

Appendix I Types of Settlement for Hawala Intermediaries' Remittances

Table A1.1. Settlement via Reverse Hawala Transaction from Country B to Country A

Reverse Transaction (Note: Simple exact balancing of initial transactions highly improbable because A to B remittances > B to A remittances.)

Remittance Sender, Country B		Remittance Recipient, Country A	
Assets	Liabilities	Assets	Liabilities
- LC (cash)	- LC (net worth)	+ \$ (cash)	+ \$ (net worth)
<i>(Net worth of remitter declines)</i>		<i>(Net worth of recipient increases)</i>	

Hawaladar B (HB)		Hawaladar A (HA)	
Assets	Liabilities	Assets	Liabilities
+ \$ (cash)	+ \$ (HA)	- LC (cash)	
		+ \$ (HB)	

Summary of Hawaladar Accounts, Including Reverse Transaction

A to B Remittance

Hawaladar A (HA)		Hawaladar B (HB)	
Assets	Liabilities	Assets	Liabilities
+ \$ (cash)	+ \$ (HB)	- LC (cash)	
		+ \$ (HA)	

B to A Remittance

Hawaladar A (HA)		Hawaladar B (HB)	
Assets	Liabilities	Assets	Liabilities
- \$ (cash)		+ \$ (cash)	+ \$ (HA)
+ \$ (HB)			

Table A1.2. Bilateral Financial Settlement Through Bank in Country A

After Customer Remittance Transaction (see Table 3.1)

Hawaladar A (HA)		Hawaladar B (HB)	
Assets	Liabilities	Assets	Liabilities
- \$ (cash)	- \$ (HB)	+ \$ (BA) - \$ (HA)	

Bank A (BA)	
Assets	Liabilities
+ \$ (investments)	+ \$ (HB)

Note: HA deposits \$ in HB's bank account; bank intermediation assumed. Bank A is in country A; exchange controls may impede settlement in country B.

Table A1.3. Bilateral Settlement via Exports to Country B

After Customer Remittance Transaction (see Table 3.1)

Hawaladar A (HA)		Hawaladar B (HB)	
Assets	Liabilities	Assets	Liabilities
- \$ (cash)	- \$ (HB)	- \$ (HA) + \$ (goods)	

Note: HA pays for exports shipped to HB.

Table A1.4. Clearing by Means of International Services for HB Paid for by HA

After Customer Remittance Transaction (see Table 3.1)

Hawaladar A (HA)		Hawaladar B (HB)	
Assets	Liabilities	Assets	Liabilities
- \$ (cash)	- \$ (HB)	- \$ (HA)	- \$ (net worth)

Note: HB purchases services from country A; these services paid for by HA, e.g., Pakistan Hajj sponsorship scheme; HB's net worth declines due to services expenditure.

Table A1.5. Clearing by Means of Nonbank Capital Flows

After Customer Remittance Transaction (see Table 3.1)

Hawaladar A (HA) ¹		Hawaladar B (HB) ²	
Assets	Liabilities	Assets	Liabilities
- \$ (cash) ¹	- \$ (HB)	- \$ (HA) + \$ (shares)	

Nonbank Entity ²	
Assets	Liabilities
+ \$ (cash)	+ (shares) (HB)

¹HA purchases securities, real estate, and so on, in the name of HB, using cash provided by hawala customer.

²HB thereby exchanges claim on HA for external portfolio assets.

Appendix II Formulation and Simulation of the Quantification Model

This study used a simple model of hawala remittances constructed for 15 recipient countries that met certain conditions for informal activity, principally (1) appreciable numbers of nonresident nationals, (2) a history of parallel exchange markets with statistically available data on parallel rates, and (3) available statistics on recorded private transfers. For present purposes, the countries selected were Algeria, Bangladesh, Ecuador, El Salvador, Guatemala, India, Indonesia, the Islamic Republic of Iran, Pakistan, the Philippines, Sri Lanka, Sudan, Tanzania, Turkey, and Zimbabwe.³⁹ In each case the model was applied to cover experience from 1981 to 2000, using officially compiled balance of payments data on inward private transfers and information on parallel market exchange rates, if any, as well as applying the information mentioned above.

The model has the following form for each country examined. The estimated share of hawala remittances in total private transfers is specified as

$$R/I/R = a + bB + cB^2 - dB^3,$$

where

- RI = informal remittances/transfers;
- R = total remittances/transfers;
- RP = recorded private transfers in the BOP accounts of each country;
- $R = RI + RP$ (thus, $R = RP/[1 - RI/R]$);
- B = "black market premium" (in percent of the official rate) on the currency;
- MIN = intercept (= a), that is, minimum share of "hawala" in total remittances (when $B = 0$); and
- MAX = maximum share of informal transfers in total (when B is high).

The model is specified as a cubic function on the assumption that the "hawala share" of total remittances starts at some generally nonzero level if/when $B = 0$, and rises through a certain range of values for B , reaching a peak at some value beyond which $R/I/R$

stabilizes at $MAX (R/I/R)^* < 1$. Obviously, this is just a way of saying that hawala transfers cannot exceed total remittances, measured and unmeasured.⁴⁰ Assumptions play a large role in this model, because RI cannot be measured directly, and there is no obvious way to assess an error structure in estimation.

To further parameterize the structure, we assume that the inflection point in the curve traced by this model occurs at a value of $B^* = X$, and the maximum value of the hawala share, say $(R/I/R)^* = MAX$, is reached at $Y = 2X$.⁴¹ For values of $B > Y$, it is assumed that $R/I/R$ stabilizes at MAX. That is, at least some small portion of total transfers will continue to go through recorded channels, no matter how strong the exchange rate incentive to use unofficial ones.

