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A Modern History of Exchange Rate Arrangements: Parallel Markets and Dual and Multiple Exchange Rates

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How Important Are Parallel Markets?

There are cases where the parallel (or secondary) exchange rate applies only to a few limited transactions. An example is the “switch pound” in the United Kingdom during September 1950 through April 1967.¹ However, it is not unusual for dual or parallel markets (legal or otherwise) to account for the lion’s share of transactions with the official rate being little more than symbolic. As Kiguel, Lizondo, and O’Connell [1997] note, the official rate typically diminishes in importance when the gap between the official and market-determined rate widens.

To provide a sense of the comparative relevance of the dual or parallel market we proceed along two complimentary dimensions. First, we include a qualitative description in the country-specific chronologies (see background material) of what transactions take place in the official market versus the secondary market. Second, we develop a quantitative measure of the potential size of the leakages into dual or parallel exchange markets.² Following Ghei, Kiguel and O’Connell [1997], we classify episodes where there are dual/parallel markets into three tiers according to the level (in percent) of the parallel market premium: low (below 10 percent), moderate (10 percent or above but below 50), and high (50 percent and above). For the episodes of dual/parallel markets, we provide information about which category each episode falls in (by calculating the average premium for the duration of the episode). In addition to the information contained in the premium, we constructed an extensive database on export misinvoicing, or the difference between what a country reports as its exports and what other countries report as imports from that country, adjusted for shipping costs.

¹ For example, while the United Kingdom officially had dual rates through April 1967, the secondary rate was so trivial (both in terms of the premium and the volume of transactions it applied to) that it is classified as a peg in our classification scheme (see background material.) In the next section, we describe how our classification algorithm deals with these cases.

² For instance, according to Claessens [1997], export underinvoicing hit a historic high in Mexico during 1982—the crisis year in which the dual market was introduced. Similar statements can be made about other crisis episodes that involved the introduction of exchange controls and the segmentation of markets.

Historically, there are tight links between capital flight, export underinvoicing, and the parallel market premium.³ As with the parallel market premium, we divide the export misinvoicing estimates into three categories (as a percent of the value of total exports): low (less than 10 percent of exports), moderate (10 to 15 percent of exports), and high (above 15 percent). For Europe, Japan, and the United States, misinvoicing calculations start in 1948 while for the remaining countries these start in 1970. In the extensive background material to this paper we show, for each episode, which of the three categories is applicable. Finally, we construct a score (1 for Low, 2 for Moderate, and 3 for High) for both of these proxies for leakages. The combined score on the estimated size of the leakages (these range from 2 to 6) is also reported.⁴

Table III, which shows the evolution of export misinvoicing (as a percent of the value of total exports) and the parallel market premium (in percent) across regions and through time, provides a general flavor of the size of potential leakages from the official market. According to our estimates of misinvoicing (top panel), the regional patterns show the largest leakages for the Caribbean and non-CFA Sub-Saharan Africa 1970-2001, with averages in the 30 to 50 percent range. The lowest estimates of misinvoicing (8 to 11 percent) are for Western Europe, North America, and the CFA Franc Zone. It is also noteworthy that, although low by the standards of other regions, the export misinvoicing average in 1970-2001 for Western Europe is half of what it was in 1948-1949. Yet these regional averages may understate the importance of misinvoicing in some countries. For example, the maximum value for 1948-2001 for Western Europe (16.9 percent) does not reflect the fact that for Spain misinvoicing as a percent of the value of exports amounted to 36 percent in 1950, a comparable value to what we see in some of the developing regions.

³ See Kiguel, Lizondo, and O'Connell [1997] and the references contained therein.

⁴ See "Part II. Parallel Markets and Dual and Multiple Exchange Rate Practices: Background Material to A Modern History of Exchange Rate Arrangements: A Reinterpretation" at <http://www.puaf.umd.edu/faculty/papers/reinhart/reinhart.htm>.

As to the regional average parallel market premium shown in the bottom panel of Table 1, all regions fall squarely in the Moderate-to-High range (with the exception of North America, Western Europe, and CFA Africa). In the case of developing Asia, the averages are significantly raised by Myanmar and Laos. It is worth noting the averages for Europe and industrialized Asia in the 1940s are comparable and even higher than those recorded for many developing countries, highlighting the importance of acknowledging and accounting for dual markets during this period.

To sum, in this section we have presented evidence that leads us to conclude that parallel markets were both important as indicators of monetary policy and as representative of the prices underlying an important share of economic transactions. It is therefore quite reasonable to draw heavily on the dual or parallel market data in classifying exchange rate regimes, the task to which we now turn.

TABLE III
Leakages: Export Misinvoicing and the Parallel Market Premium
Absolute Value of Export Misinvoicing
(as a percent of the value of exports)

	Descriptive Statistics			Mean Absolute Value (by decade)						
	Min.	Max.	St. Dev	48-49	50-59	60-69	70-79	80-89	90-01	70-01
World	7.0	39.8	8.4	12.8	10.9	9.9	24.7	22.1	26.0	24.4
North Africa	2.5	59.9	10.3	...	...	...	7.2	8.3	16.1	10.9
CFA	12.6	48.3	8.4	...	...	...	28.5	21.7	21.5	23.8
Rest of Africa	16.3	201.9	33.5	...	...	...	23.4	23.4	53.6	34.1
Middle East and Turkey	9.1	45.4	9.6	...	...	...	30.7	16.7	17.4	21.5
Developing Asia and Pacific	9.5	79.1	16.9	..	...	...	31.4	14.9	24.1	23.5
Industrialized Asia	3.7	18.2	3.3	11.2	14.2	13.9	14.6	12.0	10.3	12.2
Caribbean	9.7	136.0	33.2	...	...	...	30.8	48.9	60.0	47.0
Central and South America	12.0	49.6	8.2	...	...	...	26.1	36.0	30.4	30.8
Central and Eastern Europe	2.5	50.0	18.3	...	...	...	46.6	15.4	7.4	22.1
Western Europe	2.4	16.9	3.0	14.1	10.4	10.0	11.6	7.6	7.7	8.9
North America	0.6	22.6	5.9	4.6	9.4	3.8	16.0	11.4	4.8	10.4

Monthly Average Parallel Market Premium
(excluding freely falling episodes, in percent)

	Descriptive Statistics			Average (by decade)						
	Min.	Max.	St. Dev	46-49	50-59	60-69	70-79	80-89	90-98	46-98
World	11.6	205.9	35.4	137.8	56.7	38.1	31.3	57.8	52.6	54.1
North Africa	-1.2	164.8	41.4	...	9.9	35.7	30.7	108.6	62.0	53.6
CFA	-6.4	12.7	2.7	..	...	...	0.0	1.2	1.8	0.9
Rest of Africa	1.7	322.5	73.9	31.9	6.9	33.7	113.7	112.7	107.7	71.0
Middle East and Turkey	5.1	493.1	99.6	54.6	81.0	26.0	21.4	146.5	193.2	88.6
Developing Asia & Pacific	-3.7	660.1	95.0	143.5	60.9	168.9	44.7	43.1	12.1	72.9
Industrialized Asia	-6.9	815.9	107.6	324.4	43.0	12.0	3.6	1.3	1.5	36.1
Caribbean	-23.8	300.0	42.8	...	...	29.6	30.2	56.8	53.6	42.3
Central and South America	3.0	716.1	78.5	49.1	133.0	16.4	18.6	74.8	8.4	51.0
Western Europe	-5.6	347.5	48.6	165.5	17.0	1.2	2.0	1.7	1.2	16.9
North America	-4.3	49.7	3.3	7.2	0.5	0.0	1.1	1.4	1.6	1.3

Sources: International Monetary Fund, *Direction of Trade Statistics*, *International Financial Statistics*, *Pick's Currency Yearbook*, *World Currency Report*, *Pick's Black Market Yearbook*, and authors' calculations.

