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INFORMAL RURAL CREDIT MARKETS UNDER CONDITIONS OF HYPERINFLATION: THE CASE OF MONEYLENDING IN THE UPPER VALLEY OF COCHABAMBA BOLIVIA

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Introduction

Informal credit markets in rural areas have long been fascinating for students of less-developed countries. These markets typically are stereotyped as consisting of moneylenders that use monopsony powers to gouge peasants and other rural residents by charging usurious interest rates that considerably exceed those collected on loans made by formal market institutions, such as banks. A 1979 study by Ladman and Torrico (1981) of the informal markets in the Bolivian Upper Valley of Cochabamba found considerable evidence to dispute this portrayal of moneylending in this region of Bolivia. The study found there was competition, because moneylending was not concentrated in the hands of a few persons, but, rather, was widespread among many parties. The very large majority of lenders used holdings of excess liquidity earned from their principal occupation to make only one or two loans per year. As such, the market was widely dispersed and was found to be the largest source of lending, as measured by loan numbers, in the region; nevertheless, only 5 percent of the families in the region were borrowers in the informal market.[1] However, interest rates charged by moneylenders were found to exceed considerably the government-determined fixed rates assessed by banks. Ladman (1984) had an explanation for this phenomenon by viewing interest costs in the context of total borrowing costs (including both interest and borrower transactions costs). Since bank loan interest rates were fixed at apparently low levels, it would be expected that persons would prefer bank loans and gain the income transfer from the artificially low-priced credit. However, the study concluded that markets were segmented by lenders, depending on loan size. It was found that it was perfectly rational for borrowers of small amounts to pay the high informal market interest rates on loans from moneylenders. Not only were these rates more representative of the opportunity cost of capital, but also, given the very low transactions costs associated

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with borrowing from moneylenders, the average total borrowing costs for small loans were less than these costs of the development bank.

Between 1979 and 1987, Bolivian financial markets underwent tremendous trauma. After a number of years of reasonable price stability, inflation set in (see Table 1). By 1984 and 1985 it reached

Table 1 - AVERAGE ANNUAL RATES OF PRICE INCREASES, LA PAZ CONSUMER PRICE INDEX 1977-1987

YEAR	ANNUAL RATE OF INFLATION	YEAR	ANNUAL RATE OF INFLATION
1975	7.98	1982	123.54
1976	4.49	1983	275.58
1977	8.10	1984	1,281.35
1978	10.36	1985	11,749.64
1979	19.72	1986	276.33
1980	47.24	1987 (July)	6.2
1981	32.13		

SOURCE: Banco Central de Bolivia, División de Estudios Económicos, Estadísticas Monetarias y Financieras, No. 37, Septiembre, 1987.

proportions of hyperinflation; in 1985 the annual rate of price increase rose to 11,750 percent. After that date, with the severe austerity measures of the new Paz Estenssoro government, inflation mostly declined; in 1986 it was only 276 percent. The decline in price increases continued, by mid-1987 the annual rate of increase was lowered to 6.2 percent.

During hyperinflation and the associated depreciation of the Bolivian currency, formal-market financial institutions reacted by raising interest rates, shortening the terms of loans and, in general, restricting credit. Nevertheless, decapitalization occurred apace. It is assumed that the informal market picked up some of the slack and expanded. As hyperinflation was brought under control, bank interest rates declined slowly but the decapitalized banks lacked lending capacity. The informal market appeared to flourish as persons with excess liquidity readily found outlets to lend their money at interest rates greatly exceeding the deposit rates offered by banks. As such, much financial intermediation took place outside the banking system.

Dedollarization contributed to the trauma. In October 1982, the new Siles Zuazo government abruptly outlawed contracts in dollars and decreed that financial institutions could no longer have dollar accounts nor index their loans to the dollar exchange rate. Done at a time when there were considerable dollars in the country due to a flourishing narcotics industry, this act contributed to inflation and higher interest rates, fostered capital flight and encouraged holders of dollars to enter the non-regulated informal financial markets. Formal market financial institutions were negatively impacted severely. Dedollarization was eliminated shortly after the Paz Estenssoro government took office in August 1985.

