerce. The following are the research questions under investigation: Why does the underground organ commerce exist and thrive in Colombia, and how does it respond to global donor shortages, public opposition and government initiatives to curtail it. Policy lessons and insights that may be gained by other countries from the Colombian experience in organ donation and transplantation are noted.

Theoretical underpinnings

An underground economy or black market 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, pricing) and/or *production* (service delivery, operations and management) encourages the growth of underground economies (Laughlin 1981). 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. Underground economies cannot be eradicated by government action alone (Goodwin 2006).

The current academic and policy debate centers on the legitimacy (or at least permissible extent) of the profit-motive behind organ donation and transplantation. Underground organ trading is illegal because governments consider it to be repugnant (Roth et al. 2005; Roth 2007) and/or it leads to negative/harmful behavior among its participants (Cherry 2005). As several studies show, these behavioral and bioethical implications (policy costs) outweigh from the standpoint of most governments the benefits to be derived from a legally constituted, compensation-based—albeit regulated—organ market (Scheper-Hughes 2002). Other studies stress the indirect or spillover effects of legalizing compensated organ donations (e.g., exploitation, misuse and economic dependency) (Hou 2000; Sharp 2000).

However, a growing number of economists and medical scholars support legalized compensation. Citing the supply deficit of healthy organs, unreliability of the altruistic organ donation model represented by the *Gift of Life* program, wait-list inefficiencies, health risks/hazards to patients and economic incentives in underground trading, they advocate using markets to increase supply, lower costs and diminish social anxiety toward organ sales (Harris 2002; Friedman 2002; Becker and Elias 2007; Satel 2009).

This study draws attention to the relative ambiguity and continuity of the underground and legitimate organ transplantation systems, as they coexist in Colombia and many developing countries. This is one critical issue in organ donation and transplantation, which the prevailing literature tends to overlook in view of the bipolarity of debate between supporters and opponents of compensated organ transplants.

Methods

Survey questionnaires

Guided by our previous experience with another country study of kidney trading, pre-tested and interviewer-administered questionnaires were employed by our survey research team for a multistage probability sample of 169 living and paid organ donors in January–March 2009. After the interviews and follow-up visits, 151 (89.3 percent of randomized vendors) responded to our survey. The relatively high participation rate was likely helped by the high level of unemployment/underemployment among Colombian organ vendors, many of whom eagerly took part in the survey. Tabulated survey results equate to a ±4.0 percentage points margin or error at the 95.0 percent confidence level.

An Excel-generated worksheet was used to statistically identify the random household numbers containing at least one living organ vendor. Surveyed households were selected from the highly populated and largest organ-supplier capital cities of Bogotá and Medellín based on their respective resident populations. Relative public visibility of organ buy-and-sell transactions was a defining characteristic of the Colombian underground organ economy that we discovered during the survey pretest. It aided the predetermination/identification of households for sampling as well as the development of the sampling frame by our sampling design committee.

Content analysis

Existing Colombian transplant laws and policies were identified and content-analyzed by our research team to ascertain the extent and effectiveness of their regulatory compliance.

Results

Vendor profile

In Colombia, similar to practically every other country where organ trafficking persists (Dailey 2009; US House of Representatives 2009), the vast majority of buying and selling of live human organs involves kidneys, as shown in

Table 1 Vendors by type of organ donation (n = 151)

Living organ	% Distribution[a]
Eye (lens, cornea)	2.0
Heart (valve)	0.7
Kidney	74.8
Liver (parts)	15.2
Lung (lobes)	5.3
Pancreas (segment)	2.0
No response	2.6

[a] Total >100% due to multiple organ donations

Table 1 (70.8–78.8%). Increasing global rates of ESLD and chronic liver disease have also created a thriving Colombian market for hepatic transplantation and made liver parts the next most sought-after organ (11.2–19.2%). Around 2% of those surveyed were "repeat vendors" who had sold an organ/tissue at least twice.

