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FAMILY MIGRATION DECISIONS

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FAMILY MIGRATION DECISIONS

1. Introduction

Following a more general tradition, past economic studies of migration did not distinguish between personal and family decisions.[1] With the emergence of detailed household panel data and of modern family economics, such inaccury is no longer admissible. This paper joins a few very recent attempts to analyze migration in the awareness of the family context.[2] In contrast to most of them, my focus is exclusively on the family context. The paper defines family ties relevant to migration decisions and explains their effects on the probability of migration, on consequent changes in employment and earnings of family members, as well as on family integrity itself. Hopefully, the paper provides material for a missing chapter on family economics as well as an addition to the economics of labor supply and of human capital formation.

The analysis starts from an explicit recognition that net family gain rather than net personal gain (of the "head"?) motivates migration of households. Of course, this distinction disappears when the (independent) household consists of a single person. In a family consisting of one member (i=1)

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[1] Perhaps one reason is that the distinction between person and family is viewed as a sociological rather than economic issue. Indeed, sociological research on migration considers the family quite explicitly as a collection of individuals (cf. Long, 1972, 1974, 1975). The most recent survey of the economic literature (Greenwood, 1975) does not even mention the family context of migration.

[2] DaVanzo (1974, 1976), Kaluzny (1975), Polachek and Horvath (1976), Sandell (1975). With the exception of DaVanzo (1974), these papers were not available to me prior to the first draft in 1975. The current version benefitted from the new findings and contains references to them.

mobility takes place when $G_i = R_i - C_i > 0$, where G_i is the net real income gain from migration, R_i returns and C_i costs, all appropriately discounted. When two or more members are present in the family and the migration decision requires that all move, the decision variable becomes $G_f = R_f - C_f$, where $G_f = \sum_i G_i$, $R_f = \sum_i R_i$, and $C_f = \sum_i C_i$.

Presumably, families tend to be less mobile than persons unencumbered by spouse and children. The economic basis for this phenomenon, or at least theory, is that in nuclear families returns from migration ($\sum_i R_i$) increase less than costs ($\sum_i C_i$) as i increases with the presence of spouse and children. Demographic research (Long, 1975) confirms the inhibiting effect of $i > 1$ and especially of the presence of children, with somewhat weaker effects of their numbers on family migration. One source of locational specificity in the presence of children is their schooling. Locational choices of the family are influenced by access to schools which the family prefers and can afford. Once children are placed at such schools the costs of geographic mobility are augmented. Long's research (1975) does, indeed, show that it is not so much family size (when $i > 2$), but the presence of school-age children that inhibits family migration. By the same token, the prospective schooling of children may well be a factor accelerating mobility of the family when the children are still of pre-school age.

In order to focus on the prototype of the economic problems arising when $i > 1$, I abstract from the presence of children in the analytical model. In it I consider only two streams of costs and returns, so that $G_f = G_1 + G_2$, where the subscripts refer to husband and wife. Costs and returns should be understood to include both monetory and nonmonetary components, even if the latter appear to be slighted because they are more difficult to identify. The presence of children is not dismissed in the empirical analysis.

2. Moving as a Family

To simplify the exposition, let us first aggregate all potential destinations into one. Now, in order for the family to move $G_f > 0$. If G_1 and G_2 have the same sign, marital status does not affect the behavior of husband and wife. Differences arise only when the signs of G_1 and G_2 differ. In that case $G_f > 0$ means that one spouse moves along with the other even though his (or her) "private" calculus[4] dictates staying. The net loss of the "tied" mover must be smaller than the net gain of the other spouse to result in a net family gain from moving. Conversely, if the signs differ and $G_f < 0$, one member of the couple would have moved, were it not for the potential loss the other would suffer which exceeds the gain of the would-be-mover. The result is one "tied" stayer. In both cases the "tied" partner is one whose absolute value of loss (gain) is less than the absolute value of gain (loss) of the other partner.[5]

The incidence of "tied" movers and stayers can be seen in this simple example: Let the average probability of a geographic move of adult men or women, when separate, be about 16 percent over the relevant period. If the sign of G_1 is independent (in probability) of the sign of G_2, only 2.56 percent of all families will migrate without conflicting "private" incentives,

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[4] A "private" optimum is the maximal potential personal gain in the absence of family ties, to be distinguished from the actual personal gain or loss, given the family decision.