This paper uses descriptive statistics to analyze how all of this was manifested in the informal credit markets of the Cochabamba Upper Valley. Using the same techniques as the 1979 study, data were obtained from records of informal market loans registered with small claims judges in the three principal towns of the valley--Punata, Cliza and Arani--for 1980 through 1986 and the first six months of 1987. Although it is certain that the registered loans do not include all informal lending activity because some loans may not have been so recorded, it can be expected that the characteristics of the registered loans are representative of all loans with respect to interest rates, terms and sizes. Furthermore, it is probable that most moneylenders would demand that loans be registered because the registration process provides them with a legal document that can be used in collection proceedings, should the borrower default. Loans most logically excluded from registration would be credits made to family and close friends.

The purposes of this paper are, first, to examine the informal credit market in 1986 and compare the results with the findings with those of the 1979 study. A second purpose is to describe how the Valley's informal credit market behaved over the volitle 1979-1987 period. Particular attention is directed to determine the apparent effect of inflation and dedollarization on loan numbers, loan terms, interest rates, the numbers of different lenders and borrowers, and the tendency to shift from domestic currency to U.S. dollars.

Region of Study

The Upper Valley of Cochabamba is an elongated temperate agricultural region consisting of some 48,000 hectares located at an altitude of 2,700 meters and directly southeast of the city of Cochabamba. The three principal towns of the Valley are Punata, Cliza and Arani, which are the seats of government of three of the four provinces in the Valley. Each of the three provinces has distinct agricultural production patterns: Arani specializes in potatoes, dairy and corn; Cliza emphasizes wheat, corn, potatoes and peaches; and Punata is known for dairy, corn, peaches, vegetables and potatoes. Each town has an active weekly market.

The Valley was the cradle of the 1953 land reform movement, consequently, the region is characterized by numerous farmers on small land plots. Farm production is used for home consumption, with the surplus sold through local markets.

Beginning in the late 1970s, the region was impacted by the coca boom. Many persons in the Valley were attracted by the good economic opportunities in the nearby Chapare tropics to grow coca and/or participate in the illicit production of cocaine paste. One result has been considerable seasonal labor migration. Furthermore, numerous small cocaine factories sprung up in the Valley. These new sources of economic activity have distorted local labor markets, brought new wealth directly to individuals involved, benefited the region's economy indirectly through income and employment multiplier effects, and contributed to increasing the local supply of U.S. currency.

Formal market financial institutions have existed in the region for many years. Commercial banks have offices in Cliza and Punata.

They receive deposits and make small loans, mostly to merchants. The Bolivian Agricultural Bank has a large office in Punata; it lends mostly to small farmers for annual crop production. There is a large interegal cooperative in Punata whose membership is mostly comprised of small farmers. In addition, there are several, but relatively small, credit unions.

Size and Structure of Moneylending

In 1986, there were 1,161 loans registered with small claims judges with a total loan volume of $US764 thousand. There were 693 different lenders registered, of which 77.6 percent made only one loan, 17.0 percent had two to four loans, and 5.4 percent provided five or more loans. Clearly, the market was widely disbursed and there was competition. Only twelve persons made more than nine loans. The maximum was twenty-nine, which was an extreme case since the next largest was twelve. The fact that so many persons made only one loan suggests that most moneylenders did not use that as their principal occupation and made infrequent loans, probably when they had excess liquidity from their main line of work (including cocaine production) during the year.

A large majority of the 894 different borrowers (79.8 percent) only received one loan during the year. Another 18.6 percent had two to four loans and 5.4 percent held five or more. The maximum number of loans received by any single person was eleven. There was considerable credit extended throughout the year, but the incidence was largest in the second semester during the agricultural cycle. The term of loans ranged from 1 to 12 months, but all measures of central tendency showed the typical length to be one to two months. Loan purposes were not identified, however, it appears the credits were extended to cover short-term needs for liquidity in traditional agriculture, commerce, transportation and coca/cocaine production.