Table 2 indicates that organ vendors are predominantly males (76.8–84.8%). Vendor median age is 30.3 for males and 32.1 for females, which suggests preferential recruitment and acceptance of younger and presumably healthier vendors. Using the Colombian government's socioeconomic and market segmentation system based on annual household income from all sources, Table 2 indicates that between 82.8 and 90.8% of organ vendors belong to the two lowest income strata (1 and 2). They are mostly low-income earners (e.g., farmers, manufacturing workers, construction workers and public utility drivers who live from day to day) or the extremely poor (servants, street peddlers, temporary laborers and beggars), regardless of their age, gender and geographic location. Nationally, these two income strata constitute about 54% of the Colombian national population, where over 49% live below the poverty line. The vast majority of the surveyed vendors reported annual incomes below the poverty line.

Table 2 Vendor sociodemographic characteristics (n = 151)

Characteristic	% Distribution
Gender	
Male	80.8
Female	19.2
Age[a]	
20 and below	1.3
21–30	30.5
31–40	43.7
41–50	13.9
51 and above	9.2
Income classification [a, b]	
Strata 3–6 (lower middle, middle, upper middle, upper/elite)	4.0
Stratum 2 (low)	55.0
Stratum 1 (lowest)	31.8
Highest educational attainment	
None	2.0
Primary/some primary	38.3
Secondary/some secondary	51.0
Tertiary/some tertiary/technical or vocational	8.7
Marital status by dependents	
Single w/out dependents	6.0
Single w/dependents	42.4
Married w/out dependents	6.6
Married w/dependents	45.0

[a] Total may be <100 due to non-response rate

[b] Based on reported annual household income from all sources

Several studies show that the vulnerability of low-income earners to exploitation by organ trafficking syndicates in many countries can also be attributed to their limited education (Goyal et al. 2002; Naqvi et al. 2007; Moazam et al. 2009; US House of Representatives 2009). Our survey data appear to support that finding. Over a third of Colombian vendors (36.3–44.3%) did not go beyond the primary/elementary education level (1st–5th grades). Only about half (47.0–55.0%) of them either reached or completed the 6-year secondary school level (basic secondary: 6th–9th grades; mid-secondary: 10th–11th grades). Schooling is free and compulsory for Colombian children ages 6 to 12.

Finally, organ vendors are almost equally likely to be single (including widowed and separated) and married. However, the presence of dependents (financially supported individuals such as children, parents and other family members) appears to increase significantly the propensity of Colombians to sell an organ regardless of their marital status. Vendors with dependents, whether single or married, numbered seven times more than those who did not report any dependents.

Participation in organ trade

Table 3 suggests the relatively open or undisguised process of vendor introduction and entry into the organ black market. It appears that word of mouth and Internet postings (e.g., kidney for sale websites) were the most common ways that a prospective vendor and his/her family voluntarily searched for organ buyers. Growing reliance on online trading appears to be a more recent search mode. Several surveyed vendors accessed fee-based Internet kiosks/stalls—even at a significant financial burden to them—in the hope of "capturing" a "lucrative business contract" earlier or faster than others.

Two-thirds (64.9–72.9%) indicated that they were directly and openly approached by third parties, mostly in rundown coffee shops, public markets and stores, and often

Table 3 Key aspects of organ trade (n = 151)

Trade aspect	% Distribution
Point of entry [a]	
Direct search by vendor, vendor's family, etc.	32.5
Recommendation from family members, friends, etc.	39.7
Contacted by third party (corredores, doctors, agencies, syndicates)	68.9
Other	18.1
Cash compensation (in US $) [b]	
Less than 1,000	5.3
1,000–1,999	58.9
2,000–2,999	18.5
3,000 and above	8.6
Vendor objective [a]	
Immediate cash	91.4
Employment	33.1
Altruism to related recipients	7.3
Altruism to unrelated recipients	32.5
Vendor-recipient relationship [b]	
Genetically/emotionally related	7.9
None	91.4
Recipient nationality/descent [b]	
Colombian/Colombian descent	22.5
Foreign/non-Colombian	61.6
Unknown	9.9