The contour of this reaction function (that is, $R/I/R$ responding to exchange market incentives) seems to be plausible, but the model has to be imposed on available data. Results are obtained by selecting values of the intercept MIN and MAX and X , according to country characteristics and exchange rate experience. For instance, many observers have noted that hawala is deeply entrenched in Pakistan, which suggests the choice value of MIN for Pakistan is well above zero and that of MAX would be high, say around 0.9. That is, the assumptions for Pakistan suggest that hawala remittances may be substantial, even if B is not exceptionally high, and high levels of B may not be needed for hawala remittances to account for a large share of the total.

Another factor to be considered—in choosing "X," in particular—is the exchange rate history of each country in the sample. In some countries there may be parallel markets, but without large or sustained divergences over time between official and black market rates. In others, for example, Algeria or the Islamic Republic of Iran, there is a long history of parallel exchange rates that are far above official rates. This difference in experience raises the analyt-

³⁹Mexico and others might be included, but in such cases there is no "documented" history of black market exchange rates.

⁴⁰The cubic form suggests a response that first accelerates, and then decelerates, as B rises from zero toward some level at which hawala remittances reach a peak relative to the total.

⁴¹For $Y = 2X$, the solution value for b equals zero. Other solution values result when $Y = 3X$ or other possible formulations.

Table A2.1. Parameter Values Used in Informal Hawala Estimates

Country	Intercepts ($R/I/R$)		Black Market Exchange Rate Premium (B)	
	MIN ¹	MAX ¹	Inflection (X) ²	Peak (Y) ^{2,3}
Algeria	0.2	0.8	100	200
Bangladesh	0.2	0.8	50	100
Ecuador	0.1	0.7	20	40
El Salvador	0.2	0.8	50	100
Guatemala	0.1	0.7	20	40
India	0.1	0.7	15	30
Indonesia	0.2	0.9	20	40
Iran, I.R. of	0.1	0.7	50	100
Pakistan	0.4	0.9	20	40
Philippines	0.05	0.6	10	20
Sri Lanka	0.2	0.9	20	40
Sudan	0.1	0.7	20	40
Tanzania	0.1	0.7	20	40
Turkey	0.1	0.6	10	20
Zimbabwe	0.1	0.7	40	80

¹Expressed as $R/I/R$.²Black market exchange rate premium over official rate (%).³As implemented, $Y = 2X$.

ical problem of how such countries respond compared to those in which divergences have not been so extreme or protracted. If there is, say, a 100 percent divergence in exchange rates, would a country in which 100 percent might be "below average" have the same degree of hawala remittance activity as a country where this same divergence might be above average? For purposes of this exercise, at least, we assume that "peak levels" of hawala activity occur at *higher* levels of exchange rate divergence (B) in countries with a history of large divergences than for those with a history of small divergences. Thus, peak activity ($R/I/R$) for Algeria, for example, might be reached at a level of B that is well above the maximum for the Philippines.

Figure A2.1 shows the general form of the simulation function. In this figure, $MIN = 0.1$, $MAX = 0.9$, $X = 50$, and $Y = 100$.

Parameter choices for the 15 countries included in our sample are shown in Table A2.1.

It is noted again that selected values are judgmental, based on our current understanding of the factors that bear on hawala remittances in each of these countries. While these enable us to obtain estimates, readers are at liberty to experiment with alternative specifications and parameter values based on different assumptions.

Tables A2.2–A2.5 provide an overview of the results of this experiment. These numerical results are only specimens for the 15 included countries, but it is hoped they are illustrative of the potential real world scale of informal payments activities.

Table A2.2 provides a summary overview of the results of this experiment for the entire period.

Table A2.3 displays private current transfers as recorded in national balance of payments statistics and reported to the Fund, usually for publication in *International Financial Statistics*.⁴² These series are the data captured by national compilation systems (i.e., those transfers that pass through "sanctioned" channels) but, even there, the measurements are not infallible.⁴³ Recorded series are merely a rough benchmark to help scale hawala as described above.

Table A2.4 provides time series on approximate black market exchange rate premiums (B), from the sources discussed above and as compiled by the World Bank. This is the second crucial ingredient in making hawala estimates with this particular model. It should be noted, in particular, that the history of black market premiums is quite divergent across countries, and also that in most cases the black market premium tends to decline noticeably from the early 1980s to the late 1990s.⁴⁴

Time-series-simulation results for $R/I/R$ (the hawala share) for each of the 15 countries are given in Table A2.5, which can be examined in conjunction with parameter values displayed in Table A2.1.

⁴²Not all the countries in this sample compile and report complete BOP data for use in the IMF's *Balance of Payments Statistics Yearbook*.

⁴³Note, for instance, anomalies in the transfers/remittances statistics of Pakistan and Philippines.

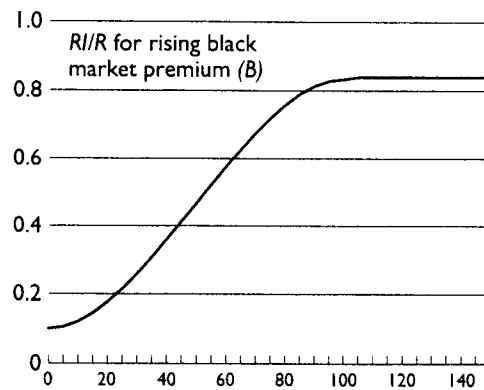
⁴⁴It is tempting to surmise that Fund advice influenced this result, but it is impossible to know for certain.

Obviously, these results are bounded by MIN and MAX for each country, so somewhat different values could be obtained if an analyst varies these parameters. The lowest intercept for $R/I/R$ is .05 for the Philippines, for reasons discussed in the text, and the highest value for MAX is 0.9, which applies to Indonesia, Pakistan, and Sri Lanka. However, with the values chosen for X and Y , there are few instances where these levels are reached.⁴⁵ At the same time, given the parameter choices, details in Table A2.5 suggest that the "hawala share" of remittances can be large for many of these countries.