Loans were made in either pesos or U.S. dollars, but dollar loans were predominant with 76.8 percent of the loan numbers. During the course of the year, loan interest rates tended to decline as the formal market rates fell with the increasing success of the government's economic stabilization package. Loans made in pesos typically carried a higher interest rate than those made in dollars. The mean dollar interest rate was 187.4 percent of the mean peso rate. Loans in the U.S. currency had lesser risk against the potential ravages of inflation. Over the course of the year, however, with the success of the stabilization measures, the gap between interest rates in the two currencies narrowed.

Changes in Money Lending Activity Between 1979 and 1987

1986 Compared to 1979

In brief, a comparison of 1986 with 1979 shows considerable structural similarities but sharp differences in the characteristics of the credit (see Table 2). The size of the market in 1986 was somewhat smaller than in 1979 (there were 5.5 percent fewer loans registered and 15.6 percent less loan volume). The patterns of seasonal distribution credit were somewhat dissimilar; in 1986 there was a much larger

Table 2 - COMPARATIVE DATA FOR SELECTED YEARS, INFORMAL CREDIT MARKET IN UPPER VALLEY OF COCHABAMBA, 1979-1987

	1979	1980	1981	1982	1983	1984	1985	1986	1987[a]
No. of registered loans	1,229	1,620	1,667	1,190	1,265	555	385	1,161	733
Percent number of loans in									
$US	0.0	1.4	2.4	1.0	0.4	1.4	40.3	76.8	83.9
$b	100.0	98.6	97.6	99.0	99.6	98.6	59.7	23.2	16.1
Seasonality of loans									
Percent per quarter									
Jan. - March	23.9	19.1	30.1	33.8	29.9	41.6	23.1	16.7	--
April - June	18.2	22.7	20.9	20.8	23.9	23.8	15.3	18.4	--
July - Sept.	34.1	28.5	23.8	27.6	26.4	19.5	21.3	34.6	--
Oct. - Dec.	23.9	29.7	25.2	17.8	19.8	15.1	40.3	30.2	--
Term of loans (mo.)									
$US									
mean	--	5.5	4.0	3.7	4.8	4.7	2.0	2.1	2.5
median	--	3.0	3.0	3.5	2.0	2.0	2.0	2.0	2.0
mode	--	3.0	6.0	3.0	1.0	1.0	1.0	2.0	2.0
range	--	1-48	1-12	1-6	1-12	1-12	1-18	1-12	1-36
$b									
mean	4.1	3.8	3.6	3.5	3.3	3.0	2.8	2.2	2.2
median	3.2	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
mode	3.0	2.0	2.0	3.0	2.0	1.0	1.0	1.0	1.0
range	0-72	1-60	1-60	1-24	1-60	1-60	1-48	1-12	1-24
Interest rate (% per mo.)[b]									
$US									
mean	--	3.9	4.0	4.3	3.0	16.6	16.9	13.2	10.3
median	--	4.0	4.0	3.5	3.0	15.0	15.0	10.0	10.0
mode	--	4.0	4.0	3.0	2.0	15.0	10.0	10.0	10.0
range	--	0-6	0-10	0-10	0-4	0-30	0-80	0-60	0-100
$b									
mean	3.5	4.1	4.3	5.0	7.5	13.0	35.4	28.9	19.3
median	3.8	4.0	4.0	5.0	7.0	10.0	30.0	25.0	20.0
mode	4.0	4.0	4.0	5.0	10.0	10.0	20.0	10.0	10.0
range	0-15	0-13	0-30	0-10	0-30	0-105	0-100	0-70	0-50
Size of loan ($US)									
$US-denominated loans									
mean	--	1067	811	869	380	948	886	772	906
median	--	1000	550	528	300	350	500	500	500
mode	--	400	200	200	300	2000	500	500	500
$b-denominated loans ($US)[c]									
mean	399	552	577	316	174	151	144	280	330
median	204	408	364	207	105	82	89	154	206
mode	408	408	408	207	116	28	27	103	258
Total Loans Extended (1,000 $US)[c]	1,387	905	971	383	220	900	170	764	596

[a] Through June.