[5] Note the implicit simplifying assumption that the family's perceived gain from migration (G_f) is the unweighted sum of the separate gains ($G_1 + G_2$) from migration to a place. If "male chauvinism" the wife's "G" receives a lesser weight in family decisions. This would not basically affect our model, though it may affect the empirical magnitudes. Even without "male chauvinism", a dollar of wife's current gain receives less weight than a dollar of husband's current gain, because what matters is the present value of the gain, and the Gs are defined as present value.

and 70.56 percent of families will stay without conflict. In the remaining 26.88 percent of all families, one member is moving or staying contrary to his "private" calculus of gains and losses. The allocation of these "tied persons" among movers and stayers cannot be gauged in this illustration. However, Table 1 provides an answer if we are willing to assume that G_1 and G_2 are paired randomly from distributions that are identical and normal. In this case 7.5 percent of the families move[6] and 2/3 of them ($7.5 - 2.56 \doteq 5\%$) contain "tied movers", while 92.5 percent stay with about one quarter of them ($92.5 - 70.56 \doteq 22\%$) containing "tied stayers". The major point of this example is the dramatic drop of the migration rate from 16% to 7.5% merely by the random pairing of spouses. As will be shown, the inhibiting effect of marital status is reduced, but not eliminated when the special assumptions of this illustration are relaxed. Except that, at the opposite extreme, if the gains (or losses) of men always dominated the losses (or gains) of women, or if the pairs of gains were perfectly positively correlated, the proportion of men (and therefore of women) migrating would be the same whether they are married or not.

To consider the matter in greater generality, drop the assumption of independence between the signs of G_1 and G_2 and simply assume a bivariate distribution of G_1 and G_2, with means and variances μ_1, σ_1; μ_2, σ_2; and correlation ρ_{12}. Now, the probability of migration of persons, or the "private" probability of each spouse is $P(G_i > 0)$, the area in the distribution of G_i to the right of $G_i = 0$, in Figure 1. The size of this area is inversely related to the standardized value of $G = 0$, namely

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[6] This figure appears in Table 1(b) on the assumption that G_1 and G_2 are uncorrelated ($\delta = 0$) and equal, on average ($k = 1$).

TABLE 1

(a) Ratio $(CV_f)^2$ to $(CV_i)^2$

p \ k	0	1/4	1/2	3/4	1
1	1	1	1	1	1
1/2	1	21/25	7/9	37/49	3/4
0	1	17/25	5/9	25/49	1/2
-1/2	1	13/25	1/3	13/49	1/4
-1	1	3/4	1/9	1/49	0

(b) $P(G_f > 0)$, when $P(G_i > 0) \cong 16\%$

p \ k	0	1/4	1/2	3/4	1
1	16.0	16.0	16.0	16.0	16.0
1/2	16.0	13.8	13.2	12.9	12.7
0	16.0	11.3	8.3	8.1	7.5
-1/2	16.0	8.2	4.0	2.8	2.3
-1	16.0	4.8	0.1	0.0	0.0