Notes: To calculate export misinvoicing, let X_{wi} = imports from country i, as reported by the rest of the world (CIF basis), X_i = exports to the world as reported by country i, Z = imports CIF basis/imports COB basis, then export misinvoicing = $(X_{wi}/Z) - X_i$. The averages are reported are absolute values as a percent of the value of total exports. The parallel premium is defined as $100 \times [(P-O)/O]$, where P and O are the parallel and official rates, respectively. The averages for the parallel premium are calculated for all the countries in our sample in each region, as such, it includes countries where rates are unified and the premium is zero or nil.

Notes: Mixed rate means that a set percentage of trade transactions goes through the official market and the remainder through the dual or parallel market.

Guide to Table 2. "Estimating and Scoring the Leakages"

Average during dual/parallel/multiple exchange rate episode	Score		
	Low = 1	Moderate = 2	High = 3
Parallel premium (in percent)	$x < 10$	$10 \leq x < 50$	$50 \leq x$
Absolute value of export misinvoicing (as a percent of the value of exports)	$x < 10$	$10 \leq x < 15$	$15 \leq x$

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Albania	January 1991–July 1, 1992	Surrendered official reserves and external loans and grants.	All else.
Algeria	April 10, 1964–August 1, 1972	Mixed rate for trade.	All else.
	August 1, 1972–January 21, 1974	n.a.	n.a.
	January 21, 1974–December 1987	Trade.	Capital account-all else.
	January 1988–March 1994		
Argentina	August 1939–June 1950		
	July 1950–May 1952		
	June 1952–November 1957		
	December 1957–March 1960		
	April 1960–March 1964		
	April 6, 1971–March 6, 1976		
	March 1981– December 20 1990	Mixed rate for trade.	All else
Armenia	December 31, 1991–November 1995	Taxation and accounting in the budget for centralized imports.	All else.
Austria	October 28, 1946–June 1948	Adoption of military exchange rates for commercial transactions.	All else.
	July 1949– October 6, 1950	40% of exports surrendered at an official rate. Other rates apply for capital account transactions	Exporters free to sell 60% of retained earnings.
	October 6, 1950–August 1951	Commercial transactions	All else. Exporters free to sell 60% of retained earnings.
	September 1951–May 4, 1953	Commercial transactions	All else. Export retention quota abolished on January 1, 1952.
Azerbaijan	December 31, 1992–January 1996	Transactions in the Interbank Foreign Currency Exchange	Banks are free to set other rates depending on the size of the transaction.
Belarus	August 25, 1991–February 3, 1997	Official transactions and for valuation purposes	All else.
Belgium	July 18, 1955–October 1971	Mixed rate for trade.	All else
	November 1971–March 5, 1990	Commercial transactions	All else.
Benin	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Bolivia	October 3, 1931–1939	Various official rates for commercial transaction	All else including all banking transactions.
	1940– December 1949	Two rates for non-luxury commercial transactions.	Luxury imports and all else.
	January 1950–April 1951	Three rates, mining exports essential imports, agricultural exports	Nonessential imports and all else.
	May 1951–March 1952	Official exports and imports	All other commercial and all else.
	April 1952– December, 1974	Official rate is inoperative.	(beginning May 1953) Most transactions.
	January 1975–November 30, 1979	Public sector transactions.	All else.
	March 24, 1982–August 29, 1985	Wheat imports and central government's debt service obligations	All else.
	August 29 1985–December, 1994	In principle, all transactions	There is a tolerated active parallel market.
Botswana	January 1996–August 1998	External loans by parastatals.	All else.
	September 1998–December 2001	External loans by parastatals.	All else.