Results. Results of this exercise suggest that the amount of informal remittances around the world can be considerable, especially in view of the fact that only a subset of participant countries is included here. If these results are in any way indicative of actual trends, the global total for informal remittances could amount to billions of dollars. Table A2.2 summarizes total recorded (RP) and constructed unrecorded (RI) private transfers for each of these countries across the 20-year sample, and the "average" share of unrecorded transfers over this period for each of them. For some of the countries (e.g., Algeria, Bangladesh, the Islamic Republic of Iran, and Pakistan) the results are notably high, and

⁴⁵As X and Y are lowered, of course, it becomes easier to "bump these ceilings" and therefore raise the amount of estimated hawala.

Figure A2.1. Estimating Function for Hawala Share in Total Private Remittances



Source: Authors' calculations.

for a few, especially the Philippines, they are modestly low. India, Ecuador, and Guatemala also fall into a "low" category, or less than 20 percent. This is, of course, reflective of the parameters chosen and could be somewhat raised or lowered with different choices.

Time-series perspectives on these results can be seen in Figures A2.2 and A2.3. The first of these

Table A2.2. Summary of Estimated Private Remittances, 1981–2000
(In billions of dollars)

Country	Total	Recorded	Unrecorded	Share of Unrecorded in Total (percent)
Algeria	53	14	38	73
Bangladesh	84	35	50	59
Ecuador	9	7	2	18
El Salvador	25	15	9	38
Guatemala	8	7	1	16
India	143	120	23	16
Indonesia	16	12	4	23
Iran, I.R. of	98	31	70	68
Pakistan	136	62	75	55
Philippines	55	50	5	9
Sri Lanka	23	14	9	38
Sudan	15	7	9	55
Tanzania	19	8	11	58
Turkey	87	72	14	17
Zimbabwe	6	3	3	44
Total	776	456	319	41

Source: Authors' calculations.

Table A2.3. Recorded Private Current Transfers
(In millions of U.S. dollars)

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Algeria	513	529	414	350	529	917	628	477	603	400	269	500	1,100	1,400	1,100	900	1,060	1,060	790	790
Bangladesh	933	1,295	1,429	1,266	1,182	1,218	1,503	1,633	1,397	1,614	1,812	1,809	1,952	2,091	2,267	1,913	2,137	2,173	2,501	2,426
Ecuador	35	30	38	25	85	51	135	104	106	119	123	134	318	391	506	616	738	933	1,188	1,437
El Salvador	75	210	154	176	187	252	337	348	438	525	627	853	1,005	1,291	1,393	1,259	1,364	1,534	1,566	1,830
Guatemala	97	66	34	32	21	76	196	228	255	218	277	406	371	456	508	537	629	743	754	911
India	3,026	2,939	3,075	2,789	2,799	2,638	3,034	2,739	3,093	2,853	3,736	4,157	5,375	8,208	8,410	11,350	13,975	10,402	11,958	13,504
Indonesia	250	134	114	167	88	259	257	254	339	418	262	571	537	619	981	937	1,034	1,338	1,914	1,816
Iran, I.R. of	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,500	2,500	2,000	1,996	1,500	1,200	800	471	400	500	508	539
Pakistan ¹	2,564	3,175	3,397	3,349	3,095	3,185	2,899	2,760	2,770	2,834	2,890	3,502	2,337	2,919	2,611	2,739	3,981	2,801	3,582	4,188
Philippines ²	546	810	944	659	694	696	809	874	1,002	1,203	1,521	2,222	2,276	3,009	4,928	4,306	5,742	4,926	6,794	6,050
Sri Lanka	389	451	465	504	469	503	530	564	547	579	645	730	795	882	847	881	967	1,054	1,078	1,166
Sudan	404	132	274	307	369	358	332	334	577	143	128	233	85	120	346	236	439	732	702	651
Tanzania	152	136	128	180	394	501	610	643	682	593	504	650	390	312	370	371	314	427	413	406
Turkey	2,575	2,295	1,806	2,131	2,022	2,030	2,456	2,220	3,574	4,525	5,131	4,075	3,800	3,113	4,512	4,466	4,909	5,860	5,294	5,317
Zimbabwe	142	87	95	193	172	170	221	211	211	204	192	347	271	69	149	126	128	115	122	75

Sources: IMF, *International Financial Statistics and Balance of Payments Statistics Yearbook*, various years. Some values obtained from IMF Staff Reports or estimated, where missing—Islamic Republic of Iran, pre-1989; Algeria, post-1992 from published country reports; Zimbabwe, 1995ff.

¹Includes State Bank of Pakistan purchases from the curb market. Fiscal year basis.

²Measured as income of Filipino workers overseas, rather than as actual remittances.

Table A2.4. Black Market Exchange Rate Premiums
(in percent of previous period official rate)

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Algeria	247	266	330	369	389	246	419	416	358	264	83	300	358	250	175	133	125	150	50	50
Bangladesh	41	41	42	45	130	218	211	272	210	199	136	67	40	30	19	19	11	0	0	0
Ecuador	29	96	64	91	85	0	31	38	16	23	19	10	6	5	4	2	5	11	0	0
El Salvador	84	34	98	100	204	82	100	195	85	36	12	12	18	15	15	10	10	11	0	0
Guatemala	22	25	70	24	45	15	33	28	9	22	14	4	5	4	4	2	2	0	0	0
India	9	13	28	16	17	8	13	14	12	15	18	4	5	5	6	6	3	2	2	2
Indonesia	4	1	0	2	0	11	16	16	3	1	4	26	9	7	5	0	6	11	5	5
Iran, I.R. of	403	379	320	562	557	977	1,576	1,030	1,965	1,965	3,252	3,360	88	100	150	193	186	150	400	200
Pakistan	41	25	30	11	0	1	19	10	0	6	9	8	8	8	6	6	11	25	20	20
Philippines	6	7	50	1	1	2	8	3	4	6	6	1	2	4	7	9	0	0	0	0
Sri Lanka	6	10	38	32	15	3	2	36	25	16	9	10	6	4	1	1	0	0	0	0
Sudan	3	57	54	102	43	122	85	270	344	915	52	95	78	50	25	10	0	11	5	5
Tanzania	193	205	301	287	281	248	139	100	35	50	59	36	9	8	6	4	7	11	5	5
Turkey	20	15	11	1	0	7	8	9	2	1	6	6	4	4	4	0	4	0	4	4
Zimbabwe	53	51	192	80	53	70	50	47	76	37	50	33	19	15	10	7	16	900	400	400

Sources: World Currency Yearbook for 1985, 1990-93; Wood, 1988; Global Development Finance and World Development Indicators for 1996-97. Certain missing values interpolated by the authors.

