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## Remittances, exchange rates and the labor supply of Mexican Migrants in the U.S.

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Discussion Paper Series

REMITTANCES, EXCHANGE RATES AND THE  
LABOR SUPPLY OF MEXICAN MIGRANTS  
IN THE U.S.

by

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### Abstract

This paper assumes that migrants derive utility from their own consumption, their own leisure and remittances to their family. It hypothesizes that the labor supply and remittances of Mexican migrants in the U.S. are jointly determined. Shifts in real exchange rates affect the cost of sending a given real volume of remittances back to the family in the sending country. This in turn induces income and substitution effects on both remittances and labor supply. It is argued that the substitution effect would dominate. Therefore, under reasonable conditions, a real depreciation of the peso should lead to an increase in both remittances and labor supply. Empirical work using U.S. Census data and a data set containing information on Mexican migrants in the U.S. lends support to the theoretical predictions.

## Introduction

It has been long recognized and studied that in great many circumstances international labor migration in a given direction is associated with substantial net flows of remittances in a reverse direction. An effort has been made in recent work to study remittance behavior: why do migrants remit and what accounts for the pattern and size of their remittances? In answering these and related questions migrants' earnings have appeared as the independent variable in a single equation suitable for answering questions such as: given migrants' full income, what determines the share that is remitted back home? However, the literature on migrants' remittances has not dealt with the dual question viz., how do remittance commitments, whether they are determined contractually or chosen unilaterally, affect migrants' earnings through the impact they exert on migrants' labor supply? Moreover, suppose the price of given remittance commitments which migrants face changes as a consequence of a change in the exchange rate between the currencies of the sending and receiving countries. How will this change affect the labor supply of migrants?

In this paper we propose to study jointly remittances and the labor supply. The paper expands upon the work of Lucas and Stark (1985), and also Stark and Lucas (1987), by including remittances, the migrant's own consumption, the consumption of the migrant's family in the home country in the absence of

remittances, and leisure -- hence labor supply, in the migrant's utility function. We exploit a simple analytical framework and derive several of its implications. The implications are then examined using the 1970 and 1980 Census Public Use tapes and a sample of Mexican migrants in the U.S.

### Analytical Considerations

We assume that the representative migrant chooses leisure, consumption goods and remittances in the host country subject to exogenous prices and a full budget constraint. This extends the standard neoclassical labor supply framework in which leisure and consumption are the only arguments in the utility function. Since remittances and the migrant's own consumption are separate arguments in the migrant's utility function, the migrant's labor supply is influenced by exogenous variables that influence both these arguments. For example, desired remittances may be inversely related to family wealth. Therefore, a decline in family wealth may lead to an increase in remittances. Since the migrant faces a full budget constraint, the increase in remittances must be accompanied by a fall in his/her consumption and/or leisure. It is easy to show that under fairly mild conditions both will fall. In addition, shifts in real exchange rates are likely to influence both the migrant's labor supply and his/her remittances. A change in the exchange rate, in our specific case of the U.S. dollar to the Mexican peso, changes the

cost of sending a given real quantity of remittances. A depreciation of the peso, other things constant, implies that the dollar price of consumption in Mexico falls. If both remittances and leisure are normal goods, opposite income and substitution effects on labor supply are induced. The interesting question to explore empirically is whether changes in exchange rates have a significant impact on labor supply and remittances. Notice that testing for this is purer than testing for the effect of family wealth on remittances since exchange rates are determined by macroeconomic conditions and are uncorrelated with individual tastes or ability whereas family wealth is determined, in part, by past labor supply and remittances decisions. Estimates of the impact of family wealth on labor supply and remittances may therefore be biased.

#### The Effect of Remittances on Labor Supply

Recent migrants are more likely than early migrants to have their families stay behind in Mexico. Families of recent migrants are likely to be poorer than families of early migrants. Under the assumption that the consumption level of the family enters as an argument into the migrant's concave utility function, recent migrants will derive higher utility from a given transfer to their families than will early migrants. Consequently, other things being the same, we would expect recent migrants to work more than early migrants. In principle, since

leisure and/or own consumption are affected by a decision to remit more, it does not follow that leisure will necessarily decline. Yet under fairly mild conditions it can be shown that both leisure and the migrant's own consumption will fall. We note that this implication may be at odds with the prediction that new migrants will work less than earlier migrants in order to acquire human capital specific to the country of destination (Chiswick 1982). According to this view the acquisition of human capital leads to fairly steep earnings profiles in the host country.