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Brazil	October 1949–October 1960	Essential imports and exports.	All else.
	November 1960–November 1966	Coffee and cocoa exports and preferential imports	All else.
	December 1966–August 27 1968	Coffee and cocoa exports and preferential imports	All else.
	August, 27, 1968–May 1995	Mixed rate for trade.	All else
	June 1995–January 18, 1999	All transactions	Differences between the two rates are minor
Burkina Faso	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Burundi	May 1985–May 1997	All transactions	Active parallel market.
	June 1997–November 18, 1999	All transactions	Active parallel market.
	November 18, 1999–July 1, 2000	Export proceeds from coffee, cotton, and tea (95% of exports)	All else.
Cameroon	January 26, 1948–September 20, 1949	n.a.	n.a.
	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Canada	September 16, 1939–December 14, 1951	Commercial transactions and some financial transaction	Tourists and financial investments.
Central African Republic	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Chad	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Chile	April 20, 1932–1937	Commercial transactions	All else.
	1937–February, 1946	Various rates apply to government transactions and exports.	All else.
	March 1946–May 1947	Mixed rate for trade.	Luxury imports and all financial transactions.
	June 1947– April 16, 1956	Mixed rates for trade.	Some commercial and all financial transactions.
	April 16, 1956–August 1957	Fluctuating rate for commercial transactions.	Fluctuating rate for capital transactions.
	September 1957–June 29, 1976	Fluctuating rate for commercial and some financial transactions (Banking rate)	Fluctuating rate for other financial transactions. (Brokers rate)
	June 15, 1982– December 1988	Debt servicing	All else.
	January 1988– September 2, 1999	Commercial and authorized capital transactions, including loan receipts	All else.
China	1939– August 19, 1948		
	August 19, 1948–December 1951		
	January 1952– June 1969		
	June 1969– December 1973		
	January 1974–February 1981		
	March 1981–July 1992		
	August 1992–January 1, 1994		
Colombia	January 1948–February 1952		
	March 1953–September 1962		
	October 1962–December 1963		
	January 1964–April 1974		
	April 1974–September 1983		
	October 1983–November 1984		
	December 1984–January 24, 1994		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Congo, Dem. Republic of	November 6, 1962–October 1963		
	November 1963–November 9, 1963		
	November 9, 1963–May 1964		
	June 1965–July 23, 1967		
	July 23, 1967–August 24, 1971		
	August 24, 1971–December 1974		
	January 1975–March 12, 1976		
	March 12, 1976–September 12, 1983		
	September 12, 1983–November 1997		
Congo, Republic of	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Costa Rica	October 13, 1948–February 1963		
	March 1963–December 24, 1969		
	December 24, 1969– June 19, 1971		
	June 19, 1971– April 25, 1974		
	April 25, 1974–September 26, 1980		
	September 26, 1980–December 1980		
	January 1981–March, 1981		
	March 9, 1981–November 11, 1983		
	November 11, 1983– December 1990		
Cote D'Ivoire	January 26, 1948–September 20, 1949		
	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Croatia	October 22, 1993–September 1994		
Denmark	August 1945–September 16, 1950		
	September 16, 1950–October 17, 1951		
Dominican Republic	February 1, 1948–September 1966		
	October 1966–September 1978		
	October 1978–August 24, 1982		
	August 24, 1982– January 23 1985		
	January 23 1985–November 1985		
	December 1985–September 4, 1986		
	September 4, 1986–June 1987		
	July 1987–November 12, 1987		
	November 12, 1987–February 11, 1988		
	February 11, 1988–August, 1991		
	September, 1991–October 1992		
November 1992–December 2001			
Ecuador	April 30, 1932–December 19, 1935		
	July 31, 1936–July 31, 1937		
	July 31, 1937– June 4, 1940		
	June 4, 1940		
	April 28, 1942–June 6. 1947		
	June 6, 1947–June 1950		
	July 1950–June 1957		
	July 1957–August 17, 1970		
	November 22, 1971–February 26, 1973		
	March 3, 1982–April, 1984		
	May 1984–March 1987		
	April, 1987–September, 1993		
	October 1993–March 3, 1997		
	March 3, 1997–September, 1997		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Egypt	1950–May 7, 1962		
	May 7, 1962–July 25, 1971		
	July 25, 1971–October 8, 1991		
	October 8, 1991–December 2001		
El Salvador	May 1961–August 9, 1982		
	August 9, 1982–June 1, 1990		
	March 19, 1990–June 1, 1990		
Equatorial Guinea	August 6, 1979– August 27, 1984		
Finland	July 1944–April 1948		
	May 1948–June 11, 1951		
	June 11, 1951–October 12, 1967		
France	December 26, 1945–January 26, 1948		
	January 26, 1948–December 1948		
	January 1949–June 1956		
	July 1956–December 13, 1968		
	August 8, 1969–December 1970		
Gabon	September 9, 1971–March 21, 1974		
Gambia, The	January 1981–December 1985		
	January 1986–January 20, 1986		
Ghana	July 14, 1958– July 19, 1965		
	July 19, 1965–November 4, 1971		
	November 4, 1971–September 1973		
	October 1973– June 19, 1978		
	June 19, 1978–May 1984		
	June 1984–April 1986		
	May 1986–September 19, 1986		
	September 19, 1986–September 1987		
	October 1987–July 1989		
	August 1989– April 27, 1990		
April 27, 1990–September 1990			
Georgia	April, 1993–September 1996		
	October 1996–December 7, 1998		
Germany	July 13, 1931–April 1945		
	April 1945–June 20, 1948		
	June 20, 1948–March 31, 1951		
	March 31, 1951–April 1, 1954		
Greece	April 1, 1954–December 29, 1958		
	February 1947–September 1948		
	October 1948–April 1950		
	May 1950–May 1, 1954		
	May 1, 1954–December 22, 1965		
Guatemala	May 1963–November 16, 1984		
	November 16, 1984–March, 1985		
	March, 1985–June 1986		
	July 1986–June 23, 1988		
	June 23, 1988–May 1989		
	June 1989–April 1991		
Guinea	October 7, 1985–June 1, 1986		
Guinea-Bissau	January 1993–May 2, 1997		
Guyana	June 2, 1982–February 2, 1987		
	January 1988–March 13, 1990		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Guyana (cont.)	March 13, 1990–April 1, 1991		
Haiti	January 1985–April 1989		
	May 1989–September 16, 1991		
Honduras	March 19, 1985–March 13, 1990		
	September 3, 1990–March 1991		
	April 1991–June 18, 1992		
	January 1996–December 1998		
Hong Kong	September 18, 1949–August 22, 1962		
	July 6, 1972– October 17, 1983		
Hungary	August 1, 1946–April 1, 1957		
	April 1, 1957–July 1, 1992		
Iceland	December 18, 1946–March 8, 1951		
	March 8, 1951–October 1968		
	November 1968–April 1973		
	May 1973–January 1976		
	February 1976–April 1977		
	May 1977– July 29, 1983		
India	October 1, 1965–June 6, 1966		
Indonesia	September 1945–March 7, 1946		
	March 7, 1946–November 2, 1949		
	November 2, 1949–December 1949		
	October 1950–January 1952		
	February 1952–August 1954		
	September 1954–November 1955		
	December 1955–March 1969		
	April 1969–December 10, 1970		
	December 10, 1970–August 23, 1971		
	August 23, 1971–June 1972		
	July 1972–December 1973		
Iran	1945–January 1954		
	February 1954–May 27, 1957		
	May 27, 1957–January 14, 1974		
	January 14, 1974–December 1976		
	January 1977–January 1994		
	February, 1994–February 1996		
	March 1996–December 2001		
Iraq	January 1982–December 1998		
Israel	February 17, 1952–February 1962		
	August 17, 1970–September 1973		
	October, 1973–October 28, 1977		
Italy	March 26, 1946–December 1947		
	February 1948–September 1951		
	October 1951–December 29, 1958		
	December 29, 1958–June 1, 1959		
Jamaica	April 27, 1977–December 1977		
	January 1978–May 9, 1978		
	January 10, 1983–November 1, 1989		
Japan	July 1949–April 25, 1949		
	April 25, 1949–May 11, 1953		
	May 11, 1953–March 1959		
Kazakhstan	January 1991–June 1996		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Kenya	December, 1978– December 1986		
	January 1987–September 1991		
	October 1991–May 1994		
	May 1994–December 1995		
Korea	October 1945–November 1948		
	December 1948–February 15, 1953		
	February 15, 1953–December 1954		
	January 1955–December 1955		
	January 1956–May 3, 1964		
Kuwait	April 9, 1984–August 12, 1984		
Laos	December 1945–May 5, 1955		
	May 5, 1955–October 10, 1958		
	January 1, 1962–January 1, 1964		
	January 1, 1964–April 3, 1972		
	April 3, 1972– March 28, 1973		
	March 28, 1973–April 1988		
	May 1988–May 1990		
	June 1990– September 31, 1995		
	September 31, 1995–December 1996		
	January 1997–March, 2000		
	April 2000–December 2001		
Lebanon	October 1946–June 1950		
	July 1950–August 1975		
	September 1975–February 1984		
	March 1984–July 1991		
Lesotho	September 2, 1985–March 13, 1995		
Liberia	1988–October 30, 1997		
	October 30, 1997– August 31, 1998		
Libyan Arab Republic	December 1955–December 15, 1971		
	December 15, 1971–April 18, 1981		
	April 18, 1981–March 18, 1986		
	March 18, 1986–May 1, 1986		
	May 1, 1986–March 1992		
	March 1992–July 1992		
	July 1992–August 1992		
	August 1992–August 19, 1993		
	August 19, 1993–November 1, 1994		
	November 1, 1994–October 31, 1998		
	October 31, 1998–February 14, 1999		
	February 14, 1999–December 2001		
	October 31, 1998–February 14, 1999		
February 14, 1999–December 2001			
Luxembourg	July 18, 1955–March 5, 1990	Mixed rate for trade.	All else
Madagascar	September 4, 1971–August 6, 1973		
Malawi	1940– April 1, 1956		
	April 1, 1956–November 16, 1964		
	November 16, 1964–February 15, 1971		
	February 15, 1971–November 19, 1973		
Mali	January 26, 1948–September 20, 1949		
	September 9, 1971–March 21, 1974	Commercial transactions	All else.