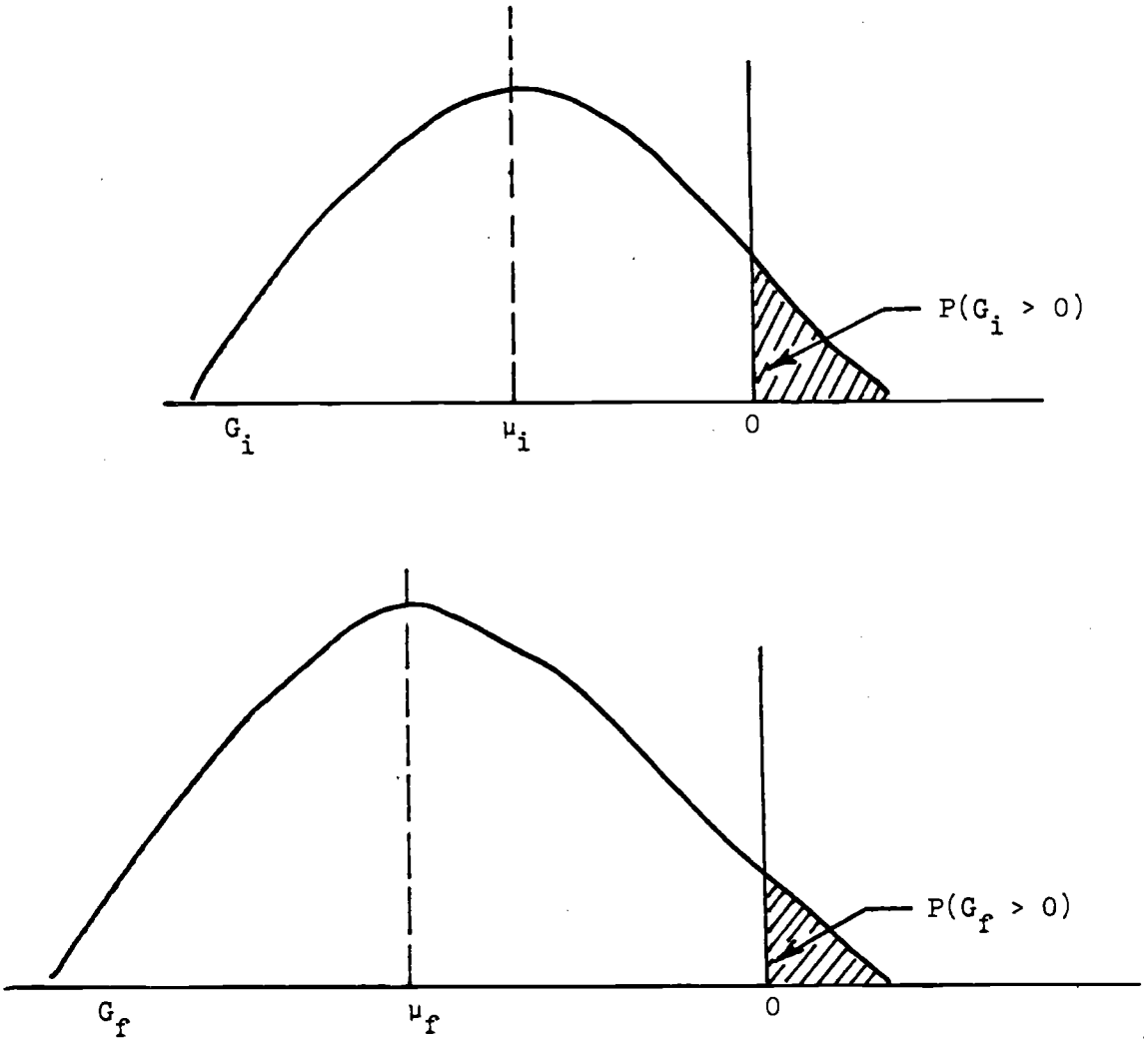

FIGURE 1. Personal and Family Distribution of Gains from Migration.

$$Z_{io} = \frac{0 - \mu_i}{\sigma_1} = \frac{1}{CV_i} \quad ,$$

where CV_i is the coefficient of variation in the distribution.

For simplicity, and perhaps not unrealistically, assume that $CV_1 = CV_2$, so that $\mu_2 = k \cdot \mu$, and $\sigma_2 = k \cdot \sigma_1$. This ensures that the "private" migration probabilities are identical for each sex. Yet the probability of family migration is different, because it is related to CV_f and $CV_f \leq CV_i$.

$$CF_f = \frac{\sigma(G_1 + G_2)}{\mu_1 + \mu_2} = \frac{\sqrt{\sigma_1^2 + 2\rho\sigma_1\sigma_2 + \sigma_2^2}}{\mu_1 + \mu_2} = \frac{\sqrt{\sigma_1^2 + 2\rho k\sigma_1^2 + k^2\sigma_1^2}}{(1 + k)\mu_1}$$

$$= \frac{\sigma_1}{\mu_1}\sqrt{\frac{1 + 2\rho k + k^2}{1 + k}} = CV_1\sqrt{\frac{1 + 2\rho k + k^2}{1 + 2k + k^2}} \quad . \qquad (1)$$

It is clear from (1) that $CV_f = CV_1$ when either $\rho = +1$ or $k = 0$. In other words, when the two gains (or losses) are perfectly correlated or when one spouse's gain (or loss) is negligible, and is therefore always dominated by the other, the overall frequency of migration is not affected by marital status.