[a] Total >100% due to multiple responses

[b] Total <100 due to non-response rate

with promises of risk-free life and financial stability. Most of these third parties are referred to as *corredores* (brokers) in Bogotá and Medellín, rather than *intermediarios* (middle agents) because of the former's overt profit motives and organ price control. Other *corredores* or *corredor*-friendly third parties included criminal syndicates/gangs, organ-matching agencies and physicians/hospitals who at times represented/negotiated on behalf of organ buyers. Over one-third of vendors (35.7–43.7%) were recommended by family members, friends and local officials to these third parties. Very rarely did vendors and their families and friends search directly for organ buyers for lack of contact information.

One key finding from this survey concerns the multi-layered network of "patron-client" relationships in the Colombian underground organ commerce. Prospective vendors from the marginalized populations (e.g., in slums and agricultural areas) are usually connected to organ recipients (buyers) by *corredores*. Some *corredores* operate individually (including licensed doctors, former kidney vendors and corrupt government officials), whereas others are agencies and organized groups. Fee-based organ "scouts" (*exploradores*) are often contracted and deployed by the *corredores* to economically depressed areas. These *exploradores* may, in turn, pay local residents a commission per selected vendor or small fee (to spread the word, set up Internet postings, establish ties with family members, etc.). After accepting the terms of trade, the recruits are introduced to the client network established by the *corredor* (as patron). These web-like networks consists of people who handle vendors' meals, transportation and accommodation, facilities that conduct pre-testing and evaluation, doctors and hospitals for transplantation procedures, and matching agencies and *intermediarios* for organ buyers. According to several surveyed vendors, local politicians and law-enforcers could get involved in the underground trade when their own family members and friends function as *corredores* and scouts. Contributions in cash and in-kind are usually made to these corrupt government officials by doctors, hospitals and agencies in exchange for recommending them to handle various phases of sale and transplantation.

Table 3 further indicates that at least 60% of organ vendors were paid less than US$ 2,000.00 (4,017.00 COP in 2009 values). The median cash compensation in Colombia for a kidney was approximately US$ 1,712.00 (3,438.00 COP) and US$ 1,881.00 (3,778.00 COP) for liver parts. Very rarely did organ vendors receive anything more besides cash payments. In contrast, vendors from some countries receive "gratuities" and other valuable considerations (e.g., medical insurance, life insurance and livelihood assistance) as part of their total compensation package (Padilla 2009). These findings tend to confirm that Colombian black market prices for transplantable organs are among the lowest worldwide. By comparison, the black market price for a kidney (exclusive of gratuities and other valuable considerations) in the US is at least US$ 30,000, US$ 10,000.00–20,000,00 in Israel, US$ 7,500 in Turkey and US$ 6,000 in Brazil. Liver parts command higher prices in these countries (Uy 2008; Dailey 2009).

When asked why they accepted the (comparatively low) prices they were offered, almost everyone in our vendor sample indicated a desperate need for cash and lack of pricing information (e.g., personally convinced that the price was high enough or was the "going rate," used their low incomes as reference point, had no other basis for comparison, etc.). In most instances, the black market price was exclusively fixed or approved by brokers. Such information asymmetry—at the vendor's expense—helps sustain the Colombian organ traffic.

Vendor compensation-fixing is illustrated in Fig. 1. Theoretically, the fair market price for a healthy organ (as exemplified by global black market prices) is where supply and demand levels meet (i.e., the intersection of P^1 and Q^1). When Bogotá and Medellín *corredores* set a ceiling to a