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Mauritania	December 26, 1945–September 1, 1973		
	September 1, 1971–June 29, 1973		
	June 29, 1973–January 22, 1974		
	January 22, 1974–October 1983		
	November 1983–October 18, 1992		
	October 18, 1992–August 1994		
	September 1994–December 31, 1995		
Mauritius	November 21, 1967–January 5, 1976		
	January 5, 1976–May 1982		
Mexico	February 18, 1982– November 11, 1991	Merchandise export proceeds, foreign debt repayments, specified import payments	All else.
Moldova	January 1991–February 1995		
Mongolia	February 1991–May 27, 1993		
Myanmar	August 1972–July 1, 1974		
	August 1996–January 1999		
	February 1999–December 2001		
Nepal	January 1974–March 30, 1978		
	March 30, 1978–September 19, 1981		
	March 4, 1992–February 12, 1993		
Nicaragua	October 20, 1950–March 1, 1963		
	March 1, 1963–December 1969		
	September 8, 1978–April 6, 1979		
	April 6, 1979–August 1982		
	September 1982–April 30, 1991		
Niger	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Nigeria	January 1, 1973–April 1, 1974		
	April 1983–September 1984		
	September 29, 1985–January 1987	The official rate applied to only some government transactions.	All else.
	February 1987–December, 1989		
	January 1990–May 1991		
	June 1991–March 1996		
	April 1996–December 2001		
Norway	May 16, 1945–March 1954		
Pakistan	January 15, 1959– September 17, 1971		
	September 17, 1971–January 8, 1982		
	January 8, 1982–January 1984		
	February 1984–August 1989		
	September 1989–April 1991		
	May 1991–April 1994		
	May 1994–July 22, 1998		
	July 22, 1998–May 19, 1999		
Paraguay	November 5, 1949–August 12, 1957		
	August 12, 1957–October 1960		
	October 1960–July 23, 1973		
	July 23, 1973–August 1981		
	September 1981–March 1985		
	April 1985–April 1986		
	May 1986–February 27, 1989		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Peru	September 7, 1948–May 1959		
	May 1959–May 17, 1960		
	October 5, 1967–June 1971		
	July 1971–August 1975		
	September 1975–October 7, 1977		
	October 7, 1977–December 13, 1977		
	May 10, 1978–February 29, 1984		
	February 29, 1984– August 2, 1986		
	December 2, 1986–August 9, 1990		
Philippines	April 25, 1960–November 7, 1965		
	October 1983–October 15, 1984		
Poland	January 1988– March 15, 1989		
	March 15, 1989–January 1, 1990		
	January 1, 1990–May 17, 1991		
	May 17, 1991–April 1993		
Romania	May 1993–May 16, 1995		
	July 1957–January 1990		
Russian Federation	February 1990–November 11, 1991		
	January, 1992–June 1, 1995		
Saudi Arabia	July 6, 1995–July 1996		
	August 1996–August 17, 1998		
	August 17, 1998–November 1999		
	December 1999–December 2001		
	June 4, 1958–January 8, 1960		
Senegal	September 9, 1971–March 21, 1974	Commercial transactions	All else.
South Africa	October 24, 1972–January 24, 1979		
	January 24, 1979–February 7, 1983		
	September 2, 1985–March 13, 1995		
Spain	August 25, 1946–October 1948		
	November 1948–May 1951		
	June 1951–July 17, 1959		
Sri Lanka	May 6, 1968– November 8, 1971		
	November 8, 1971–July 10, 1972		
	July 10, 1972–May 24, 1976		
	May 24, 1976–November 15, 1977		
Suriname	June 15, 1989–April, 1991		
	May 1991–July 11, 1994		
	February 1998–January 1, 1999		
	January 1, 1999–October 3, 2000		
Swaziland	January 24, 1979–February 7, 1983		
	September 2, 1985–March 13, 1995		
Sweden	July 13, 1946–February 1952		
	March 1952–September 1954		
Syrian Arab Republic	January 1, 1948– January 1970		
	August 1973–April 24, 1976		
	April 24, 1976–April 22, 1981		
	April 22, 1981–May 24, 1982		
	May 24, 1982–January 1, 1988		
	January 1, 1988–December 2001		
Tajikistan	January 1992–December 1995		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Episode		Transactions in the:	
Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Tanzania	April 1975–October 27, 1975		
	October 27, 1975–January 20, 1979		
	January 20, 1979–August 1983		
	September 1983–May 1985		
	June 1985–August 1991		
	September, 1991–August 3, 1993		
	January 1994–March 1996		
	May 1995–December 2001		
Thailand	May 1, 1946–1947		
	1947–January 1, 1956		
Togo	September 9, 1971–March 21, 1974	Commercial transactions	All else.
Tunisia	April 1949–November 1, 1958		
	November 1, 1958– March 21, 1974		
Turkey	November 28, 1939–February 1941		
	March 1941–August 1943		
	September 1943–September 9, 1946		
	September 3, 1953–August 20, 1960		
	June 6, 1961–August 9, 1970		
	December 22, 1971–August, 1976		
	September 1976–March, 1981		
	April 1981–March 22, 1983		
Turkmenistan	January 1993–October 1997		
	November 1997–December 2001		
Uganda	August 15, 1966–October 11, 1971		
	October 11, 1971–October 27, 1975		
	October 27, 1975–June 8, 1981		
	August 23, 1982–October 1983		
	November 1983–June 15, 1984		
	June 15, 1984– May 28, 1986		
	May 28, 1986–August 23, 1986		
	August 23, 1986– September 1989		
	October 1989–July 2, 1992		
	July 2, 1992–December, 1992		
Ukraine	January 1993–November 1, 1993		
	January, 1991–October, 1996		
	October 1996–September 4, 1998		
United Kingdom	March 1940–July 1948		
	August 1948–September 1950		
Uruguay	September 1948–May 1958		
	June 1958–December 17, 1959		
	July 19, 1963–July 1965		
	August 1965–May 1968		
	January 1971–April 26, 1971		
	April 26, 1971–November 1974		
	December 1974–October 17, 1978		
	January 1986–December 1990		
Venezuela	July 23, 1941–July 1, 1976		
	July 1, 1976–February 28, 1983		
	February 28, 1983–November 1986		
	December 1986–March 13, 1989		

Table 1. Transactions in the Official and Dual (or Parallel Market)

Country	Dates	Primary (official market)	Secondary (dual or parallel market)
Venezuela (cont.)	May 4, 1994–April 22, 1996		
Zambia	January 16, 1968–December 6, 1971		
	December 6, 1971–July 9, 1976		
	July 9, 1976–July 1983		
	October 1985–March 17, 1987		
	March 17, 1987–May 4, 1987		
	May 2, 1987–November 9, 1988		
	November 9, 1988–February 19, 1990		
	February 19, 1990–December 1998		
Zimbabwe	July 1983–April 1991		
	May 1991–July 2, 1994		

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Albania	1991:1–1992:7	n.a.	n.a.	n.a.	n.a.	n.a.
Algeria	1964:4– 1972:8	42.4	2	5.0	1	3
	1972:8–1974:1	61.2	3	9.2	1	4
	1974:1–1987:12	208.7	3	7.1	1	4
	1988:1–1994:3	307.9	3	3.8	1	4
Argentina	1939:8–1950:6	68.8	3	n.a.	n.a.	n.a.
	1950:7–1952:5	68.0	3	n.a.	n.a.	n.a.
	1952:6–1957:11	46.9	2	n.a.	n.a.	n.a.
	1957:12–1960:3	-0.2	1	n.a.	n.a.	n.a.
	1960:4–1964:3	0.9	1	n.a.	n.a.	n.a.
	1971:4–1976:3	140.4	3	11.4	2	5
	1981:3–1981:12	41.4	2	2.5	2	4
	1982:7–1985:6	46.7	2	3.4	1	3
	1986:4–1990:12	55.4	3	7.8	1	4
	Austria	1946:10–1948:6	645.2	3	7.6	1	4
1949:7–1950:7		131.5	3	28.4	3	6
1950:8–1950:10		86.7	3	23.5	3	6
1950:10–1951:8		42.0	2	21.2	3	5
	1951:9–1953:5	36.1	2	16.3	3	5
Belarus	1991:8–1997:2	n.a.	n.a.	n.a.	n.a.	n.a.
Belgium	1944:10–1954:4	15.5	2	n.a.	n.a.	n.a.
	1955:7–1971:10	1.0	1	n.a.	n.a.	n.a.
	1971:11–1990:3	1.8	1	n.a.	n.a.	n.a.
Benin	1971:9–1974:3	-0.8	1	22.1	3	4
Bolivia	1947:10–1949:12	118.3	3	n.a.	n.a.	n.a.
	1950:1–1951:4	148.9	3	n.a.	n.a.	n.a.
	1951:5–1952:3	241.8	3	n.a.	n.a.	n.a.
	1952:4–1957:11	1147.5	3	n.a.	n.a.	n.a.
	1957:12–1971:2	10.7	2	38.3	3	5
	1971:3–1972:9	62.0	3	41.1	3	6
	1972:10–1974:12	15.0	2	40.1	3	5
	1975:1–1979:11	8.9	1	26.3	3	4
	1979:12– 1982:3	32.9	2	24.8	3	5
	1982:3–1985:8	348.3	3	15.3	3	6
	1985:8–1986:12	125.9	3	18.2	3	6
	1987:11–1991:12	4.8	1	12.0	2	3
	1992:1–1994:12	2.0	1	29.5	3	4
Botswana	1996:1–1998:8	2.3	1	n.a.	n.a.	n.a.
	1998:9–2001:12	1.3	1	n.a.	n.a.	n.a.
Brazil	1949:10–1960:10	112.0	3	n.a.	n.a.	n.a.
	1960:11–1966:11	21.7	2	n.a.	n.a.	n.a.
	1966:12–1968:8	9.4	1	n.a.	n.a.	n.a.
	1968:8–1975:3	12.5	2	8.4	1	3
	1975:4–1977:6	28.7	2	12.3	2	4
	1977:7–1986:2	31.0	2	5.8	1	3
	1986:9–1989:1	73.1	3	3.0	1	4
	1989:1–1989:4	107.7	3	5.8	1	4
	1989:4–1994:1	48.3	2	5.1	1	3