Table A2.5. Simulated Shares of Informal Hawala in Total Private Transfers
(In percent of total: $R = RI + RP$)

Country	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Algeria	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.28	0.80	0.80	0.80	0.64	0.43	0.40	0.50	0.23	0.23	
Bangladesh	0.28	0.28	0.28	0.30	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.44	0.27	0.24	0.21	0.21	0.20	0.20	0.20	0.20	0.20
Ecuador	0.38	0.70	0.70	0.70	0.70	0.10	0.43	0.62	0.17	0.27	0.20	0.12	0.11	0.11	0.10	0.10	0.11	0.13	0.10	0.10	0.10
El Salvador	0.60	0.25	0.77	0.80	0.80	0.57	0.80	0.80	0.61	0.26	0.21	0.21	0.21	0.21	0.21	0.20	0.20	0.20	0.20	0.20	0.20
Guatemala	0.25	0.30	0.70	0.28	0.70	0.17	0.47	0.35	0.12	0.25	0.15	0.10	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
India	0.14	0.19	0.60	0.24	0.25	0.13	0.19	0.20	0.17	0.22	0.29	0.11	0.11	0.11	0.12	0.12	0.10	0.10	0.10	0.10	0.10
Indonesia	0.20	0.20	0.20	0.20	0.20	0.24	0.28	0.28	0.20	0.20	0.20	0.45	0.22	0.21	0.21	0.20	0.21	0.24	0.21	0.21	0.21
Iran, I.R. of	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.54	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Pakistan	0.90	0.56	0.65	0.43	0.40	0.40	0.49	0.42	0.40	0.41	0.42	0.41	0.41	0.41	0.41	0.41	0.43	0.57	0.50	0.50	0.50
Philippines	0.09	0.11	0.60	0.05	0.05	0.05	0.12	0.06	0.06	0.08	0.09	0.05	0.05	0.06	0.10	0.14	0.05	0.05	0.05	0.05	0.05
Sri Lanka	0.21	0.23	0.83	0.62	0.27	0.20	0.20	0.75	0.43	0.29	0.23	0.23	0.21	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Sudan	0.10	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Tanzania	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.54	0.70	0.70	0.58	0.12	0.12	0.11	0.10	0.11	0.13	0.11	0.11	0.11
Turkey	0.59	0.36	0.23	0.10	0.10	0.15	0.16	0.18	0.10	0.10	0.13	0.14	0.12	0.11	0.11	0.10	0.12	0.10	0.11	0.11	0.11
Zimbabwe	0.33	0.31	0.70	0.70	0.33	0.54	0.30	0.27	0.63	0.20	0.30	0.18	0.12	0.11	0.11	0.10	0.12	0.70	0.70	0.70	0.70

Source: Estimates are for R/IR , using methodology described in text.

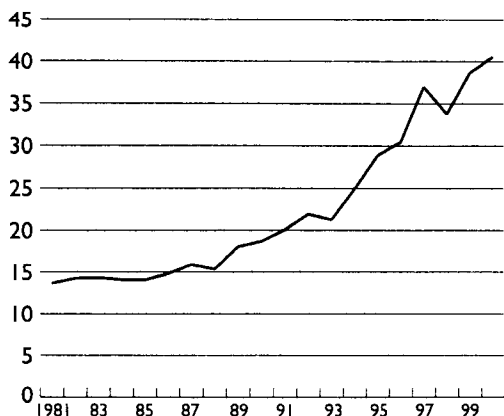
plots the time series of BOP-recorded private transfers over the period in question. Recorded data start in the vicinity of \$15 billion some 20 years ago and rise close to \$40 billion by the year 2000. As suggested by earlier comments, if the share of estimated informal hawala transactions has declined somewhat over this period, the share of recorded transfers in the total likely has increased, so that the 20-year rise in recorded transfers may be somewhat stronger than the background increase in total remittances.⁴⁶

Figure A2.3 provides, in bar graph form, a summary of estimated hawala remittances as a share of the total transfers over the sample period. Given the parameters used in the exercise, hawala remittances appear to have receded from some 50–70 percent of totals during the 1980s to somewhere around 20 percent at the end of the 1990s. This reflects changes in the main determinant of informal hawala transactions, the black market exchange rate premium that, for many countries, retreated to near zero during the concluding years of the decade.

Finally, Figure A2.4 expresses the 15-country total of hawala transfers in dollar terms. The results suggest that informal transfers started high, about \$35 billion per annum, early in the 1980s, then oscillated in the \$15–\$20 billion range through the early 1990s, and finally could have declined to around the \$10

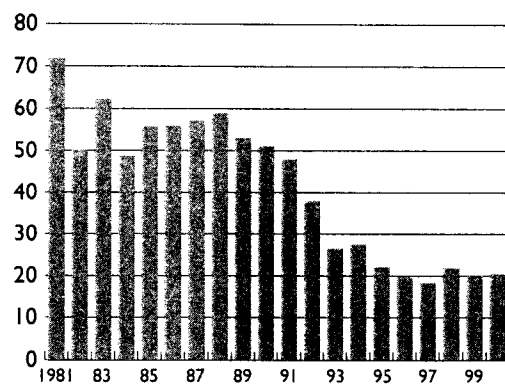
⁴⁶Of course, a decline in the relative share of informal remittances/transfers (*RI*) does not necessarily mean a fall in the absolute values.

Figure A2.2. Recorded Private Transfers
(In billions of U.S. dollars)



Source: IMF, *International Financial Statistics*, various years.
Note: Totals are for sample countries.