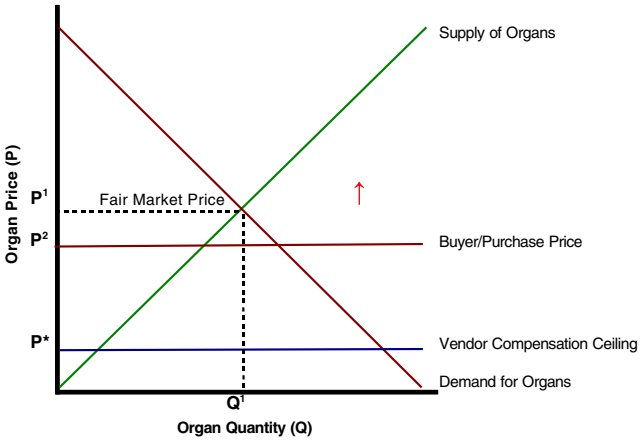

Fig. 1 Vendor compensation ceiling and organ pricing

vendor's compensation or asking price (P*), which is well below the fair market price, an incentive arises for *corredores* to offer a lower buyer price (P^2), if only to be competitive with other organ suppliers, both within and outside Colombia. The area between P* and P^2 represents the *corredor's* excessive profit margin. A *corredor* gains greater profit if s/he chooses to set the organ buyer's price at a higher rate to take advantage of global scarcities (the arrow in Fig. 1 denotes the possibility of a purchase price equal to or higher than the fair market price).

Current Colombian policy prohibits organ donations to unrelated recipients. However, of those we surveyed, only 3.9–11.9% donated to whom they claimed were related recipients (mostly family members and friends). In contrast, 87.4–95.4% of vendors and recipients were unrelated. Table 3 further indicates that between 57.6–65.6% of the surveyed vendors sold their organs to foreigners/buyers of foreign descent, most of whom were Japanese, Americans, and Middle Easterners. Only 18.5–26.5 sold to Colombians/buyers of Colombian descent. These findings demonstrate the fourth major aspect of the underground kidney trade in Colombian: a (*generally open, brokered* and *compensation-based*) market that involves *unrelated sellers and buyers, many of whom are foreigners*.

The underground organ economy in Colombia thus creates and sustains its own paradox: Pricing and transactions involving a transplantable body part do not typically depend on the forces of supply and demand, but upon third party brokerage. The market power of *corredores*, in turn, is a result of the incapacity of the organ vendor and buyer to transact directly. The *transaction costs*[1] of using the market for a direct trade may be simply too high (e.g., many Colombians are unlikely to visit poor and unsafe areas, while foreigners have limited time and other resources to search for a compatible donor). Even if there were amenable sellers and willing buyers, the organ trade is not guaranteed to take place as efficiently as could be possible under other, more favorable circumstances. Hence, although neither consumers nor producers, *corredores* financially benefit the most from illicit but open buy-and-sell transactions almost without fear of legal sanction/retribution. Scarcity has long been a key driver of the global organ market. But in countries like Colombia, patients are dealing with signs of relative surplus if they transact illicitly given the ease with which a healthy organ from a live donor can be found, the publicly visible nature of organ transactions, relatively low purchase prices, lack of price competition among sellers, and transplantation in accredited, first-rate hospitals.

Posttransplant outcomes

Full compensation of an organ vendor appears to be the terminal point of an underground organ transaction in Colombia. Surveyed vendors indicated that the cash payments are usually made on an incremental (rather than one-time) basis, with the balance paid to the vendor after the transplant is completed. Except in rare cases of cheating or confusion with the monetary terms of trade, most vendors said they received whatever little cash compensation they were initially promised by organ *exploradores*, *corredores* and other third parties.

Although several vendors indicated two or more objectives in Table 3, the need for (immediate) cash was the primary consideration for organ selling (87.4–95.4%) due to their heavy debts, unpaid bills and financially dependent family members. Ironically, when we asked if they personally felt that the total compensation they received improved their overall economic outlook or condition, only 17.9–25.9 replied in the affirmative, as Table 4 shows. The cash they received was mostly used up to pay debts and household expenses in a matter of weeks or sometimes days. Table 4 also indicates that neither material nor lifestyle improvements resulted from the compensation that organ selling yielded from the view of the overwhelming majority of organ vendors (over 80%).