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Brazil	1994:7–1995:5	1.9	1	2.2	1	2
	1995:6–1999:1	1.4	1	4.7	1	2
Burkina Faso	1971:9–1974:3	-0.8	1	32.6	3	4
Burundi	1985:5–1985:8	33.8	2	19.7	3	5
	1985:9–1992:4	22.9	2	29.6	3	5
	1992:4–1996:4	49.1	2	72.4	3	5
	1996:5–1997:5	20.3	2	135.5	3	5
	1997:6–1999:11	31.0	2	n.a.	n.a.	n.a.
Cameroon	1971:9–1974:3	-0.8	1	3.1	1	2
Canada	1939:9–1946:7	0.04	1	n.a.	n.a.	n.a.
	1950:10–1962:5	n.a.	n.a.	4.4	1	n.a.
C.A.Republic	1971:9–1974:3	-0.8	1	5.2	1	2
Chad	1971:9–1974:3	-0.8	1	28.0	3	4
Chile	1947:6–1952:10	177.9	3	n.a.	n.a.	n.a.
	1952:11–1956:4	201.0	3	n.a.	n.a.	n.a.
	1956:4–1957:8	24.8	2	n.a.	n.a.	n.a.
	1957:9–1958:6	41.3	2	n.a.	n.a.	n.a.
	1958:7–1960:1	21.6	2	n.a.	n.a.	n.a.
	1962:1–1964:4	78.6	3	n.a.	n.a.	n.a.
	1962:1–1971:6	79.8	3	4.4	1	4
	1971:7–1976:6	731.3	3	12.0	2	5
	1982:6–1982:12	14.7	2	2.8	1	3
	1982:12–1984:12	35.3	2	2.0	1	3
	1984:12–1988:1	20.5	2	3.6	1	3
	1988:1–1989:1	27.2	2	3.8	1	3
	1989:6–1992:1	15.9	2	1.0	1	3
	1992:1–1997:1	8.2	1	1.8	1	2
	1997:1–1998:6	11.5	2	2.8	1	3
	1998:6–1998:9	9.8	1	2.4	1	2
	1998:9–1998:12	8.3	1	2.4	1	2
	1998:12–1999:9	8.3	1	2.9	1	2
China	1948:8–1951:12	21.8	2	n.a.	n.a.	n.a.
	1952:1–1969:6	138.6	3	n.a.	n.a.	n.a.
	1969:6–1973:12	24.9	2	n.a.	n.a.	n.a.
	1974:1–1981:2	29.1	2	6.8	1	3
	1981:3–1992:7	64.4	3	15.6	3	6
	1992:8–1994:1	63.2	3	50.5	3	6
Colombia	1948:1–1952:2	22.0	2	n.a.	n.a.	n.a.
	1953:3–1962:9	40.5	2	n.a.	n.a.	n.a.
	1962:10–1963:12	17.1	2	n.a.	n.a.	n.a.
	1964:1–1974:4	22.4	2	7.3	1	3
	1974:4–1983:9	4.3	1	4.2	1	2

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Colombia	1983:10–1984:11	23.6	2	7.3	1	3
	1984:12–1994:1	11.9	2	4.7	1	3
Congo, D. R.	1962:11–1963:10	n.a.	n.a.	n.a.	n.a.	n.a.
	1963:11–1963:11	n.a.	n.a.	n.a.	n.a.	n.a.
	1963:11–1964:5	n.a.	n.a.	n.a.	n.a.	n.a.
	1965:6–1967:7	n.a.	n.a.	n.a.	n.a.	n.a.
	1967:7–1971:8	n.a.	n.a.	92.0	3	n.a.
	1971:8–1974:12	n.a.	n.a.	33.7	3	n.a.
	1975:1–1976:3	n.a.	n.a.	25.0	3	n.a.
	1976:3–1983:9	n.a.	n.a.	33.8	3	n.a.
Costa Rica	1983:9–1997:11	n.a.	n.a.	22.5	3	n.a.
	1971:9–1974:3	-0.8	1	33.7	3	4
	1948:10–1963:2	26.0	2	n.a.	n.a.	n.a.
	1963:3–1969:12	21.3	2	n.a.	n.a.	n.a.
	1969:12–1971:6	2.9	1	10.2	2	3
	1971:6–1974:4	55.6	3	10.6	2	5
	1974:4–1980:9	10.2	2	5.7	1	3
	1980:9–1980:12	48.6	2	8.7	1	3
	1981:1–1981:3	9.7	1	6.0	1	2
	1981:3–1983:11	45.0	2	13.6	2	4
Cote D’Ivoire	1983:11–1990:12	21.4	2	23.3	3	5
	1971:9–1974:3	-0.8	1	9.7	1	2
Croatia	1993:10–1994:9	n.a.	n.a.	5.3	1	n.a.
Denmark	1945:8–1950:9	59.2	3	10.9	2	5
	1950:9–1951:10	33.0	2	9.6	1	3
Dom. Rep.	1948:2–1966:9	34.1	2	n.a.	n.a.	n.a.
	1966:10–1978:9	26.2	2	6.7	1	3
	1978:10–1982:8	37.0	2	5.4	1	3
	1982:8–1985:1	116.5	3	22.8	3	6
	1985:1–1985:11	6.9	1	37.0	3	4
	1985:12–1986:9	13.6	2	47.3	3	5
	1986:9–1987:6	7.5	1	65.0	3	4
	1987:7–1987:11	9.8	1	72.5	3	4
	1987:11–1988:2	8.5	1	74.0	3	4
	1988:2–1991:8	37.9	2	131.6	3	5
Ecuador	1991:9–1992:10	10.3	2	270.5	3	5
	1992:11–2001:12	4.0	1	85.3	3	4
	1942:4–1947:6	33.0	2	n.a.	n.a.	n.a.
	1947:6–1950:6	32.4	2	n.a.	n.a.	n.a.
	1950:7–1957:6	20.1	2	n.a.	n.a.	n.a.
	1957:7–1970:8	18.5	2	36.7	3	5
	1971:11–1973:2	10.6	2	10.2	2	4
	1982:3–1984:4	84.2	3	8.1	1	4
	1984:5–1987:3	61.6	3	5.0	1	4
	1987:4–1993:9	30.5	2	4.6	1	3
	1993:10–1997:3	3.8	1	8.6	n.a.	n.a.
	1997:3–1997:9	4.5	1	5.1	n.a.	n.a.