To test the differential labor supply prediction, we have used the 1970 and 1980 Census Public Use tapes to estimate labor supply models for Mexican migrants in the U.S. Extracts were made from the 5/100 1980 Census A samples and the 1970 1/100 samples. Some results are shown in Tables 2 and 4. Variable definitions are provided in Tables 1 and 3. Ordinary Least Squares was used (with standard errors provided in parentheses). The results are consistent with the above hypothesis. Table 2 shows that among Mexican male migrants in the U.S. in 1980, the most recent cohort worked significantly more hours in the reference week than did earlier cohorts. The same pattern is observed in the results from the 1970 data (see Table 4). Our hypothesis implies that recent cohorts would be expected to work significantly more hours because of their high propensity to remit income back home. Those recent migrants who have brought



Table 1

Definitions of Variables - The 1980 Cross-Sectional Analysis

INCOME4	asset income
LWAGE	log of hourly wage
IMM1	1 if person is member of 1975 - 80 cohort; 0 otherwise
INCOME5	Social Security Income
HEAD	1 if person is head of household; 0 otherwise
GRADE	years of schooling
AGE2635	1 if person is 26 - 35; 0 otherwise
AGE3645	1 if person is 36 - 45; 0 otherwise
AGE4655	1 if person is 46 - 55; 0 otherwise
AGE5665	1 if person is 56 - 65; 0 otherwise
OVER65	1 if person is over 65; 0 otherwise
MARRIAGE	1 if person is married but not separated
MARIMM1	MARRIAGE * IMM1
AG	1 if person works in agriculture; 0 otherwise
FLUENT	1 if person speaks English fluently; 0 otherwise

Table 2

1980 U.S. Census - Mexican Males Aged 16+ With Positive Earnings  
in 1979. Dependent Variable: Hours Worked in the Reference Week

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	26.1 (2.4)
INCOME4	.0013 (.0007)
LWAGE	-1.5 (.7)
IMM1	6.3 (2.5)
INCOME5	-.005 (.001)
HEAD	7.3 (1.6)
GRADE	-.04 (.14)
AGE2635	2.53 (1.6)
AGE3645	3.0 (1.8)
AGE4655	1.7 (1.9)
AGE5665	-4.0 (2.3)
OVER65	-9.4 (4.9)
AG	2.1 (1.3)
MARRIAGE	4.4 (1.7)
MARIMM1	-6.4 (3.1)
R <sup>2</sup>	.11
N	1117

Table 3

Definitions of Variables - The 1970 Cross-Sectional Analysis

IMM1	1 if person is member of the 1965-70 cohort; 0 otherwise
HEAD	1 if person is head of household; 0 otherwise
ASSETINC	asset income + all other unearned income
AGE2534	1 if person is 25 - 34; 0 otherwise
AGE3544	1 if person is 35 - 44; 0 otherwise
AGE4554	1 if person is 45 - 54; 0 otherwise
AGE5564	1 if person is 55 - 64; 0 otherwise
OVER64	1 if person is over 64; 0 otherwise
WIFEHERE	1 if person is married and wife is present; 0 otherwise
WIFEGONE	1 if person is married and wife is in Mexico; 0 otherwise
AG	1 if person works in agriculture; 0 otherwise
HERE1	WIFEHERE * IMM1
GONE1	WIFEGONE * IMM1
LWEEK	log of weekly wage and salary earnings
P17	years of schooling

Table 4

1970 U.S. Census - Mexican Males Aged 16+ With Positive Earnings  
in 1969. Dependent Variable: Hours Worked in the Reference Week

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	11.0 (2.9)
IMM1	5.6 (1.5)
HEAD	7.7 (1.3)
ASSETINC	.00004 (.00001)
AGE2534	5.0 (1.2)
AGE3544	4.9 (1.3)
AGE4554	3.2 (1.4)
AGE5564	2.1 (1.4)
OVER64	-10.6 (1.8)
WIFEHERE	1.3 (1.2)
WIFEGONE	-.86 (2.0)
AG	2.3 (.9)
HERE1	-4.5 (1.9)
GONE1	4.1 (3.1)
LWEEK	1.85 (.49)
P17	.06 (.08)
R <sup>2</sup>	.11
N	2513

their families with them should not work more hours than earlier cohorts. MARIMM1 is an interaction dummy variable which is equal to 1 if a man is a recent migrant (arrived in 1975 - 1980), if he is married and if his spouse is present. Its coefficient is negative and significant. This suggests that among migrants whose wives are present there is no cross - cohort differential. It is possible to analyze this point further in the 1970 hours equation because more information on marital status is available. In particular, it is possible to determine whether the spouses of migrant men are present or live elsewhere. Table 4 shows that among married Mexican male migrants, presence of the spouse significantly lowers the expected hours differential between recent and older cohorts. It appears that working harder is aimed at supporting the family back in Mexico or at facilitating its entry into the U.S.