We discovered that it is rare for a Colombian vendor to be offered some type of postoperative care once he/she had been fully compensated. Postoperative care would typically include follow-up visits/check-ups, testing, monitoring/documentation, additional hospital stays for complications, rehabilitation, anti-rejection and other drug prescriptions, etc. Table 4 shows that only between 4.6–12.6% were offered postoperative care. Less than 12% of all our surveyed vendors actually received it, whether partially or completely.

[1] *Transaction costs* are costs incurred by buyers and sellers that are not directly related to the production and transport of the commodity in question. They include information searches, contracting, bargaining, marketing, advertising, policing and enforcement.

Table 4 Vendor post-transplant status (n = 151)

Status	% Distribution
Postoperative care [a]	
Offered to vendors	8.6 [b]
Not offered to vendors	84.1
Uncertain if offered	5.3
Health status [c]	
Personal health problems (e.g., hypertension)	40.4
Work-related physical pain	71.5
Mental/emotional stress, anxiety, etc.	17.9
Other (e.g., sexual dysfunction)	9.3
Economic status [c]	
Improvement in savings/income	11.9
Improvement in employment/job-search opportunities	15.2
Lifestyle Improvements (e.g., social, recreational opportunities)	8.6
Improvement in personal economic/financial outlook	21.9

[a] Total <100 due to non-response rate

[b] 7.9% of all surveyed vendors went for some/all postoperative visits

[c] Total >100% due to multiple responses

In terms of personal health condition and risks, more than two-thirds of organ vendors (67.5–75.5%) reported various lingering physical problems in performing labor-intensive work in just a few weeks following their surgery and recovery. Around 40% of them reported deterioration in health status due to problems or complications that eventually arose (e.g., hypertension, infections, etc.). Between 13.9 and 21.9% also reported mental and emotional issues not long after organ transplantation.

One could infer from the results shown in Tables 3 and 4 that the "donor" concept in the underground organ trade refers to the living source rather than to the socio-psychological role in which altruism is supposed to be embedded, at least from the perspective of Colombian law and public health policy. Colombian vendors, mostly from impoverished farming, manufacturing and slum/squatter areas, seek to "donate" for immediate personal gain. Apart from wealthier Colombians, the recipients often come from the US (owing to ease of travel and proximity), Japan and Middle Eastern countries that find human organs in Colombia both highly accessible and inexpensive. After transplantation is completed, vendors and recipients go their own separate ways without expecting to have any other future contact/relationship. Over one-half of our surveyed vendors indicated that they would not recommend to anybody selling their organs and tissues; they would not have gone through any transplant procedure had they been aware of its negative health-related consequences.

Legal and regulatory framework

A careful examination of Colombian organ transplant laws and regulations reveal the depth and breadth of their objectives, scope and means of compliance. However, we find that what is legally prescribed or proscribed could be effectively undermined by structural and behavioral factors as well as the unintended consequences of legislation and regulation, as we illustrate below:

Law 9 of 1979 This initial legislation remains as the overarching institutional and regulatory framework for donation, transplantation, preservation and therapeutic use of human organs and other anatomical parts. It has been enhanced over the years by various amendments, particularly Law 73 (1988) and National Decree 1172 (1989). Collectively, their key provisions include: (1) a legal presumption of consent, which considers all Colombians as organ donors upon death, unless documented opposition exists either from the deceased during his/her lifetime or family members at the time of his/her death; (2) recognition of brain death as a cadaveric source of organs, tissues and other body parts; (3) legally permissible instances of, and procedures for, organ donation, procurement, storage, transport, testing and therapeutic use; (4) recognition of organ donor rights (including privacy rights); (5) prohibition against organ exportation and unlawful use; (6) violator sanctions and penalties that state agencies may impose. In 2004, the Colombian Congress further amended Law 9 by passing Law 919 (2004) to criminalize organ/tissue trading and marketing.