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Egypt	1950–1962:5	41.5	2	n.a.	n.a.	n.a.
	1962:5–1971:7	137.5	3	n.a.	n.a.	n.a.
	1971:7–1991:10	105.3	3	n.a.	n.a.	n.a.
	1991:10–2001:12	1.4	1	n.a.	n.a.	n.a.
El Salvador	1961:5–1982:8	29.9	2	4.9	1	3
	1982:9–1990:6	128.9	3	6.4	1	4
	1990:6–1990:6	18.8	2	3.5	1	3
Eq. Guinea	1979:8–1984:8	n.a.	n.a.	2.0	1	n.a.
Finland	1944:7–1948:4	192.6	3	25.9	3	6
	1948:5–1951:6	155.0	3	24.6	3	6
France	1951:6–1967:10	25.5	2	15.9	2	4
	1945:12–1948:1	136.9	3	1.5	1	4
	1948:1–1948:12	68.0	3	1.5	1	4
	1949:1–1956:6	11.9	2	9.3	1	3
	1956:7–1968:12	3.2	1	11.8	2	3
	1969:8–1970:12	2.3	1	10.8	2	3
	1971:8–1973:3	-2.3	1	11.8	2	3
	1973:3–1974:3	1.0	1	12.2	2	3
Gabon	1971:9–1974:3	-0.8	1	27.4	3	4
Gambia, The	1981:1–1985:12	10.0	2	14.4	2	4
	1986:1–1986:1	-10.7	1	17.2	3	4
Ghana	1958:7–1965:7	67.1	3	n.a.	n.a.	n.a.
	1965:7–1971:11	82.1	3	11.9	2	5
	1971:11–1973:9	28.7	2	13.8	2	4
	1973:10–1978:6	261.5	3	15.3	3	6
	1978:6–1984:5	1070.1	3	14.2	2	5
	1984:6–1986:4	136.6	3	14.3	2	5
	1986:5–1986:9	107.1	3	4.0	1	4
	1986:9–1987:9	76.9	3	2.0	1	4
	1987:10–1989:7	24.8	2	5.1	1	3
	1989:8–1990:4	18.6	2	2.6	1	3
Germany	1990:4–1990:9	10.2	2	0.5	1	3
	1945:4–1948:6	2058.4	3	26.1	3	6
	1948:6–1951:3	137.2	3	14.4	2	5
	1951:3–1954:4	11.2	2	12.5	2	4
	1954:4–1958:12	0.9	1	13.9	2	3
Greece	1947:2–1948:9	112.1	3	9.2	1	4
	1948:10–1950:4	182.6	3	23.1	3	6
	1950:5–1954:5	77.0	3	12.9	2	5
	1954:5–1965:12	2.1	1	12.0	2	3
Guatemala	1963:5–1984:11	n.a.	n.a.	7.8	1	n.a.
	1984:11–1985:3	102.7	3	1.9	1	4
	1985:3–1986:6	336.3	3	8.6	1	4
	1986:7–1988:6	40.6	2	16.2	3	5
	1988:6–1989:5	29.8	2	17.0	3	5
	1989:6–1991:4	23.9	2	27.2	3	5
Guinea	1985:10–1986:6	475.3	3	4.5	1	4
Guinea-Bis.	1993:1–1997:5	n.a.	n.a.	36.2	3	n.a.

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Guyana	1982:6–1987:2	731.7	3	14.9	2	5
	1988:1–1990:3	266.3	3	3.6	1	4
	1990:3–1991:4	106.7	3	2.3	1	4
Haiti	1985:1–1989:4	107.4	3	135.5	3	6
	1989:5–1991:9	237.03	3	122.8	3	6
Honduras	1985:3–1990:3	66.3	3	9.8	1	4
	1990:9–1991:3	26.8	2	15.0	2	4
	1991:4–1992:6	14.0	2	36.9	3	5
	1996:1–1998:12	1.1	1	105.7	3	4
Hong Kong	1972:7–1983:10	n.a.	n.a.	24.7	3	n.a.
Hungary	1957:4–1992:7	n.a.	n.a.	24.7	3	n.a.
Iceland	1946:12–1951:3	148.2	3	28.8	3	6
	1951:3–1968:10	48.4	2	16.7	3	5
	1968:11–1973:4	9.9	1	13.5	2	3
	1973:5–1976:1	30.7	2	11.9	2	4
	1976:2–1977:4	55.7	3	14.6	2	5
	1977:5–1983:7	21.8	2	9.2	1	3
India	1965:10–1966:6	111.9	3	n.a.	n.a.	n.a.
	1974:1–1974:6	2.2	1	17.0	2	3
	1974:7–1978:11	4.0	1	10.6	2	3
Indonesia	1946:3–1949:11	645.0	3	n.a.	n.a.	n.a.
	1949:11–1949:12	663.2	3	n.a.	n.a.	n.a.
	1950:10–1952:1	336.3	3	n.a.	n.a.	n.a.
	1952:2–1954:8	122.0	3	n.a.	n.a.	n.a.
	1954:9–1955:11	239.5	3	n.a.	n.a.	n.a.
	1955:12–1969:3	1034.8	3	n.a.	n.a.	n.a.
	1969:4–1970:12	13.3	2	6.9	1	3
	1970:12–1971:8	2.0	1	10.7	2	3
	1971:8–1972:6	2.3	1	11.6	2	3
		1972:7–1973:12	-2.8	1	6.7	1	2
Iran	1945–1954:1	112.6	3	n.a.	n.a.	n.a.
	1954:2–1957:5	65.0	3	n.a.	n.a.	n.a.
	1957:5–1974:1	6.4	1	n.a.	n.a.	n.a.
	1974:1–1976:12	1.3	1	n.a.	n.a.	n.a.
	1977:1–1994:1	959.0	3	12.2	2	5
	1994:2–1996:2	149.2	3	21.4	3	6
	1996:3–2001:12	181.4	3	15.6	3	6
Iraq	1859:6–1972:6	19.7	2	n.a.	n.a.	n.a.
	1982:1–1998:12	115,672.80	3	1.3	1	4
Israel	1948:8–1950:12	68.5	3	n.a.	n.a.	n.a.
	1952:2–1962:2	145.1	3	n.a.	n.a.	n.a.
	1970:8–1973:9	19.6	2	16.3	3	5
	1973:10–1977:10	42.0	2	19.2	3	5
Italy	1946:3–1947:12	-0.6	1	n.a.	n.a.	n.a.
	1948:2–1951:9	8.8	1	13.9	2	3
	1951:10–1958:12	1.6	1	13.7	2	3