[b] Measures of central tendency are calculated not including "0" interest rates. It is assumed "0" interest rate loans are loans of "favor" to family members or friends and, therefore, are not representative of market conditions.

[c] Pesos are converted to U.S. dollars at mean monthly parallel market exchange rate.

portion of the loans in the fourth quarter. However, this may reflect that lending activity increased later in the year as the positive results of economic stabilization were more fully realized.

The structure of the market, in terms of concentration of lenders and borrowers and frequency of lending and borrowing, were very similar. As was found in 1979, the 1986 data show moneylending activity is dispersed (77.6 percent of the lenders made only one loan and 5.4 percent made 5 or more loans). Likewise, borrowing is also dispersed (79.8 percent of the borrowers used credit once and only 1.6 percent had 5 or more loans). It appears that the terms and conditions of loans are competitively determined and not subject to heavy monopoly elements. Furthermore, competition was enhanced because in both years the informal market co-existed with robust lending by the local Integral Cooperative "Cochabamba" and the Bolivian Agricultural Bank (BAB). In 1979, the cooperative made 958 loans and BAB extended 209. In 1986, the cooperative's loans numbered about 3,650 and BAB's reached 687.

As would be expected, because of the impacts of inflation and currency depreciation on financial markets, there were sharp differences in the characteristics of loans in the two years.

In 1979, not a single registered loan was in dollars. Whereby, by 1986, more than three-fourths of the numbers of loans were made in dollars. Although facilitated by the local supply of the U.S. currency derived from the narcotics industry, the shift to dollars undoubtedly was lender driven. Lenders viewed dollar loans as means to protect the future value of the credit extended against the risks of inflation and currency depreciation.

In addition to the shift to dollar loans, major changes were also observed in the loan term and interest rates. As expected, loan terms were considerably shorter in 1986 than 1979. Peso loans were reduced nearly 50 percent, going from a mean of 4.1 months to 2.2 months. Surprisingly, in 1986, there was no difference between the terms of dollar and peso loans. It was expected that lenders would have been willing to make longer-term loans in dollars than in pesos.

With inflation, interest rates rose. In 1979, the mean monthly peso loan rate was 3.5 percent and in 1986 it was 28.9 percent. Furthermore, the perceived risk in local currency loans is reflected in the interest rate. The 1986 mean peso loan rate was more than double that for dollar loans. The difference roughly corresponds to the perceived risk in peso loans, derived from inflation and depreciation, compared to dollar loans.

In both years, there were a number of loans with 0 percent interest rate. These loans probably indicate lending among family members or close friends. In 1979, 6.8 percent of the loan numbers were in this category; in 1986 the percentage was 22.8 percent.

Trends During Hyperinflation and Stabilization

Recall that Bolivia experienced high inflation beginning in 1982. The year 1986 was in the immediate post-hyperinflation period. Examination of the data between 1979 and first half of 1987 enable us to observe how the moneylender market in the Upper Valley behaved through a period of rapidly increasing inflation and then in a period of fairly abrupt stabilization. The data in Table 2 are the basis of the analysis.

The most striking feature of the changing market was the rapid shift, beginning in 1985, from peso loans to dollar loans. In that year, 40.3 percent of registered loans were in the U.S. currency. By this time, the government's dedollarization policy was increasingly ignored in informal markets. The observed shift to dollars began slowly in 1980. Between 1980 and 1984 the annual percentage of registered loans in dollars never exceeded 2.4 percent. One explanation of the abrupt shift to dollar loans in 1985 is that it occurred after lenders learned a costly lessen in 1984 about the ravaging effects of rapid inflation and currency depreciation on their outstanding peso loans. In 1986 and 1987 the shift continued, when 76.8 and 83.9 percent of the loans were in dollars, respectively.