Presumed consent is a relatively unique model of cadaveric donation. Along with the legal recognition granted to brain death, Law 9, as amended, was designed to address a perennial stumbling block: a string of Colombian legal procedures to obtain organs in a timely manner and in suitable condition for transplantation, since cell decomposition begins, in most instances, while relatives of the deceased are being notified. These pre-1979 procedures often made it impossible for organs and tissues to be transplantable. However, the objectives of Law 9 and related legislation have not been successfully realized because of religious and socio-cultural reasons. As an Andean nation steeped in Catholic values (e.g., the Catholic Church controls much of the educational system), family members typically object to cadaveric organ procurement to preserve the deceased body's physical integrity and in the belief that its "desecration" will disturb his/her afterlife to their detriment (Moreman 2008). There is also a lack of infrastructure, organ procurement coordination and institutional resources for cadaveric organ donations. Its unsuccessful promotion has, in turn, encouraged the growth of the illicit organ trade.

Monitoring of and compliance with safeguards against organ trading have proven to be key stumbling blocks since 1979 due to state corruption and administrative bottlenecks. As shown in our survey, law enforcers are often part of the vast patron-client networks of brokers who are directly or indirectly (through family members and friends) involved in finding and transporting prospective vendors, and connecting them with organ buyers and *corredores*. In the mid-1990s, the President of Colombia formed *Humanitas*, a special police unit, specifically tasked with destroying the then-emergent human cartels (child kidnappers and organ traffickers). However, an international report indicated that no less than fellow police and right-wing gunmen have been accused of seeking to clear Colombian cities of "undesirables" by removing many homeless people off the streets and causing their disappearance to obtain and sell their body parts (Reuters, 1996). Many Colombians have taken an attitude of indifference or tolerance toward organ traffickers out of concerns for their personal peace and safety. For their part, government authorities generally tend to deny or ignore the existence of organ trafficking, as exemplified by Colombia's top health agency, preferring instead to stress that legally permissible donation and transplantation conditions, procedures and facilities are already in place (Instituto Nacional 2009).

National Decree 2493 of 2004 This regulation amended Laws 9 and 73 in response to new trends in organ trading (e.g., online trading, cash payments and gratuities to family members, etc.). There was also growing public perception that foreigners were being priority wait-listed for organ transplantation. By 2005, a total of 235 foreigners represented close to 15% of all organ transplant recipients in Colombia (Casas 2008). Of that figure, Japanese and Israeli recipients constituted a combined total of 37.4%, followed by Americans, Latin Americans and Caribbeans (Casas 2008).

Decree No. 2493 reformed organ donation and transplantation requirements and procedures and the operation of the National Network for Organ Donation and Transplantation. It provided that: (1) all available means shall be exhausted to offer any transplantable organ to Colombians before foreigners (Colombian first-policy); (2) all transplants, including those on foreigners, have to be authorized by Colombia's national health agency; (3) any for-profit marketing/advertising of organs, payments made to private individuals/entities by organ recipients, and cash payments and/or gratuities made to donors and their family members are illegal.

Several factors constrain the effective implementation of Decree 2493. Organ/tissue donation in Colombia, for one, remains anonymous; doctors/hospitals must keep any information about the donor in strict confidence (even to donors' relatives) (Rensa 2008). These have made proscriptions of compensation and disclosure of the number of foreign recipients often difficult to monitor. Reports also indicate that several Internet websites of dubious legitimacy have been set up to offer foreigners new livers and kidneys in Colombia within 90 days or less. They suggests the possibility of using organ vendors to meet the 90-day guarantee (Fabregas 2007). Colombia's relative proximity to the US has helped establish it as a destination for transplant and other medical tourists seeking cheap operations (WHO 2005). One Arizona-based for-profit company set up offices in Colombia in 2007 continues to offer its clients a complete organ transplantation package (travel, hotel accommodation, meals, testing/evaluation, surgical procedures, post-surgical care, etc.). It received wide media coverage when some Colombian doctors complained that they were named in the organization's print and online marketing materials as part of its attending medical staff (Fabregas 2007). Finally, some of our surveyed vendors described ways and means for foreign organ recipients to circumvent the Colombian-first policy. These include brokered, short-term marriages to Colombian organ vendors, transport of Colombian vendors to neighboring South American countries and the US for transplantation, and covert surgical procedures performed in private and adequately staffed facilities in Bogotá, Medellin, Cali, Baranquilla and other cities.