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Italy	1958:12–1959:6	-0.2	1	15.6	3	4
	1969:1–1973:1	1.7	1	11.9	2	3
	1973:10–1974:3	11.0	2	9.2	1	3
Jamaica	1977:4–1977:12	120.0	3	21.0	3	6
	1978:1–1978:5	124.4	3	2.8	1	4
	1983:1–1989:11	31.2	2	9.4	1	3
Japan	1946:7–1949:4	448.3	2	20.0	3	5
	1949:4–1953:5	27.0	2	27.9	3	5
	1953:5–1959:3	14.6	2	31.5	3	5
Jordan	1989:7–1990:2	14.8	2	5.1	1	3
Kenya	1978:12–1986:2	16.2	2	8.8	1	3
	1987:1–1991:9	13.3	2	10.6	2	4
	1991:10–1994:5	41.4	2	5.4	1	3
	1994:5–1995:12	9.1	1	1.8	1	2
Korea	1945:10–1948:11	1,300.0	3	n.a.	n.a.	n.a.
	1948:12–1953:2	233.8	3	n.a.	n.a.	n.a.
	1953:2–1954:12	326.2	3	n.a.	n.a.	n.a.
	1955:1–1955:12	214.1	3	n.a.	n.a.	n.a.
	1956:1–1964:5	91.7	3	n.a.	n.a.	n.a.
	1964:5–1974:4	13.7	2	12.2	2	4
Kuwait	1969:5–1972:6	-0.3	1	n.a.	n.a.	n.a.
	1984:4–1984:8	2.3	1	27.3	3	4
Laos	1973:3–1988:4	344.1	3	n.a.	n.a.	n.a.
	1988:5–1990:5	28.1	2	12.4	2	4
	1990:6–1995:9	7.9	1	12.6	2	3
	1995:9–1996:12	0.6	1	7.0	1	2
	1997:1–2000:3	-0.9	1	24.6	3	4
	2000:4–2001:12	n.a.	n.a.	23.3	3	n.a.
Lebanon	1946:10–1950:6	24.3	2	n.a.	n.a.	n.a.
	1950:7–1975:8	0.01	1	n.a.	n.a.	n.a.
	1975:9–1984:2	13.4	2	n.a.	n.a.	n.a.
	1984:3–1991:7	n.a.	n.a.	3.7	1	n.a.
Lesotho	1985:9–1995:3	5.4	1	n.a.	n.a.	n.a.
Liberia	1988:1–1997:10	1625.5	3	49.5	3	6
	1997:10–1998:8	1439.1	3	4.9	1	4
Libya	1955:12–1971:12	20.5	2	9.7	1	3
	1971:12–1981:4	47.1	2	10.7	2	4
	1981:4–1986:3	126.3	3	6.4	1	4
	1986:3–1986:5	248.2	3	11.0	2	5
	1986:5–1992:3	282.4	3	11.5	2	5
	1992:3–1992:7	429.9	3	1.4	1	4
	1992:7–1992:8	446.3	3	1.4	1	4
	1992:8–1993:8	453.3	3	1.0	1	4

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Libya	1993:8–1994:11	436.0	3	0.9	1	4
	1994:11–1998:10	444.5	3	1.1	1	4
	1998:10–1999:2	719.9	3	n.a.	n.a.	n.a.
Luxembourg	1944:10–1954:4	15.5	2	n.a.	n.a.	n.a.
	1955:7–1971:10	1.0	1	n.a.	n.a.	n.a.
	1971:11–1990:3	1.8	1	n.a.	n.a.	n.a.
Madagascar	1971:9–1973:8	n.a.	n.a.	11.7	2	n.a.
Malawi	1964:11– 1971:2	24.9	2	26.8	3	5
	1971:2–1973:11	37.1	2	24.4	3	5
Mali	1971:9–1974:3	-0.8	1	45.5	3	4
Mauritania	1945:12–1971:9	n.a.	n.a.	8.4	1	n.a.
	1971:9–1973:6	n.a.	n.a.	10.3	2	n.a.
	1973:6–1974:1	28.3	2	5.2	1	3
	1974:1–1983:10	61.0	3	n.a.	n.a.	n.a.
	1983:11–1992:10	161.8	3	5.7	1	4
Mauritius	1992:10–1994:8	78.1	3	n.a.	n.a.	n.a.
	1994:9–1995:12	9.4	1	n.a.	n.a.	n.a.
	1967:11–1976:1	n.a.	n.a.	16.5	3	n.a.
Mexico	1976:1–1982:5	n.a.	n.a.	12.3	2	n.a.
	1982:2–1988:3	28.0	2	29.8	3	5
	1988:3–1988:12	20.4	2	52.2	3	5
	1988:12–1991:11	8.0	1	38.6	3	4
Mongolia	1991:2–1993:5	n.a.	n.a.	n.a.	n.a.	n.a.
Myanmar	1972:8–1974:7	222.7	3	12.2	2	5
	1974:7–1975:1	218.2	3	17.7	3	6
	1975:1–1976:2	223.7	3	29.9	3	6
	1976:3–1983:4	374.9	3	13.5	2	5
	1983:5–1986:3	364.6	3	36.2	3	6
	1986:4–1988:3	424.0	3	95.5	3	6
	1988:4–1991:5	919.3	3	93.5	3	6
	1991:6–1992:12	1,475.6	3	12.3	2	5
	1993:1–1994:1	1,738.4	3	11.2	2	5
	1994:2–1996:7	1,827.7	3	12.3	2	5
	1996:8–1999:1	2445.3	3	15.2	3	6
Nepal	1974:1–1978:3	13.4	2	n.a.	n.a.	n.a.
	1978:3–1981:9	11.0	2	5.0	1	3
	1992:3–1993:2	47.3	2	5.0	1	3
Netherlands	1944:9–1950:8	79.6	3	5.9	1	4
Nicaragua	1950:10–1963:3	28.1	2	n.a.	n.a.	n.a.
	1963:3–1969:12	18.4	2	n.a.	n.a.	n.a.
	1970:1–1974:11	18.4	2	4.2	1	3
	1978:9–1979:4	58.5	3	11.2	2	5
	1979:4–1982:8	134.9	3	11.9	2	5
	1982:9–1991:4	3,301.6	3	11.3	2	5
Niger	1971:9–1974:3	-0.8	1	22.9	3	4
Nigeria	1971:8–1971:11	57.7	3	3.0	1	4
	1971:11–1973:1	46.3	2	3.3	1	3
	1973:1–1974:4	72.1	3	4.4	1	4

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score	
Nigeria	1983:4–1984:9	257.6	3	8.8	1	4	
	1985:9–1987:1	216.9	3	27.7	3	6	
	1987:2–1989:12	44.65	2	16.8	3	5	
	1990:1–1991:5	18.3	2	46.6	3	5	
	1991:6–1996:3	167.4	3	11.9	2	5	
	1996:4–2001:12	292.6	3	1.0	1	4	
Norway	1945:5–1954:3	36.4	2	6.0	1	3	
	1954:4–1956:4	5.9	1	n.a.	n.a.	n.a.	
Pakistan	1959:1–1971:9	77.6	3	19.1	3	6	
	1971:9–1982:1	34.0	2	11.8	2	4	
	1982:1–1984:1	25.8	2	14.9	2	4	
	1984:2–1989:8	7.7	1	10.4	2	3	
	1989:9–1991:4	7.8	1	9.0	1	2	
	1991:5–1994:4	7.2	1	12.3	2	3	
	1994:5–1998:7	5.3	1	10.2	2	3	
	1998:7–1999:5	22.0	2	n.a.	n.a.	n.a.	
Paraguay	1949:11–1957:8	246.4	3	n.a.	n.a.	n.a.	
	1957:8–1960:10	3.1	1	n.a.	n.a.	n.a.	
	1960:10–1973:7	17.2	2	10.7	2	4	
	1973:7–1981:8	11.1	2	45.9	3	5	
	1981:9–1985:3	109.1	3	54.1	3	6	
	1985:4–1986:4	181.3	3	76.7	3	6	
	1986:5–1989:2	123.4	3	51.1	3	6	
	1948:9–1959:5	17.9	2	n.a.	n.a.	n.a.	
Peru	1959:5–1960:5	-0.5	1	n.a.	n.a.	n.a.	
	1967:10–1971:6	27.3	2	15.0	2	4	
	1971:7–1975:8	68.0	3	14.1	2	5	
	1975:9–1977:10	36.9	2	17.5	3	5	
	1977:10–1977:12	15.5	2	17.0	3	5	
	1978:5–1984:2	5.1	1	12.8	2	3	
	1984:2–1986:8	27.7	2	7.7	1	3	
	1986:12–1990:8	208.8	3	4.5	1	4	
	Philippines	1960:4–1965:11	27.3	2	n.a.	n.a.	n.a.
		1972:12–1983:9	7.1	1	n.a.	n.a.	n.a.
1983:10–1984:10		31.9	2	14.2	2	4	
Poland	1988:1–1989:3	n.a.	n.a.	5.4	1	n.a.	
	1989:3–1990:1	n.a.	n.a.	12.7	2	n.a.	
	1990:1–1991:5	n.a.	n.a.	9.6	1	n.a.	
	1991:5–1993:4	n.a.	n.a.	4.6	1	n.a.	
	1993:5–1995:5	n.a.	n.a.	10.3	2	n.a.	
Romania	1957:7–1990:1	n.a.	n.a.	34.0	3	n.a.	
	1990:2–1991:11	n.a.	n.a.	3.7	1	n.a.	
Russian Fed.	1992:1–1995:6	n.a.	n.a.	n.a.	n.a.	n.a.	
	1995:7–1996:7	n.a.	n.a.	n.a.	n.a.	n.a.	
	1996:8–1998:8	n.a.	n.a.	n.a.	n.a.	n.a.	
	1998:8–1999:11	n.a.	n.a.	n.a.	n.a.	n.a.	
	1999:12–2001:12	n.a.	n.a.	n.a.	n.a.	n.a.	
Saudi Arabia	1958:6–1960:1	7.6	1	n.a.	n.a.	n.a.	
Senegal	1971:9–1974:3	-0.8	1	6.3	1	2	