It is clear also that $CV_f = CV_1$ is the maximal value of CV_f since the maximum value of the square root expression is unity. In general there is a deterrent effect of marital status which is stronger the lesser (or the more negative) the correlation of G_1 and G_2: For $\rho < 1$, the minimum value of CV_f is reached when $k = 1$.

The top-most panel of Table 1 shows the reduction in CV_f compared to CV_i, for several values of ρ and k. In the bottom-hand panel of Table 1

we can get some notion of the orders of magnitude in the reduction of the family migration probabilities as parameter ρ is decreased and k increased. A simple but informative simulation procedure is to assume normal distributions in Figure 1 and take a period for which $P(G_i > 0) = 16$ percent. Then since $Z_i = 1$, $CV_i = 1$ and cumulative probabilities for $Z_f = \frac{1}{CV_f}$ can be inspected in a normal probability table. These are listed in the bottom part of Table 1 for values of k for $0 \leq k \leq 1$ and of ρ, for $-1 \leq \rho \leq +1$.

It appears from the table that an equalization of work experience of men and women, and presumably a consequent equalization of the distribution of gains from migration (that is, an increase of k toward 1) brings about a reduction in family propensities to migrate, provided ρ, the correlation among gains from migration of spouses, remains unchanged. The deterrent effect of a higher k is stronger at lower correlation levels; for given levels of k the stronger the correlation the less the deterrent effect of marriage on migration.

It is also easy to see that the higher the correlation ρ, the smaller is the incidence of tied spouses: their "public" (family) decisions are largely consistent with their "private" gains from migration. At the same time, k -- the ratio of women's to men's gains -- affects the distribution, rather than the incidence of tied partners among movers and stayers: The closer women's gains to men's ($k \to 1$), the fewer the number of tied movers, but the larger the number of tied stayers (of both sexes), since the total number of movers is smaller. With low levels of k, there is little deterrence to migration and most of the migrating families contain "tied" women. Note, however, that the seriousness of the conflicts between G_f and G_i increases

with k -- a matter which potentially affects family stability when migration opportunities arise. This matter is discussed in section 4 below.

Since "tied" persons in the family are those whose gains from migration are (in absolute value) dominated by gains (or losses) of the spouse, there are reasons to believe that wives are more likely than husbands to be the dominated ("tied") partners. The assumption that $k < 1$ is especially plausible for the labor market components of G_i: On the return side larger gains (or losses) are likely to accrue to persons with greater market earning power. On the cost side, foregone earnings are also higher for such persons. Moreover, the return from migration is likely to be smaller for persons whose labor force participation is discontinuous. Thus, the absolute value of G_i is larger for husbands than for wives. Indeed, within the family, higher market earning powers of husbands induce a lesser market participation, lower market earnings, and a diminished migration payoff for the wife. The lesser net payoff to wives may also result from a larger non-market component in opportunity costs of migration acquired in non-market activity.

Consequently, wives are more likely to be tied movers in migrating families while husbands, if they are tied at all, are more likely to be tied stayers than tied movers. This is most likely to happen when the wives contribution to family income derives from a job. Of course, the larger the contribution and the stronger job attachment, the greater the deterrent effect on family mobility.

If husbands' gains (or losses) from migration usually exceed the losses (or gains) of the wife ($k < 1$), an analysis which disregards family status will not err much in explaining migration behavior of men, especially if their wives are not employed, but will be quite wrong in analyzing the behavior

of women, especially of married women who migrate. In our example, as many as two-thirds of the women movers might move for family reasons only, while at most one-quarter of the women stayers are "tied".

Judging by Table 1, and assuming that the distribution of gains from mobility are related to distributions of wages expected over longer periods of time, we may guess at current U.S. levels of k at a little over one-quarter: .4 is the ratio of working wives to husbands' annual earnings,[6] and since labor force participation of wives is about .5, the ratio for all families is .2. ρ would be .5 if the correlation between the education of spouses is used as a guide, and .3 or less judging by the correlation of wages in couples with working wives. If so, marital status ($k = .25$, $\rho = .3$) may reduce migration propensities of all families by as much as 20 percent. P Presence of working wives ($k = .4$, $\rho = .3$) should reduce it by as much as 33%.[7]

As already noted, trends toward equalization of labor market experiences of men and women (k increasing toward 1) cause reductions in migration propensities in stable families. But, we will be shown, they also create greater instability. Trends in ρ and their effects are not obvious.[8] Even if marital endogamy (similarity of traits) were to increase, the effects on migration would not be clear, unless endogamy were to extend to most detailed occupational characteristics of spouses.