Law 985 of 2005 By the late 1990s, Colombia had been classified by some international organizations as an "origin and destination" country for trafficking in body parts. Based on a 2000 United Nations (UN) protocol (UN 2000), Law 985 was passed by the Colombian Congress to address trafficking for sexual exploitation, labor exploitation, servile marriage and organ transplantation. Colombia's National Committee against Trafficking in Persons, composed of 14 state institutions with support from the UN Office on Drugs and Crime, was created to formulate a national strategy, including prevention and prosecution of organ trafficking and referral and assistance programs for its victims (Danziger 2006).

Law 985's main defect lies in its restrictive scope. It defines trafficking as the recruitment, transportation, harboring or receipt of persons, by means of the threat or use of force, coercion, abduction, fraud, deception, abuse of power or payments and benefits. Hence, it does not technically consider organ selling illegal provided the vendor consented and cooperated (e.g., by not reporting a paid transaction). Organ trafficking and unrelated donations only escalated in Colombia after its passage. Since 2005, the WHO has consistently classified Colombia as one of the top three or four organ "hotspots" in the world (WHO 2005).

Discussion

One key insight from this study is that consensus exists within Colombia's government and among its people concerning the need to eradicate organ trafficking. At the same time, there is considerable conflict within government agencies and hospitals because various authorities directly or indirectly benefit from ensuring that trafficking persists. For these reasons, the organ black market is not effectively regulated by law-enforcement agencies. The legal and regulatory measures examined in this study have done little to achieve their policy objectives. We find the distinction between legal and illicit transplantation ambiguous. Such ambiguity, in turn, confers some semblance of legitimacy to underground trading for the following reasons:

Lack of public awareness Policy implementation will be ineffective if existing rules and prohibitions are not common public knowledge. Our survey of organ vendors indicates that 70.8–78.8% either did not know it was illegal to sell their organs, or were unaware of the existence of such measures (Table 5), each of which is particularly lengthy and written in strict *legalese*. In contrast, organ and tissue trading assumes an open or public character. Without a grassroots-based strategy aimed at educating people about health risks/hazards and health promotion programs, organ traders will likely find it economically inefficient to distinguish between what is legal and prohibited in donation and transplantation.

Public indifference and tolerance One cornea vendor from Bogotá underscored the prevailing attitude of tolerance or indifference among many Columbians. He claimed that human organ cartels are no different from the way the country's drug cartels and mafias operate, except that the former directly provides poor and unemployed Colombians with a source of income. Attitudinal and perception changes are crucial in increasing public awareness of the organ trade and pertinent laws and regulations that distinguish legal from underground transplants. The mass media can be a vital partner in anti-trafficking information campaigns, since government officials and agencies tend to be slow or reluctant in addressing a problem until an actual controversy (as reported by the media) arises.

Table 5 Vendor awareness of legal prohibitions on organ selling (n=151)

Vendor response	% Distribution
Aware	17.2
Unaware	7.4
Uncertain/no response	8.0

Inadequate and inconsistent monitoring Inefficient monitoring due to resource constraints and lack of coordination remains a challenge for government agencies, especially in developing countries like Colombia. They embolden market participants and subvert policy intent. Credibility of law-enforcing agencies, as exemplified by the challenges that *Humanitas* faced in the 1990s, is part of the problem. As one of our surveyed liver vendors aptly noted, "Who should police the law-enforcers when they are often associated with people who have turned organ trading into their means of livelihood and source of clout?" (translation from Spanish).

Duplicate participants and functions 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. Recipients pay huge sums for new organs, but most of them go to *corredores* and other third parties, including some doctors/medical facilities that locate poor donors presumably for the government's organ/tissue banks and donation/transplantation networks. Corruption needs to be addressed. Effective law enforcement helps connect legislation to the regulation of economic behavior.