As the samples were restricted to a group with very high labor force participation, sample selection bias is not likely to be a serious problem (see Pencavel (1986)). This possibility was nonetheless investigated;<sup>1</sup> no evidence of sample selection bias was detected. The choice of hours worked in the reference week as the dependent variable is appropriate because recent Mexican migrants frequently make short trips to the U.S. Therefore the use of annual magnitudes may lead to seriously biased estimates because they would reflect labor market experience in Mexico. An alternative possibility is that the results reflect "cohort"

effects (Borjas (1985)). In order to investigate this possibility the 1970 and 1980 Census data were pooled. The definitions of the variables for the pooled sample are provided in Table 5. Although the estimated differential is reduced, the evidence in Table 6 suggests that recent Mexican male migrants in the U.S. work more than earlier arrivals even after "cohort" effects are controlled for.

#### The Effect of Exchange Rate Changes on Remittances and Labor Supply

Consider now a migrant who remits. Assuming that the cost of a given consumption bundle in the sending country is lower than the cost of the same bundle in the host country, remitting enables a migrant to purchase more real goods with a given amount of host country earnings. This possibility entails income and substitution effects on remittances which are in the same direction but income and substitution effects on labor supply which operate in opposite directions. Although the net effect on the labor supply is clearly an empirical issue, we suspect the income effect to be quite weak. Recent Mexican migrants tend to stay in the U.S. for short periods. Therefore, their capacity to acquire through remittances a large consumption bundle is temporary and has only a limited effect on their life-cycle full income. In addition, the nominal dollar-peso exchange rate has fluctuated a great deal over the last twelve years. During this

Table 5

Definition of Variables - Pooled Regressions

IMM1	1 if person is member of the most recent cohort; 0 otherwise
COH6570	1 if person is member of the 1965-70 cohort; 0 otherwise
COH7580	1 if person is member of the 1975-80 cohort; 0 otherwise
HEAD	1 if person is head of household; 0 otherwise
ASSETINC	asset and all unearned income other than Social Security (deflated by the CPI in order to have comparable measures for both census years)
AGE2534	1 if person is between 25 and 34; 0 otherwise
AGE3544	1 if person is between 35 and 44; 0 otherwise
AGE4554	1 if person is between 45 and 54; 0 otherwise
OVER55	1 if person is over 55
MARRIAGE	1 if person is married; 0 otherwise
MARIMM1	MARRIAGE * IMM1
EDUC	years of schooling
AG	1 if person works in agriculture; 0 otherwise
LWEEK	log of weekly earnings

Table 6

1970 and 1980 U.S. Census - Pooled Sample of Mexican Males  
Aged 16+ With Positive Earnings in the Previous Year.

Dependent Variable: Hours Worked in the Reference Week

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	16.3 (1.5)
IMM1	2.8 (1.3)
COH6570	1.3 (.78)
COH7580	3.7 (1.4)
HEAD	1.1 (.53)
ASSETINC	-.001 (.0003)
AGE2534	3.9 (.72)
AGE3544	4.1 (.79)
AGE4554	2.3 (.89)
OVER55	-2.5 (.90)
MARIMM1	-3.4 (1.2)
EDUC	.19 (.05)
MARRIAGE	5.6 (.66)
AG	1.2 (.62)
LWEEK	2.06 (.30)
R <sup>2</sup>	.06
N	5883



period, the peso depreciated considerably even within spells of just a few months. A migrant working in the U.S. who is exposed to a sharp depreciation of the peso but who is staying in the U.S. for a short period will be induced to take advantage of this favorable situation by purchasing more home goods while their price is low. Another reason why this favorable cost structure is temporary is that domestic prices in Mexico tend to rise quite sharply in the wake of a depreciation of the peso.