There may be additional explanations of the observed sudden shift to dollars in 1985. Major changes were observed in the size of the market. In 1984 and 1985, the numbers of registered loans declined very sharply to 43.8 and 30.4 percent, respectively, of the level of 1983. It is plausible that these two years may have been transition years during which, on the supply side, lenders cut back lending because of uncertainty caused by hyperinflation. It is also plausible that the dedollarization policy, which made it illegal to make loan contracts in dollars may have been a factor. To get around this policy, it is probable that many dollar loans were not registered.

For the same reasons, many dollar loans made between 1982 and 1983 may not have been registered. Indeed, this may explain why there were small declines in number of registered loans in 1982, and 1983. It was certainly expected, given rising inflation in those years, that there would have been a stronger observed shift to dollar loans. Similar reasoning provides an explanation of why, in 1986, after dedollarization had been discontinued and it was legal to register dollar loan contracts, the number of registered loans rebounded sharply, almost reaching the levels of pre-dedollarization.

Demand factors could also account for the decline in market size. Under hyperinflation, many regular business endeavors were negatively impacted and, therefore, the demand for credit for these purposes declined. In contrast, the demand for credit for speculative purposes undoubtedly increased. However, with the lenders' switch to dollars, the attractiveness of borrowing for these purposes would have diminished. With available data, it is difficult to determine the net impact of the demand factors.

The uncertainty resulting from inflation was also manifested in a shortening of the loan term through 1986. In the first half of 1987, however, the average term for dollar loans began to increase again. This suggests lenders began to have less uncertainty about future price stability.

A similar pattern is observed in average loan size. As expected, with accelerating inflation, the size of peso loans decreased through 1986. Then, as inflation was brought under control, it appears that peso loan size again increased as the lenders were more confident about the future. Prior to 1985, the mean size of dollar loans is not an accurate measure because of the few loans registered in this currency. As expected, after 1985 the changes in size of dollar loans were less accentuated than for peso loans.

Interest rates followed the expected pattern. As shown in Table

3, between 1982 and 1986 the nominal annual interest rates for peso and dollar loans diverged, reflecting the larger inflation/depreciation risk associated with peso loans. Curiously, in 1986, the gap widened. This probably reflects the uncertainty in the Bolivian economy at that time about controlling inflation in spite of the early success of the government's stabilization program. However, in the first half of 1987 as confidence set in, the gap rapidly narrowed to nearly one-third of the 1986 difference.

It is expected that moneylenders would make adjustments in the nominal interest rate to counter changes in the rate of inflation and to maintain at least a positive real rate of interest. A comparison of real rates of interest for peso loans over the period shows how successful they were in making adjustments. As shown in Table 3, fluctuating but positive real rates were observed from 1979 through 1981. However, between 1982 and 1985, when inflation began to accelerate, the real rates were increasingly negative. Clearly, money lenders did not adjust rapidly enough. Certainly, this was another factor that caused the shift to dollar loans, decreased loan terms, and/or diminished lending activity. In 1986, with the rapid decline in inflation, moneylenders again earned a positive real return similar to the pre-hyperinflation levels. In 1987, the real rate of interest was exceedingly high, 204 percent per year. Apparently, a residual of hyperinflation psychology remained and moneylenders were slow to adjust the rates downward fearing a resurgence of inflation and/or depreciation of the currency.

It should be noted, however, that moneylenders were more successful in making these adjustments than commercial banks. As shown in Table 3, moneylenders consistently kept their nominal rates considerably above the bank rates. As a consequence, as hyperinflation accelerated, the banks' real interest rate was more negative than the moneylenders' rate. In the 1986 and 1987 stabilization period, moneylenders kept their nominal, and hence real, interest rates higher than the banks.