Unintended regulatory consequences and implications While regulatory measures may prohibit organ marketing and selling, self-contradictory provisions and policy loopholes create reverse incentives (to trade illicitly). Restrictions on foreign recipients do not necessarily suppress organized crime and could have the opposite effect. Brokered sham marriages, online trafficking and "street cleansing" by law-enforcers illustrate this point, while syndicates are forced to go deeper in their covert operations. Crafting legislation or public policy cannot be restricted to legal or textual provisions. It needs to address these unintended opportunities that may arise to subvert its own intent.

Relative insulation of commodity brokerage A prevailing issue concerns the legal burden disproportionately placed on the poor and disadvantaged as organ vendors. Conversely, brokers who stand to profit the most are relatively shielded from a law-enforcement standpoint in the absence of broker-specific penalties. Without brokers, it is doubtful if many prospective vendors will find organ buyers and their intermediaries. Without incentives (e.g., cash rewards) to report these brokers and their patron-client networks, and swift government action, the underground organ trade will continue to flourish, entrench market injustices based on ability-to-pay and dent government reform efforts.

Sociological aspects of trade Colombia permits organ donations to emotionally related as well as unspecified recipients out of consideration for socio-cultural values (e.g., extended family, altruism as defined by Decree 2493, etc.). The examples of how to distinguish genuine emotional ties from those that are brokered overnight (e.g., short-term marriages to circumvent the foreigners ban) or how to address genuine but paid organ donations to related recipients underline gray areas in legal compliance. They arise in many developing countries where reward-based, patron-client ties can be cemented within a short period of time and are crucial to individual goal achievement.

Minimal transaction costs in brokered trading Low transaction costs to organ buyers and sellers owe to the ease of information exchange, speed of transplant arrangements, broker price-fixing, transplantation in top-quality hospitals, and direct involvement by politicians and law-enforcers. Compliance monitoring is insufficient and costly without the benefit of effective law enforcement. That, in turn, demands creative policing and prosecution strategies (e.g., adequate and immediate media coverage) to cope with ever-changing trading environments (e.g., online, transplantation in neighboring countries) and rules (e.g., contracting by *exploradores*).

Conclusions

The Colombian experience in organ donation and transplantation yields valuable policy insights that are transferable to other countries, particularly where the poor constitute the bulk of the population, and economic access and competitive prowess are highly skewed in favor of the upper-income classes: (1) Grassroots-based educational and health promotion strategies are essential in curbing organ trading considering the socio-demographic profile of the vast majority of its vendors; (2) a well-designed mix of supply-side and demand-side incentives complements law enforcement (e.g., cash incentives to report illicit buy-and-sell transactions and swift government action with on-the-spot media coverage may be more effective in criminal deterrence); (3) the postoperative care and long-term health of donors after should be given equal attention (e.g., making organ recipients partly responsible for the donor's health care to promote an equitable transplantation model); (4) policy debate should not be confined to legitimacy issues (e.g., prohibition and punishment of compensated donations), but should address other vital aspects of transplantation, including better renal care programs, public acceptability of the cadaveric organ model and health risks/hazards of illicit organ selling; (5) cost-benefit analysis of legal and regulatory measures relating to the underground organ commerce should consider their unintended behavioral consequences to avoid piecemeal health policies.

The foregoing implications are not meant to suggest that public indifference and legal/regulatory initiatives to address organ commerce, in places like Bogotá and Medellín, are unimportant. One main effect has been to draw attention to third-party brokerage and patron-client ties that perpetuate market inequities and dent reforms in the allocation of transplantable organs. Another raises the intertwining issues of institutional capacity and corruption within government agencies in the enforcement of applicable laws and regulations. Finally, the empirical evidence obtained from Bogotá and Medellín offers a challenge for governments to look beyond the availability of legal and regulatory restraints and remedies. Why and how these can be effectively undermined by organ trade participants without necessarily affecting or reversing their economic behavior are pressing issues that demand immediate attention.

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