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[6]The estimate is .37 if 1974 figures are used (Table 39 in CPS, P-60, No. 101). I am grateful to Larry Long for the estimate and the references.

[7]Interestingly, the BLS report on migration in 1962-1963 (Special Labor Force Report No. 44) states that migration of married men (wife present) was almost one-third less than that of other men, at ages 18 to 64.

[8]The correlation between husband's earnings and wives' labor force participation has been changing secularly from negative to positive, at least below median earnings of husbands (see Manpower Report of the President, 1975, p. 59). This may suggest an upward trend in ρ.

At any rate, inferences about the effects of ρ should be qualified due to its necessarily restricted definition in Table 1: It represents a correlation of gains from outmigration, since a single (aggregated) destination was assumed. If payoffs beckon in different destinations, ρ loses its meaning altogether, and the family migration problem is magnified.

3. Several Destinations

Since more than one destination is generally open to potential migrants, G_i should be defined as the maximum G over all possible destinations. Then the relevant personal G_1^{max} and G_2^{max} may refer to different destinations, say D_1 and D_2, and a conflict arises even when G_1^{max} and G_2^{max} are both positive. For the family decision, however, $G_f = G_1 + G_2$ must be maximized, and this may result in the family not moving, or moving to D_1, D_2, or even D_3 where neither of the personal gains is maximized but the sum of both is the greatest.

Thus in families who migrate, even the "dominating" partner has a gain G_1 at destination, which is on average smaller than G_1^{max}, the optimal gain he would have got in a different destination. If both gains are positive, neither is as large as it would have been if each of the partners went to his (her) optimal destination. In this sense, both spouses are "tied" to some degree, although the partner whose gain is larger will tend to be closer to his optimum. The previous conclusion that the "dominated" partner loses by migration need no longer be true: Both lose relative to their "private" potential, and the "dominated" spouse loses more,[9] but both may gain, even in a "private" sense (they always gain as a family) relative to origin.

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[9] For a focus on this matter see R.H. Frank (1976).

The divergence of the two G_i among destinations is most likely to arise when both are motivated by job opportunities. For the spouse that is not working, attachment to origin is probably a more important factor affecting migration decisions than differential pull of various destinations. For working couples the compromise involved in finding a destination which maximized family gains at the expense of the potential advancement of each worker creates more ties: Now both rather than one spouse are "tied" in migration. As shown in the next section, the larger magnitude of ties,[10] the greater the potential for family breakup caused by migration opportunities.

We may conjecture that to the extent that both G_i are motivated by job opportunities, the dissimilarity in locational specificities of spouses that gives rise to $G_i < G_i^{max}$ might be reduced by a tendency for such families to locate in large, diversified labor markets. Thus, it may well be that growing job motivation of wives will weaken the tendency toward far-flung suburbanization, not only because of the negative effects of wage prospects on fertility, but also because of a need for greater proximity to large, diversified labor markets.

The expectation of becoming a tied spouse, which characterized most women until very recently, may have had some influence on women's initial occupational choices. The preference for occupations which are most easily transferable geographically may have contributed in part to the concentration of women in such traditional occupations as teaching, nursing, and secretarial work.[11]

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[10]Note the more general definition of a "tie": Tied movers are not only those with negative gains. Ties are defined and measured by discrepancies between actual and maximum potential private gains. Presence as well as degree of "tiedness" are relevant, as shown in section 4, below.

[11]Cf. Long (1974) for this point of view.

But as the dramatic recent increases in family instability get embedded in expectations, the incentives for such prior adjustments will be reduced. More immediately, as shown in the next section, the growing risk of marital instability reduces incentives of spouses to compromise locationally. Consequently, in a classic case of self-fulfilling expectations, differential migration incentives amplify marital instability, once it is anticipated.

4. Migration and Family Stability

The relation between marital status and migration is a two-way street not only under uncertainty, as will be shown. As we inquire about the effects of locational decisions on marital status, the criterion $G_f = G_1 + G_2 > 0$ remains a necessary, but no longer a sufficient condition for migration as a family.