Figure A2.3. Estimated Hawala Share in Total Private Remittances
(Percent of total, *RI/R*)



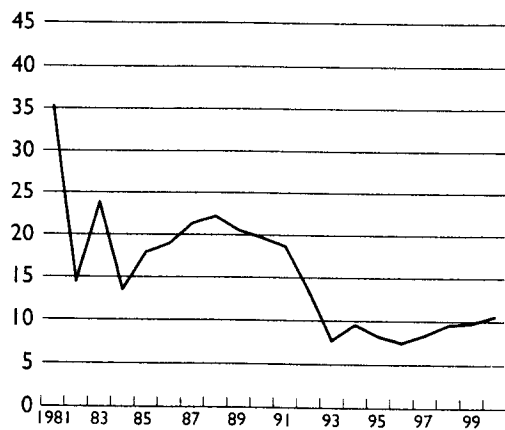
Source: Authors' calculations.

billion per annum range late in the sample period. According to our assumptions, this evolution was driven mainly by the “disappearance” of many black market exchange rate premiums for countries included in the investigation. A decline of estimated informal hawala transactions to even lower annual rates is not likely to occur so long as there are ethnic, geographic, cost, or other factors that influence people to stay away from official channels in favor of unofficial ones.

An important consideration is that these empirical results are merely rough simulations that should not be given undue significance in discussions about IFTs. So far as quantification is concerned, there simply is no known means to get authoritative results, and educated guesses are about the best that can be obtained. If these results have any significance at all, they just suggest that the “amount of hawala” can be fairly significant for certain countries that have the economic and cultural conditions that nourish this business, and certainly larger on a world scale than the figures generated by these selected sample cases. More importantly, these results may also suggest that the growth or decline in the use of IFT systems may be negatively correlated to the level of development of the formal financial sector. Hawala-type operations appear to have been more dominant in countries where financial institutions are inefficient or financial policies restrictive. The seemingly downward trend of hawala system usage in the sample countries may be in response to the international move toward more liberal exchange

Figure A2.4. Estimated Value of Hawala Transfers

(In billions of U.S. dollars)



Source: Authors' calculations.

rate policies and more free floating currencies. Between 1989 and 1995, for example, at least 53 countries moved toward more flexible (adjusted according to set of indicators, or managed or independent float) exchange rate regimes.⁴⁷

The model in the paper is a simulation, not an "estimation," model. It merely identifies the black market premium on exchange rates as a key factor in the economic incentives for remitters to use the hawala channel rather than some sanctioned, official channel, for purposes of sending funds to the home country. There are other factors too, such as cultural norms and costs of the official channel, but they can-

⁴⁷Latter (1996, p. 13).

not be easily quantified in a time-series sense for purposes of an exercise such as this. Thus, black market premiums show up in the model as the principal variable factor that influences informal remittances, but the intercept and peak used for each country endeavor to capture some other influences.

As for black market premiums, these have been (more or less) measured over the years, and they are given in Table A2.4 for all 15 countries. (Incidentally, roughly the same data have been used recently by Reinhart and Rogoff in their paper on the history of exchange-rate regimes.)⁴⁸ The empirical experience shows that, for a number of these countries, this black market premium has tended to decline during the 1990s, but this conclusion does not hold for all of them. It would generally be argued that convergence or unification of formal and informal rates in any country's exchange market represents some improvement in the management of these markets. Usually, this would be the result of policy changes that remove incentives for parallel markets or outright liberalization of official rates and motion toward a floating regime. Thus, it is the empirical evidence on exchange rates (in the sample countries) that suggests there has been some "improvement" in the regimes, but this was not a premise of this experiment.

Given the form of the simulation model, the reduction in overall black market exchange premiums during the 1990s naturally leads to a decline in the relative amount of hawala (compared to total remittances) that the model generates. It was built that way. If other priors are applied to the modeling effort, different results can be generated. Our results are plausible in the coarse sense of showing that the informal channel is potentially "large" when driven by large exchange market incentives, and it tends to recede when costs and incentives in official channels become more favorable. The model results illustrate this.

⁴⁸Reinhart and Rogoff (2002).

Appendix III Regulatory Frameworks for Money Exchange and Remittance Business

Table A3.1. Pakistan

	Money Exchange Business	Money Remittance Business
Regulatory authority	The State Bank is responsible for day-to-day administration of foreign exchange policy, which is exercised through its Exchange Policy Department.	The State Bank is responsible for day-to-day administration of foreign exchange policy, which is exercised through its Exchange Policy Department.
Legal status	Legal: <i>Foreign Exchange Regulations Act, 1947 and Notifications Issued Hereunder.</i>	Illegal: <i>Foreign Exchange Regulations Act, 1947 and Notifications Issued Hereunder.</i> No person in, or resident in, Pakistan shall make any payment to or for the credit of any person resident outside Pakistan [clause 5 (a)]; draw, issue, or negotiate any bill of exchange or promissory note or acknowledge any debt, so that a right (whether actual or contingent) to receive a payment is created or transferred in favor of any person resident outside Pakistan [5(b)]; make any payment to or for the credit of any person by order or on behalf of any person resident outside Pakistan [5 (c)]; place any sum to the credit of any person resident outside Pakistan [5(d)]; make any payment to or for the credit of any person as consideration for or in association with (1) the receipt by any person of a payment or the acquisition by any person of property outside Pakistan and (2) the creation or transfer in favor of any person of a right whether actual or contingent to receive a payment or acquire property outside Pakistan [5(e)]; draw, issue, or negotiate any bill of exchange or promissory note, transfer any security or acknowledge any debt, so that a right (whether actual or contingent) to receive a payment is created or transferred in favor of any person as consideration for or in association with any matter referred to in clause 5(e) [5(f)].
Licensing/registration: Documentation	1. <i>Business Plan</i> : Stating the nature of transactions that are desired to be dealt with. 2. <i>Management</i> : Confirmation that trained staff and the required systems and equipment to handle foreign currency transactions are available.	
Permitted activities	1. <i>Permitted Activities</i> : No person other than an authorized dealer shall in Pakistan, and no person resident in Pakistan other than an authorized dealer shall outside Pakistan, <i>buy or borrow from, or sell or lend to, or exchange with</i> , any person not being an authorized dealer, any foreign exchange. 2. An authorized dealer may have dealings in all foreign currencies or may be restricted to authorizing dealings in specified foreign currencies only; may be authorized to engage in transactions of all	