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
South Africa	1972:10–1979:1	19.6	2	31.6	3	5
	1979:1–1983:2	11.4	2	40.9	3	5
	1985:9–1995:3	7.6	1	n.a.	n.a.	n.a.
Spain	1946:8–1948:10	95.5	3	26.7	3	6
	1948:11–1951:5	36.1	2	27.9	3	5
	1951:6–1959:7	22.2	2	10.3	2	4
Sri Lanka	1959:7–1974:1	1.3	1	n.a.	n.a.	n.a.
	1959:1–1966:2	91.8	3	n.a.	n.a.	n.a.
	1968:5–1971:11	123.6	3	18.1	3	6
	1971:11–1972:7	174.5	3	15.6	3	6
	1972:7–1976:5	89.7	3	16.2	3	6
Suriname	1976:5–1977:11	69.1	3	7.1	1	4
	1974:7–1975:3	37.9	2	10.9	2	4
	1975:4–1982:4	34.8	2	6.9	1	3
	1982:5–1986:3	224.3	3	7.5	1	4
	1986:4–1987:12	847.8	3	9.7	1	4
	1988:1–1989:6	541.5	3	10.9	2	5
	1989:6–1991:4	781.5	3	8.9	1	4
	1991:5–1994:7	2,304.8	3	23.3	3	6
	1995:12–1998:1	10.1	2	n.a.	n.a.	n.a.
	1998:2–1999:1	30.7	2	n.a.	n.a.	n.a.
Swaziland	1985:9–1995:3	11.4	2	n.a.	n.a.	n.a.
Sweden	1946:7–1952:2	25.8	2	7.3	1	3
	1952:3–1954:9	9.1	1	3.7	1	2
Switzerland	1934:11–1935:6	35.6	2	n.a.	n.a.	n.a.
	1942:1–1946:6	-19.0	1	n.a.	n.a.	n.a.
	1946:6–1949:9	-10.4	1	n.a.	n.a.	n.a.
Syria	1948:1–1969:12	6.2	1	5.4	1	2
	1973:8–1976:4	2.8	1	15.2	3	4
	1976:4–1981:4	11.2	2	15.6	3	5
	1981:4–1982:5	56.0	3	5.1	1	4
	1982:5–1988:1	278.0	3	4.2	1	4
	1988:1–2001:12	320.0	3	12.8	2	5
Tajikistan	1992:1–1995:12	n.a.	n.a.	n.a.	n.a.	n.a.
Tanzania	1971:8–1973:11	106.5	3	19.4	3	6
	1973:12–1975:3	90.3	3	n.a.	n.a.	n.a.
	1975:4–1975:10	206.8	3	9.3	1	4
	1975:10–1979:1	133.9	3	7.1	1	4
	1979:1–1983:8	181.9	3	6.6	1	4
	1983:9–1985:5	269.8	3	12.0	2	5
	1985:6–1991:8	172.0	3	24.3	3	6
	1991:9–1993:8	33.3	2	10.1	2	4
	1994:1–1996:3	2.5	1	10.2	2	3
	1996:4–2001:12	6.2	1	7.3	1	2
Thailand	1947–1956:1	67.9	3	n.a.	n.a.	n.a.
Togo	1971:9–1974:3	-0.8	1	6.3	1	2
Tunisia	1958:11–1974:3	49.7	2	11.6	2	4

Table 2. Estimating and Scoring the “Leakages”

Country	Episode	Parallel Market Premia	Parallel Market Score	Export Misinvoicing	Misinvoicing Score	Combined “Leakages” Score
Turkey	1943:9-1946:9	122.9	3	n.a.	n.a.	n.a.
	1946:9-1953:9	45.6	2	n.a.	n.a.	n.a.
	1953:9-1960:8	194.4	3	n.a.	n.a.	n.a.
	1961:6-1970:8	42.5	2	11.0	2	4
	1971:12-1976:8	4.5	1	11.3	2	3
	1976:9-1981:3	24.9	2	6.2	1	3
	1981:4-1983:3	13.7	2	7.1	1	3
Uganda	1966:8-1971:10	47.0	3	0.9	1	4
	1971:10-1975:10	263.3	3	0.9	1	4
	1975:10-1981:6	821.1	3	1.4	1	4
	1982:8-1983:10	144.9	3	0.9	1	4
	1983:11-1984:6	39.4	2	0.9	1	3
	1984:6-1986:5	44.8	2	1.4	1	3
	1986:5-1986:8	255.8	3	1.4	1	4
	1986:8-1989:9	362.2	3	0.9	1	4
	1989:10-1992:7	47.4	2	0.6	1	3
	1992:7-1992:12	16.8	2	0.8	1	3
	1993:1-1993:11	14.4	2	0.1	1	3
Ukraine	1991:1-1996:10	n.a.	n.a.	n.a.	n.a.	n.a.
	1996:10-1998:9	n.a.	n.a.	n.a.	n.a.	n.a.
UK	1940:3-1948:7	56.7	3	7.5	1	4
	1948:8-1950:9	24.3	2	10.5	2	4
	1950:9-1970:8	3.5	1	12.2	2	3
	1970:8-1972:6	1.7	1	11.7	2	3
Uruguay	1944:7-1947:7	-41.63	1	n.a.	n.a.	n.a.
	1948:8-1958:5	-14.9	1	n.a.	n.a.	n.a.
	1958:6-1959:12	-0.4	1	n.a.	n.a.	n.a.
	1963:7-1965:7	42.2	2	n.a.	n.a.	n.a.
	1965:8-1968:5	35.0	2	n.a.	n.a.	n.a.
	1971:1-1971:4	31.6	2	10.7	2	4
	1971:4-1974:11	62.5	3	15.5	3	6
	1974:12-1978:10	12.5	2	10.4	2	4
	1986:1-1990:12	13.6	2	25.8	3	5
Venezuela	1941:7-1976:7	8.6	1	n.a.	n.a.	n.a.
	1976:7-1983:2	2.4	1	13.1	2	3
	1983:2-1986:11	147.3	3	7.7	1	4
	1986:12-1989:3	148.6	3	5.7	1	4
	1994:5-1996:4	26.3	2	14.2	2	4
Zambia	1968:1-1971:12	45.6	2	14.7	2	4
	1971:12-1976:7	102.8	3	21.8	3	6
	1976:7-1983:7	102.7	3	16.7	3	6
	1985:10-1987:3	43.8	2	23.2	3	5
	1987:3-1987:5	1.4	1	10.9	2	3
	1987:5-1988:11	241.3	3	10.2	2	5
	1988:11-1990:2	733.0	3	70.4	3	6
	1990:2-1998:12	60.0	3	27.4	3	6
Zimbabwe	1983:7-1991:4	76.4	3	17.8	3	6
	1991:5-1994:7	28.1	2	13.9	2	4