The magnitude of ties in migration can be measured generally by the sum $T = (G_1^{max} - G_1) + (G_2^{max} - G_2)$, where G_i^{max} is the potential optimal "private" gain, while G_i is the individual gain (or loss) from optimal family migration. In the special case of a single destination $G_1 = G_1^{max}$ and $G_2^{max} = 0$, hence $T = -G_2$. T is nothing else but a measure of the negative "private" externality imposed by family migration.

As will be shown, the family internalizes this externality so long as $|T| < M$, where $M = M_1 + M_2$, the family gain from marriage. When $|T| > M$, the family cannot assimilate the externality. It dissolves; one spouse moves, the other stays. M_i is the gain from marriage -- the difference between full wealth when married and full wealth when single. A necessary and sufficient condition for a marriage to dissolve is when family wealth is expected to be less than the sum of each partner's wealth when they are separated (Becker, 1975). In the context of migration the criterion for dissolution becomes:

$$M_1 + M_2 + (G_1 + G_2)^{max} < G_1^{max} + G_2^{max} \qquad (2)$$

where G_1^{max} and G_2^{max} may refer to different destinations (including origin as one of them).

The meaning of inequality (2) is seen more easily when we revert to the simpler case of a single destination. Let 2 be the "tied" partner, thus $G_1 = G_1^{max}$, $G_2^{max} = 0$, and $G_2 = -G_2 < 0$, and $G_1 > |G_2|$. Substituting in (2), the condition for a breakup is simply:

$$M_1 + M_2 < |G_2| \qquad . \qquad (2a)$$

This condition holds regardless of the family's decision whether to move or not. In each case the "injured" party may find it to its benefit to break away rather than to adhere to the "majority" rule.

Consider first the condition $G_f > 0$. This condition is not sufficient for the family to move together: Let $|G_2| > M_1 + M_2$: Since $G_1 > |G_2| > M_1 + M_2$, partner 1 is better off moving and could not be bribed to stay even if he got all of M_2 from 2. But might he not bribe 2 to move with him and be still better off? No, since giving all of M_1 to 2 would not suffice, according to (2a). In this case 1 is better off moving alone, while 2 is better off staying alone.

When $G_f < 0$, because $G_2 > 0$, but $G_1 < 0$ and $|G_1| > G_2$, so the family would be expected to stay if it did not dissolve, it will dissolve under the same condition (2a). It is important to keep in mind that whether the family moves or stays, the left side of inequality (2) represents gains from marriage $(M_1 + M_2)$ and from migration $(G_1 + G_2)$ when moving and zero when staying. The right hand side represents migration gains (zero for stayers)

for separated partners. Now, with $M_1 + M_2 < G_2$, partner 2 leaves and cannot be bribed by partner 1 to stay, nor will partner 2 induce 1 to come along, as this would make 2 even worse off than if he (or she) stayed.

To repeat, in the single destination case, family breakup occurs as soon as the gain (or loss) of the dominated ("tied") partner exceeds the total family gain from marriage. In the general case, breakup occurs when the sum of ties T exceeds the sum of gains from marriage M. Under these conditions, the gains from migration lead each of the spouses to follow their "private" opportunities separately.

The conditions (2a) for breakup due to migration decisions are rather stringent. The smaller of the gain (G_1) or loss (G_2) (in absolute value) from migration must exceed the sum of the gains from marriage. The more general condition (2), with more than one destination, makes marital breakup more probable, as the right side of inequality (2) must exceed that in (2a). Since multi-destination possibilities are more plausible for two-earner families, migration-caused break-ups are also more likely in such families. This is especially true if the prospective stability of marriage is uncertain, regardless of location. If p is the life-time probability of preserving the marriage, the dissolution contingent on migration decisions becomes more plausible when either M or p are small, since $|T| > pM$ expected gains from marriage is more likely the smaller each. Since $(M_1 + M_2)$ as well as p are likely to grow[11] with the duration of marriage and the presence of children, dissolutions due to migration would decline with duration of marriage and are less likely when children are at home, apart from the decline of the frequency of migration.