Table A3.1 (continued)

	Money Exchange Business	Money Remittance Business
	<p>descriptions in foreign currencies or may be restricted to authorizing specified transactions only; may be granted authority for a specified period, or within specified amounts.</p> <p>3. No person whether an authorized dealer or otherwise, shall enter into any transaction which provides for the conversion of Pakistan currency into foreign currency or foreign currency into Pakistan currency at rates of exchange <i>other than the rates for the time being authorized by the State Bank</i> [clause 4(2)].</p>	
Prudential regulation	<p>1. <i>Customer Identification Records:</i> Authorized Operators should, before approving any transactions, satisfy themselves about the bonafides of the applicant and the genuineness of the transaction by verifying the necessary documents. They should ensure that the applications are on the prescribed forms, wherever such forms are prescribed, and are supported by appropriate documentary evidence. In all these cases it will be deemed that they have satisfied themselves about the bonafides of the applicants and the correctness of the statements made by them on the application and the accompanying documents, if any.</p> <p>2. <i>Disclosure:</i> Authorized Operators are required to bring the Foreign Exchange regulations to the notice of their customers and to ensure compliance in their day-to-day operations.</p> <p>3. <i>Suspicious Transactions Reports:</i> Authorized Operators should also report to the State Bank every case of evasion or attempt, direct or indirect, at evasion of the provisions of the Act and Notifications or any rules, orders or directions issued thereunder, immediately as it comes to their notice [3 (4)].</p> <p>4. <i>Prudential Reports:</i> Authorized Operators must submit to the State Bank returns of their dealings in foreign exchange on due dates in the forms prescribed in the Manual.</p>	
Supervision		<p>1. Where any person is tried for contravening any provision of this Act or of any rule, direction, or order made hereunder which prohibits him from doing an act without permission, the burden of proving that he had the requisite permission shall be on him [24(1)].</p> <p>2. If in a case in which the proof of complicity of a person resident in Pakistan with a person outside Pakistan is essential to prove an offense under this Act, then after proof of the circumstances otherwise sufficient to establish the commission of the offense, it shall be presumed that there was such complicity, and the burden of proving that there was no such complicity shall be on the person accused of the offense [24(2)].</p> <p>3. Where the person accused of having made any payment in contravention of clause (c) of subsection (1) of Section 5 is proved to have received from any person outside Pakistan a message which raises a reasonable suspicion that it relates to certain payment to be made, the Tribunal may in the absence of proof to the contrary by the accused person presume that he had made such payment in pursuance of such message [24(3)].</p>

Table A3.1 (concluded)

Money Exchange Business	Money Remittance Business
Revocation, restriction, or variation of license	4. If, after the issue of a notification under clause (a) of section 9, any person is found to be in possession of, or to have under his control, any foreign exchange specified in the notification, in circumstances which tend to raise a reasonable suspicion that he has contravened the notification, he shall be presumed to have contravened the notification unless he can, by proving the time when and the manner in which the foreign exchange came into his possession or under his control, show that he had not in fact contravened the notification [24(4)].
1. An authorized money changer shall comply with such general or special directions or instructions as the State Bank may, from time to time, think fit to give including those for supply of data, the rate and code of conduct in doing business. Failure to comply with the instructions may lead to suspension of the license or other actions as necessary [3A(4), 3B].	

Source: State Bank of Pakistan, *Foreign Exchange Regulations Act, 1947 and Notifications Issued Hereunder*.