To test the impact of exchange rate shifts on the remittances and labor supply of Mexican migrants we have utilized MIGFILE, one of the four files in the Mexican Migration Project data set of the University of Pennsylvania. From each of four communities in Mexico, one in the state of Michoacan and three in the state of Jalisco, none of which is within 500 miles from the U.S.-Mexican border, a simple random sample of approximately 200 households was selected. From this data set detailed socioeconomic information was obtained for 380 men and women who had some migrant experience in the U.S. Interviews were conducted during the months of November 1982 through February 1983. This sample was supplemented by 60 additional migrants who were interviewed in California during August and September of 1983. The data set contains information on the duration and timing of each migrant's last trip to the U.S. as well as on average monthly remittances and usual weekly hours worked. It is therefore possible to observe the real exchange rate faced by

migrants when their labor supply and remittance decisions are made. The key regression results are shown in Tables 8 through 11 with the definitions of the variables provided in Table 7. As information on several key variables was sometimes missing, the sample sizes in the regressions are somewhat smaller than the full sample. In the regressions MEXCOST is the dollar cost of purchasing a given consumption bundle in Mexico. It is determined by both the nominal exchange rate and the price level in Mexico. The empirical work presented suggests that MEXCOST has a significant impact on migrant remittances and hours worked - and may have an effect on migrant savings as well. In Table 12 the disposition of migrant savings is presented. This information suggests that a large fraction of Mexican migrant remittances is invested in businesses or in housing construction and repair. The savings of Mexican migrants in the U.S. are generally too small to purchase a house or business in the U.S. Moreover, Mexican migrants make short trips to the U.S. so that the purchase of a house there is probably not worthwhile. This suggests that a large fraction of migrant savings is remitted. Therefore it seems likely that the volume of savings is also influenced by MEXCOST.

The data also provide indirect support for the above hypothesis. Our hypothesis rests crucially on the assumption that migrants are not constrained in their choice of hours or remittances. Suppose, however, that migrants are compelled to

Table 7

Definition of Variables Used in the Analysis in Tables 8 - 11

<u>Variable</u>	<u>Definition</u>
EDUC	Years of education
UNDOC	1 if person is undocumented; 0 otherwise
SUPPORT	1 if last trip was financed by a non- interest bearing loan; 0 otherwise
AVERPOIN*	Midpoint of last trip to the U.S
DURAT	Duration of last trip to the U.S. (in years)
YEAR OF LAST VISIT*	Year that migrant began last trip to the U.S.
AGE	Age
AGESQ	AGE * AGE
HOURS	Hours worked per week
REMIT	Monthly remittances in current dollars on last trip
SAVINGS	Monthly savings in current dollars on last trip
WAGE	Hourly wage in current dollars on last job on last trip
LWAGE	Natural log of WAGE
FLUENT	1 if person is fluent in English; 0 otherwise
EARNINC	Migrant monthly wage and salary income on last trip in current dollars
MEXCOST	Dollar price of a bundle of goods in Mexico which could be purchased for \$1 in 1975 (see text for explanation)
LMEXCOST	Natural log of MEXCOST
USPRICE	Price level in the U.S. using the Consumer Price Index (1975 = 1)
LUSPRICE	Natural log of USPRICE
UNEMRAT	U.S. unemployment rate
AVEREARN	Real U.S. average weekly earnings in 1977 dollars
LAVER	Natural log of averearn
REALREM	REMIT/MEXCOST
LREALREM	Natural log of REALREM
REALSAV	SAVINGS/MEXCOST
LREALSAV	Natural log of REALSAV

\* Includes only those migrants whose last stay was after 1967

Table 8

Labor Supply Equation. Dependent Variable: Log of Usual Weekly Hours

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	17.1 (6.7)
LMEXCOST	-.59 (.23)
LUSPRICE	.08 (.18)
LWAGE	.005 (.05)
AGE	.006 (.009)
AGESQ	-.00009 (.0001)
UNDOC	-.04 (.06)
FLUENT	-.02 (.09)
EDUC	.02 (.009)
UNEMRAT	-.04 (.03)
LAVER	-2.6 (1.3)
R <sup>2</sup>	.06
N	244

Table 9

Remittance Equation. Dependent Variable: Log of Real Remittances

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	43.7 (23.8)
LMEXCOST	-2.3 (.81)
LUSPRICE	.30 (.60)
LWAGE	.07 (.17)
AGE	-.01 (.04)
AGESQ	.00004 (.0005)
UNDOC	.04 (.24)
FLUENT	.52 (.48)
EDUC	-.05 (.03)
UNEMRAT	-.04 (.09)
LAVER	-7.4 (4.5)
R <sup>2</sup>	.07
N	178