While single (never married, or separated a long time ago) persons reside in a locational equilibrium, this is not true of the "private" as distinguished from the family equilibrium of married people. One or both

[11] The mechanism may be selectivity as well as growth.

of the partners may be foregoing a private gain or incurring a private loss from migration as a trade-off against the gain from marriage. Marital dissolution restores or creates new "private" incentives, thereby causing, for a time, greater mobility of separated men and women than of those not only married, but also of those never married. With the passage of time, the differences between never married and separated former spouses tends to disappear.

In the case of the newly remarried, as in the case of newly married people, a change in migration equilibrium will also result in increased initial migration, but with the passage of time the differences from the behavior of those married once for a longer time disappears. Thus marital instability, whatever its source, creates "disequilibrium" migration incentives, while the differential migration incentives of spouses creates marital instability.

The theoretical discussion and the following empirical evidence in this paper indicate the way in which the initial (and expected) comparative advantages of family members in market and household activities tend to be reinforced by family labor mobility decisions. The adverse effects on the labor market experience of some married women may be seen as "social oppression" from a "private" point of view. Such a view, however, fails to note that the behavior we analyzed is a product of family welfare maximization. This is pareto-optimal since "private" market losses can be internalized by the family, that is compensated by a redistribution of gains. However, when the sum of separate real incomes exceeds family real income, the optimal adjustment is family dissolution, a growing phenomenon which is in part traceable to the changing division of labor among the sexes.

PART II. IMPLICATIONS AND FINDINGS

The following examples provide clear empirical illustrations of the concepts of "tied" spouses and of the distinctions between personal and family gain in migration analysis:

(1) A BLS survey of persons unemployed in April 1962,[12] the incidence and attitudes of tied spouses: the unemployed were asked whether they would accept a job in another area comparable to the one they lost. A positive answer was given by 30% of the married men, 21% of the single women, and only 8% of the married women. Most people who said "no" cited family, home, and relatives as reasons for the reluctance to move. However, one quarter of the women singled out their husbands' job in the present area as the major deterrent factor, while only 3% of the husbands mentioned their wife's job as such a factor. If this finding for the unemployed can be generalized to the entire population, 30% of families would move and 30% - 8% = 22% or two-thirds of the wives of moving families would be "tied movers", while 25% out of 70% of wives in families of stayers declared themselves to be "tied stayers". (Surprisingly, these figures are rather close to the numbers produced in the hypothetical example on p. 4).

(2) The importance of the distinction between personal and family gains from migration was first shown in a study by Julie DaVanzo (1972). Using 1960 Census data aggregated into nine Census divisions the study estimated gross migration flows of men and women as functions of "prospective" personal family gains. It was suggested in our discussion that analysts looking at personal gains are most likely

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[12] R. Stein, "Work History, Attitudes, and Income of the Unemployed," Monthly Labor Review, Dec. 1963.

to misinterpret the behavior of women. The study by DaVanzo shows that men's gains explain migration of men in regressions with $R^2 = .34$. When family gain is substituted, the R^2 increases to .39. The R^2 for female migration functions using their own gain was only .24. It increases to .32 when men's gains are substituted in the same regressions, and to .41 when family gains are used.

1. Marital Status

If family ties deter migration, as our discussion suggests, then husband-wife families should migrate less frequently than persons without spouses. An excellent demographic study by Larry H. Long (1974) documents this difference very clearly with data on annual migration rates reported in the U.S. Census Current Population Surveys and averaged over a six-year period (1966-1971). Table 1, borrowed from Long's study, shows that in each age group annual migration rates (col's 2 and 3) of husband and wife families in which the husband was 25 - 64 years old were less than rates of men without wives (single, widowed, separated, and divorced).

The behavior of the youngest families (husband's age less than 25) constitutes an exception, which can be explained by the concept of changes in locational equilibrium. Life-cycle events such as completion of schooling, entry into the labor force, family formation, or dissolution create new incentives and opportunities for migration. Conversely, people also migrate to start a career and to marry. Since the youngest married couples are, practically by definition, most recently married, their migration rate is high. Table 2 shows that migration rates decline with duration of marriage steeply at first and again after 5-9 years of marriage.

TABLE 1

Men 20 to 64 Years Old with Nonfarm Occupations - Percent Geographically Mobile During the Preceding Twelve Months, 1966-1971.