Table A3.2. United Arab Emirates

	Money Exchange Business	Money Remittance Business
Regulatory authority: Legislation	The Central Bank of the U.A.E. 1. Federal Law No. 10 (1980) concerning the Central Bank, monetary system, and organization of banking. 2. Resolution No. 31/2/1986 regarding the regulation of money changing business in the U.A.E. 3. Resolution No. 123/7/92 regarding the regulation of the money changing business in the U.A.E.	The Central Bank of the U.A.E. 1. Federal Law No. 10 (1980) concerning the Central Bank, monetary system, and organization of banking. 2. Resolution No. 31/2/1986 regarding the regulation of money changing business in the U.A.E. 3. Resolution No. 123/7/92 regarding the regulation of the money changing business in the U.A.E.
Licensing/registration: Documentation	1. <i>Business Plan</i> : Nature and scale of money changing business, future development plans, including management plans [clause 3(a)]. 2. <i>Applicant</i> : Name, address, brief statement about the applicant, copy of passport or of U.A.E. identity card [3(b)]. 3. <i>Guarantee</i> : An undertaking to provide a bank guarantee drawn in favor of the Central Bank equal to 50 percent of the capital of the applicant [3(c)]. 4. <i>Supervision</i> : An undertaking to comply with all Central Bank resolutions, instructions, directives, and subject the business records to the examination, audit, and supervision of the Central Bank [3(d)]. 5. <i>Other Documents</i> : Any other information required by the Central Bank for purposes of processing the application [3(e)].	1. <i>Business Plan</i> : Nature and scale of money changing business, future development plans, including management plans [clause 3(a)]. 2. <i>Applicant</i> : Name, address, brief statement about the applicant, copy of passport or of U.A.E. identity card [3(b)]. 3. <i>Guarantee</i> : An undertaking to provide a bank guarantee drawn in favor of the Central Bank equal to 50 percent of the capital of the applicant [3(c)]. 4. <i>Supervision</i> : An undertaking to comply with all Central Bank resolutions, instructions, directives, and subject the business records to the examination, audit, and supervision of the Central Bank [3(d)]. 5. <i>Other Documents</i> : Any other information required by the Central Bank for purposes of processing the application [3(e)].
Licensing/registration: Ownership	1. <i>Paid up Capital</i> : Dh. 2 million [Article 4(a)] Individuals: The applicant is a U.A.E. national above the age of 21 years [4.2(b)]. 2. <i>Ownership Structure</i> : The share of U.A.E. nationals in the company is not less than 60 percent of the total paid up capital [4.2(b)]. No commercial bank is allowed to manage the licensed person whether local or foreign [4.4(c)].	1. <i>Paid up Capital</i> : Dh. 2 million [Article 4(a)] Individuals: The applicant is a U.A.E. national above the age of 21 years [4.2(b)]. 2. <i>Ownership Structure</i> : The share of U.A.E. nationals in the company is not less than 60 percent of the total paid up capital [4.2(b)]. No commercial bank is allowed to manage the licensed person whether local or foreign [4.4(c)].
Licensing/registration: Fitness and probity test	1. <i>Personal Reliability</i> : Be of good conduct and behavior; not convicted of any offense involving dishonor or dishonesty or violence, or have failed to honor his liabilities toward banks or other creditors; shall not have been declared bankrupt or reached a settlement; have had their assets put under judicial receivership [4.3(a)]. 2. <i>Professional Qualifications</i> : Must have the appropriate theoretical knowledge of money changing business and the necessary management experience [4.3(b)].	1. <i>Personal Reliability</i> : Be of good conduct and behavior; not convicted of any offense involving dishonor or dishonesty or violence, or have failed to honor his liabilities toward banks or other creditors; shall not have been declared bankrupt or reached a settlement; have had their assets put under judicial receivership [4.3(a)]. 2. <i>Professional Qualifications</i> : Must have the appropriate theoretical knowledge of money changing business and the necessary management experience [4.3(b)].
Permitted activities	"Money Changing business" means the purchase and sale of foreign currencies in the form of bank notes and coins, the purchase and sale of travelers checks, the handling of remittance business in both the local and foreign currencies and other matters approved by the Central Bank.	"Money Changing business" means the purchase and sale of foreign currencies in the form of bank notes and coins, the purchase and sale of travelers checks, the handling of remittance business in both the local and foreign currencies and other matters approved by the Central Bank.
Prudential regulation	1. <i>Capital</i> : Total assets must not exceed ten times the paid up capital and must not fall below the approved limit [8.1(a)]. Any partner in the business may not withdraw any amount from the business in excess of his share of net annual profits [8.2(l)].	

Table A3.2 (continued)

Money Exchange Business	Money Remittance Business
<p>2. <i>Management</i>: Managers must always receive prior approval from the Central Bank [8.2(b)].</p> <p>3. <i>Ownership</i>: The bank's ownership and capital structure should not be altered without Central Bank permission [8.2(c)].</p> <p>4. <i>Organizational Restructuring</i>: No mergers, amalgamations, or joint ventures without Central Bank permission [8.2(d)].</p> <p>5. <i>Location and Branches</i>: The premises and change of premises for conducting the business requires central bank approval. <i>No other activity of whatsoever nature can be undertaken in the same premises</i> [8.2(e)]. No branches can be opened without Central Bank permission [8.2(g)].</p> <p>6. <i>Business Name</i>: The business name shall not include the words "bank," "financial institution," "investment/commercial/real estate company," or any other than money changing business [8.2(f)].</p> <p>7. <i>Auditors</i>: The business must appoint a Central Bank approved auditor [8.2(h)].</p> <p>8. <i>Accounting Records</i>: The business must maintain proper accounting records and submit these forms as required by the Central Bank [8.2(h)]. The business is authorized to issue drafts in its own name and drafts must be signed by the duly authorized signatories [8.2(j)]. The business shall provide, upon request from the Central Bank, all data, information, or statistics, at any time, and for any specified period, and such information shall be identical to the records of the business and it shall be regarded and treated as confidential.</p> <p>9. <i>Transaction Receipts</i>: Dealings between the business and customers must be supported by official receipts [8.2(i)].</p> <p>10. <i>Disclosure</i>: Customers must be informed by a public notice their right to a receipt and the rates at which the transactions are conducted [8.2(i)].</p> <p>11. <i>Asset Quality</i>: The business shall not encumber any assets without the prior permission of the Central Bank [8.2(j)].</p> <p>12. <i>Insider Borrowings</i>: Shareholders, partners, directors, managers, or controllers of the business may not borrow from or lend to the licensed business and they may not have current accounts or any other accounts with the business [8.2(m)].</p> <p>13. <i>Prudential Reports</i>: The business is required to submit on a quarterly basis to the Central Bank a signed copy of the year end accounts and the auditors report [8.2(n)].</p>	<p>1. <i>Capital</i>: Total assets must not exceed ten times the paid up capital and must not fall below the approved limit [8.1(a)]. Any partner in the business may not withdraw any amount from the business in excess of his share of net annual profits [8.2(l)].</p> <p>2. <i>Management</i>: Managers must always receive prior approval from the Central Bank [8.2(b)].</p> <p>3. <i>Ownership</i>: The bank's ownership and capital structure should not be altered without Central Bank permission [8.2(c)].</p> <p>4. <i>Organizational Restructuring</i>: No mergers, amalgamations, or joint ventures without Central Bank permission [8.2(d)].</p> <p>5. <i>Location and Branches</i>: The premises and change of premises for conducting the business requires central bank approval. <i>No other activity of whatsoever nature can be undertaken in the same premises</i> [8.2(e)]. No branches can be opened without Central Bank permission [8.2(g)].</p> <p>6. <i>Business Name</i>: The business name shall not include the words "bank," "financial institution," "investment/commercial/real estate company," or any other than money changing business [8.2(f)].</p> <p>7. <i>Auditors</i>: The business must appoint a Central Bank approved auditor [8.2(h)].</p> <p>8. <i>Accounting Records</i>: The business must maintain proper accounting records and submit these forms as required by the Central Bank [8.2(h)]. The business is authorized to issue drafts in its own name and drafts must be signed by the duly authorized signatories [8.2(j)]. The business shall provide, upon request from the Central Bank, all data, information, or statistics, at any time, and for any specified period, and such information shall be identical to the records of the business and it shall be regarded and treated as confidential.</p> <p>9. <i>Customer Identification Records</i>: Money changers that are involved in money funds transfers must record details of persons or institutions that transfer an amount of Dh. 2000 (two thousand) or equivalent in other currencies. To ensure the correct identity of the client, any of the following original documents are required: (1) passport, or (2) U.A.E. ID card for U.A.E. nationals, or (3) labor card for non-U.A.E. nationals, or (4) driver's license. With the necessity to carefully check the person's photo in all cases: (1) recording the phone number only (without the address). In the case of transfers in amounts less than Dh. 2000, the transferor should be given a receipt without the said details.</p> <p>10. <i>Transaction receipts</i>: Dealings between the business and customers must be supported by official receipts [8.2(i)].</p> <p>11. <i>Disclosure</i>: Customers must be informed by a public notice their right to a receipt and the rates at which the transactions are conducted [8.2(i)].</p> <p>12. <i>Asset Quality</i>: The business shall not encumber any assets without the prior permission of the Central Bank [8.2(j)].</p>