Table 10

Savings Equation. Dependent Variable: Log of Real Savings

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	36.1 (33.9)
LMEXCOST	-1.8 (1.1)
LUSPRICE	-.21 (.85)
LWAGE	.18 (.23)
AGE	-.04 (.04)
AGESQ	.0005 (.0005)
UNDOC	.50 (.29)
FLUENT	.24 (.39)
EDUC	.03 (.04)
UNEMRAT	-.09 (.12)
LAVR	-6.0 (6.5)
R <sup>2</sup>	.06
N	145

Table 11

Remittance Equation Including SUPPORT

Dependent Variable: Log of Real Remittances

<u>Variable</u>	<u>Coefficient</u>
INTERCEPT	53.4 (27.5)
LMEXCOST	-3.0 (.87)
LUSPRICE	.59 (.57)
LWAGE	.20 (.17)
AGE	-.03 (.04)
AGESQ	.0002 (.0005)
UNDOC	-.06 (.26)
FLUENT	.41 (.51)
EDUC	-.05 (.03)
SUPPORT	-.22 (.18)
LAVR	-9.2 (5.2)
UNEMRAT	-.10 (.10)
R <sup>2</sup>	.13
N	161

Table 12

Disposition of Migrant Savings by Proportion of Migrants Who  
Spent Their Savings on Selected Items

<u>How Savings Were Spent</u>	<u>Proportion of Migrants</u>
Household Construction or Repair	0.17
Debt Payments	0.02
Purchase of Consumer Goods	0.19
Purchase of House or Lot	0.15
Purchase of Land or Orchard	0.07
Purchase of Livestock	0.02
Recreation	0.05
Family Health and Maintenance	0.11
Purchase of Motor Vehicle	0.03
Start a Business	0.02
Buy Tools to Develop a Trade	0.01
Other	0.03
Didn't Save Anything	0.08
Didn't Spend Savings	0.05
Number of Observations	266



send back a certain real volume of remittances. In such a case, there may be no substitution effect on labor supply. Then the amount of remittances that the migrant must provide is likely to be positively associated with the amount of financial support received from the family. In order to test whether this is the case, the variable SUPPORT was included in Table 11. This is a dummy variable which is equal to 1 if the migrant's last trip to the U.S. was paid for by a non-interest bearing loan. As the coefficient of SUPPORT is insignificant, this may be viewed as weak indirect evidence that migrants are not constrained to send back a given real volume of remittances.

The samples in Tables 8 - 11 are restricted to those observations in which the dependent variable takes on positive values. Of the 407 migrants for whom data on hours worked were available, 405 worked strictly positive hours. Therefore, sample selection bias will not affect the estimated coefficients in the hours equations. However, approximately a third of the migrants did not remit at all. The remittance equations were therefore rerun using Tobit models and a two-stage sample selection correction. Although the coefficient of MEXCOST was not significant in the Tobit models, it was negative and significant when the two-stage model was estimated. The results of this latter procedure are presented in Table 13. The chief virtue of this approach is that it allows the parameters that affect the decision to remit to differ from those that influence the

Table 13

Remittance Equation With Sample Selection Correction Dependent

Variable: Real Remittances

<u>Variable</u>	<u>Coefficient</u>
ONE	5003.44 (2468)
UNDOC	-10.84 (148.7)
WAGE	-13.19 (23.18)
AGE	-36.85 (18.90)
AGESQ	.40 (.25)
EDUC	-22.09 (17.83)
USPRICE	-27.54 (325.5)
UNEMRAT	-22.94 (39.31)
AVEREARN	-16.20 (11.18)
MEXCOST	-993.61 (454.7)
INVERSE MILL'S RATIO	96.37 (317.9)
R <sup>2</sup>	.08
Squared Correlation Between Disturbance in this Equation and Selection Criterion	.04
N	178

magnitude being remitted. The coefficient of MEXCOST implies that evaluated at the mean, the elasticity of REALREM with respect to MEXCOST is approximately 1.8. REALREM is defined as nominal dollar remittances divided by MEXCOST. This raises a potentially troubling issue. If migrants remit a given nominal amount of dollars, a fall in MEXCOST will necessarily raise REALREM - regardless of whether the income and substitution effects referred to above occur. Hence, as an alternative, the macroeconomic variables in both the hours and remittances equations were replaced by dummy variables for each year. This approach yielded findings consistent with the above hypothesis. Although the estimated differentials between the dummy variables were usually not significant at conventional levels (which may be due to the small number of migrants observed in any one year), the year dummies were relatively high for those years in which MEXCOST was relatively low. Of course, this approach is not completely satisfactory because the year dummy variables are themselves correlated with MEXCOST. However, the hours equations are not affected by this bias and the impact of MEXCOST on hours worked appears fairly robust. Therefore, the regressions do suggest that there is a labor supply response to a real depreciation of the peso.