Conclusions

This study of moneylending activity in the Upper Valley of Cochabamba shows that in 1986, the structure and size of the market had not changed much since 1979. In 1986, as in 1979, it was found that the market was widely dispersed among numerous lenders and borrowers, such that the market appears to be quite competitive. Therefore, the loan interest rates should be representative of the opportunity cost of capital as well as the borrowers' marginal utility of credit in the region. The competitiveness of the market was enhanced by considerable small-scale rural lending in the region from two formal market institutions that offered highly subsidized credit.

Analysis of activity during hyperinflation followed by stabilization between 1979 and mid-1987 showed that the moneylending market behaved as expected in terms of directions of change in the interest rate structure, loan term and size of loan. It was found that in times of hyperinflation, the nominal interest rate on peso loans did not rise rapidly enough to overcome the accelerating effects of inflation, which led to negative real interest rates. However, moneylenders were observed to make interest rate adjustments more

Table 3 - COMPARISON OF ANNUAL INTEREST RATES IN FORMAL AND INFORMAL MARKETS

	Moneylending[a]			Commercial Bank		Differences		
	(1) $US	(2) $b nominal	(3) $b real[c]	(4) $b nominal[b]	(5) $b real[c]	(2) - (1)	(2) - (4)	(3) - (5)
1979	--	42.0	18.6	26.0	5.2	--	16.0	13.4
1980	46.8	49.2	1.3	27.9	-13.1	2.4	21.3	14.4
1981	48.0	51.6	14.7	32.0	-0.1	3.6	19.6	14.8
1982	51.6	60.0	-28.4	45.0	-35.1	8.4	15.0	7.7
1983	36.0	90.0	-49.4	69.0	-55.0	54.0	21.0	5.6
1984	199.2	156.0	-81.5	157.0	-81.4	-43.2	-1.0	0.1
1985	202.8	422.4	-95.6	232.1	-97.2	219.6	190.3	1.6
1986	159.6	345.6	18.4	65.8	-55.9	186.0	279.8	74.3
1987(June)	124.8	229.2	204.0	49.3	40.58	104.4	179.9	163.42

SOURCES: Moneylending rates are from data collected in region. Nominal commercial bank rates are from Banco Central de Bolivia, División de Estudios Económicos, Estadísticas Monetarias y, Financieras, No. 37, Septiembre 1987.

[a]Mean rate for registered loans, excluding loans made at o percent interest.

[b]Effective interest rate. It is nominal rate plus university tax and commission for bank employees fund.

[c]Real interest rate = $\left[\left(\frac{1 + \text{nominal interest rate}}{1 + \text{rate of inflation}}\right) - 1\right] \times 100$

rapidly than commercial banks.

It was expected that there would be currency substitution during conditions of hyperinflation as lenders would seek to protect their loan portfolios against the ravages of inflation and depreciation of the peso. The degree to which this occurred was striking. By mid-1987, more than four-fifths of the lending was in dollars, whereas in 1979 all lending was in pesos. Dollarized lendi ıg accelerated rapidly in 1985 after the governments' 1982 dedollarization policy was suspended. It is hypothesized that between 1982 and 1985 there were considerably more dollar loans than were registered, since in this period of accelerating inflation it was illegal to make contracts in dollars. The fact that the number of registered loans declined sharply in these years is strongly suggestive that this is what occurred. Finally, a caveat on the degree of the shift to dollars in this region is in order: the observed dollarization of lending may be atypical because the nearby production of coca leaf and cocaine paste undoubtedly increased the availability of the U.S. currency, thus facilitating the substitution process.

ENDNOTES

1. Moneylender activity in the Upper Valley appears to be at a higher level than in some other regions of traditional agriculture in Bolivia. Riorden (1977: Table F4) presents data from a 1977 sample survey of farmers in the three southern departments of Chuquisaca, Potosí and Tarija show that only 0.26 percent of farmers in those regions used moneylender credit. Another 2.8 percent had loans from family members, relatives or friends.

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