Table A3.2 (concluded)

	Money Exchange Business	Money Remittance Business
Supervision	The Central Bank reserves the right to inspect the activities of the licensed person at any time it finds it appropriate to ensure adherence to the provisions of its resolutions [9].	13. <i>Insider Borrowings</i> : Shareholders, partners, directors, managers, or controllers of the business may not borrow from or lend to the licensed business and they may not have current accounts or any other accounts with the business [8.2(m)]. 14. <i>Prudential Reports</i> : The business is required to submit on a quarterly basis to the Central Bank a signed copy of the year end accounts and the auditors report [8.2(n)]. The Central Bank reserves the right to inspect the activities of the licensed person at any time it finds it appropriate to ensure adherence to the provisions of its resolutions [9].
Revocation, restriction, or variation of license	The Central Bank may revoke a license if (1) it appears there is a breach of the conditions of the license; (2) the business is in breach of any instructions or circulars issued by the Central Bank; (3) the Central Bank is issued with false, misleading, or inaccurate information from the business; (4) the interests of customers or potential customers of the business are in any other way threatened; (5) a competent judicial authority orders its liquidation; (6) a judicial receiver or manager has been appointed; (7) a bankruptcy order has been made against the business; (8) the business is unable to pay its debts as they fall due; (9) the value of the assets are less than the amount of its liabilities, taking into account its contingent or prospective liabilities.	The Central Bank may revoke a license if (1) it appears there is a breach of the conditions of the license; (2) the business is in breach of any instructions or circulars issued by the Central Bank; (3) the Central Bank is issued with false, misleading, or inaccurate information from the business; (4) the interests of customers or potential customers of the business are in any other way threatened; (5) a competent judicial authority orders its liquidation; (6) a judicial receiver or manager has been appointed; (7) a bankruptcy order has been made against the business; (8) the business is unable to pay its debts as they fall due; (9) the value of the assets are less than the amount of its liabilities, taking into account its contingent or prospective liabilities.

Sources: Central Bank of the United Arab Emirates, Resolution No. 123/7/92 Regarding the Regulation of Money Changing Business in the U.A.E and Notice 1815/2001 to All Money Changers Operating in the U.A.E. on Outgoing Transfers, dated 01/10/2001.

Appendix IV Examples

Box A4.1. U.A.E. Money Transfer Form for Money Changers

Transferred Amount:

(For outgoing transfers of Dh. 2000 or the equivalent in other currencies or more.)

Method of Payment for Transfer:

Cash

Travelers' Checks

Full Name of Transferor:

ID No.:

Type of ID:

Passport/Nationality:

U.A.E. ID Card/Labor Card:

Driving License (U.A.E.):

Telephone Number:

Name of Beneficiary:

Address of Beneficiary:

Signature of Transferor:

For Use of the Money Changer:

Authorized Signature:

Source: Notice 1815/2001 to All Money Changers Operating in the U.A.E. on Outgoing Transfers, dated 01/10/2001.

Box A4.2. Registration Requirements for Money Service Operators in the United Kingdom

(1) A person who, on or after June 1, 2002, acts as a money service operator must be registered by the Commissioners.

(2) Paragraph (1) does not apply to a person who, immediately before June 1, 2002, is acting as a money service operator, provided he has before that date made an application to be registered which has not been determined.

(3) A person to whom this regulation applies must:

(a) make an application to be registered in such manner as the Commissioners may direct; and

(b) furnish the following information to the Commissioners, that is to say:

(i) the applicant's name and (if different) the name of the business;

(ii) the applicant's VAT registration number or, if he is not registered for VAT, any other reference number issued to him by the Commissioners;

(iii) the nature of the business;

(iv) the address of each of the premises at which the applicant carries on (or proposes to carry on) business;

(v) any agency or franchise agreement relating to the business, and the names and addresses of all relevant principals, agents, franchisers, or franchisees;

(vi) the name of the relevant money laundering reporting officer (if any); and

(vii) whether any person concerned (or proposed to be concerned) in the management, control, or operation of the business has been convicted of a money-laundering offense or of money laundering within the meaning of regulation 2(3) of the 1993 Regulations.

(4) At any time after receiving an application to be registered and before determining it, the Commissioners may require the applicant to furnish them, within 21 days beginning with the date of being requested to do so, with such further information as they reasonably consider necessary to enable them to determine the application.

(5) Any information to be furnished to the Commissioners under this regulation must be in such form or verified in such manner as they may specify.

(6) In this regulation, "the business" means money service business which the applicant carries on or proposes to carry on.

Source: The Money Laundering Regulations, 2001, available via the Internet: <http://www.hmce.gov.uk/business/othertaxes/stat-instrumsb.pdf>.