As MEXCOST is uncorrelated with individual characteristics its estimated impact on hours and remittances should not be biased due to unobserved heterogeneity. However, MEXCOST may be

highly correlated with macroeconomic conditions in the U.S. which may, in turn, influence the labor supply and remittances of migrants. In particular, during economic downturns the labor supply of migrants may be constrained. In order to mitigate such a bias, the U.S. unemployment rate, UNEMRAT, and the log of real average weekly earnings, LAVER, were included in the regressions. The statistically significant negative coefficient of LAVER is somewhat puzzling. As LAVER tends to be high when labor market conditions are fairly tight, the coefficient of LAVER should be positive. It seems plausible that the concrete labor market conditions experienced by Mexican migrants may be insulated from overall macroeconomic conditions. Therefore it would not be that surprising if the coefficient of LAVER were insignificant. However, this would not explain why the coefficient of LAVER is negative and significant. Perhaps when U.S. labor market conditions are highly favorable, migrants tend to bring their families to the U.S. rather than remit to them. It may also be the case that the tightening of the U.S. labor market coincided with a stricter policing of the U.S.-Mexico border. Borjas, Freeman and Lang (1987) suggest that the effectiveness of the border patrols may have increased over the period from 1967 to 1976. During this period average real weekly earnings in the U.S. were higher than they were in the 1977 - 1982 period. It is likely that tighter border enforcements have significantly raised the costs of migration faced by those migrants who had little

previous experience in the U.S. Indeed, Cornelius (1977) finds that the use of "coyotes" (smugglers of illegal aliens) rose during this period. This, in turn, may have led to compositional changes in the pool of Mexican migrants in favor of older cohorts. And as we have seen, older cohorts tend to remit and work less than earlier ones. Alternative specifications were run in which other U.S. macroeconomic variables (e.g. per capita income) replaced LAVER. The coefficients of several of these variables were also significant, and in the unexpected direction. On the other hand, the coefficient of UNEMRAT was negative in most specifications and was significant in those models in which it is the only macroeconomic variable included. Yet LMEXCOST, the estimated coefficient of the logarithm of MEXCOST, was significant in all hours and remittance equations in which at least one U.S. macroeconomic variable was included. Moreover, it has already been noted that the replacement of these macroeconomic variables with year dummies yielded results consistent with our model. Therefore our main result appears fairly robust.

### Conclusions

Remittances should be of interest not only because they increase the number of beneficiaries of migration, but also because they may help explain the labor market performance of migrants. The analysis of the U.S. Census Public Use tapes

suggests that recent migrants in the U.S. have greater labor supply than earlier migrants. It is likely that this result is due to the fact that recent migrants in the U.S. have a higher propensity to remit than those who arrived earlier. The analysis of the Mexican Migration Project data suggests that a depreciation of the peso induces Mexican migrants to increase both the real volume of goods remitted and their labor supply.

It is possible to extend this framework and consider the possibility that the duration of stay in the receiving country may be an endogenous variable which is determined in a fashion similar to labor supply.<sup>2</sup> If this is the case then the impact of exogenous variables such as exchange rates on labor supply may be mitigated or reinforced. We are attending to these issues in ongoing research.

## NOTES

<sup>1</sup> Several alternative models were investigated. For example, Tobit models were run in which all men who had positive wage and salary earnings during the previous year were included. As some of these men did not work during the reference week, OLS parameter estimates are subject to bias due to the censoring of the dependent variable. However, the alternative estimation techniques had little impact on the estimated coefficients.

<sup>2</sup> The choice of the timing of migration could also be affected by the very factors that tend to impinge upon the level of remittances. A sharp depreciation of the peso is likely to be followed by a sharp increase in the number of entrants into the U.S. labor market. For indirect evidence corroborating this see Davila (1983) who finds that the rapid depreciation of the peso from 1976 to 1977 was associated with a significant increase in the number of apprehensions of illegal migrants. The number of apprehensions is a crude but reasonable measure of the extent of illegal migration.

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