	Percent Moving Within Counties	Percent Moving Between Counties	Percent Moving Between States
20 to 24 years old			
Married, wife present	39.8	19.2	8.8
Wife in paid labor force	42.0	19.7	8.5
Wife not in paid labor force	38.0	18.8	9.0
Other marital status	14.9	13.5	8.5
25 to 29 years old			
Married, wife present	23.5	12.4	5.8
Wife in paid labor force	27.1	10.8	5.1
Wife not in paid labor force	21.3	13.3	6.3
Other marital status	20.4	13.1	7.4
30 to 34 years old			
Married, wife present	14.7	7.8	3.6
Wife in paid labor force	17.0	6.3	2.7
Wife not in paid labor force	13.5	8.5	4.1
Other marital status	20.9	10.0	4.8
35 to 44 years old			
Married, wife present	8.9	4.9	2.5
Wife in paid labor force	9.5	3.8	1.8
Wife not in paid labor force	8.5	5.7	3.0
Other marital status	17.0	7.2	3.5
45 to 54 years old			
Married, wife present	6.2	2.7	1.3
Wife in paid labor force	6.5	3.0	0.8
Wife not in paid labor force	5.9	3.3	1.7
Other marital status	14.4	4.9	2.4
55 to 64 years old			
Married, wife present	4.6	1.9	0.7
Wife in paid labor force	4.6	1.4	0.3
Wife not in paid labor force	4.5	2.2	1.0
Other marital status	10.7	3.9	0.8

Source: March Current Population Surveys, 1966-1971, averaged.

TABLE 2

Mobility of Men by Marital Status and Duration of Marriage
U.S. Population (14+), March 1969
Percent of Migrants

	MIGRATION	
	INTERCOUNTY	INTERSTATE
MARITAL STATUS		
Single	6.8	3.7
All married, spouse present	6.3	3.2
Married		
1 year	29.1	14.4
2 years	19.8	9.4
3-5 years	14.0	7.6
5-9 years	10.1	5.4
10+ years	3.7	1.8
Separated	9.2	5.0
Spouse Absent	21.1	8.6
Widowed	4.0	1.8
Divorced	13.5	5.8

Source: CPR, P-20, No. 193, Table 5.

Another interesting distinction shown in Table 3 is that between never married singles (S) and other not married persons (O). With the exception of men under 25, single men have higher mobility rates than married men, though the margin is small. Rates of "others" are much higher than those of married men.[13] It seems plausible that the different durations of marital status contribute to the much higher migration propensities of "others" (separated, divorced, widowed): Their status is on average about six years old,[14] while the duration of singleness is by definition (never-married) the longest of all the groups including those currently married.

A factor which further depresses the rate of singles is that many of them (40-50% of the single men and 30-40% of single women) live in parental households or with other close relatives. This is another example of familial ties which deter migration: As shown in Table 4, relatives of heads living in their household have lower migration rates than heads of households who are married, wife present. Despite the fact that a smaller proportion of single women live with parents or relatives, single women migrate less than single men, and indeed less than married women (Table 3) especially at younger ages. Whether this finding reflects a greater economic dependence of single women on their families cannot be determined from the data.

2. Wife's Employment Status

Conflicting incentives about migration and about choices of destination are most likely to emerge when both husband and wife are jobholders, especially when wife's job attachment is strong and her contribution to family

[13]The exceptions are widowed persons, but they tend to be much older than each of the other groups.

[14]Becker, Landes, and Michael (1976).

TABLE 3

Migration Rates by Age, Sex, Marital Status, 1968-69

Age	Marital Status	Men		Women	
		All	LP[a]	All	LP
18-24	S	9.6	11.1	8.8	10.3
	M	21.7	21.0	20.7	20.9
	M_{LY}[b]	30.4	29.0	36.8	37.7
	O	28.9	28.0	21.9	19.9
25-34	S	11.4	10.9	7.5	8.4
	M	10.5	10.4	9.1	7.4
	O	20.7	19.4	12.4	10.9
35-44	S	5.5	5.4	4.6	3.0
	M	5.5	5.5	4.7	3.5
	O	14.9	12.1	5.5	4.4
45-64	S	5.0	3.4	2.7	1.5
	M	2.9	2.6	2.8	1.7
	O	8.1	6.0	3.2	2.6

Source: CPR, P-20, No. 193, Table 7

[a]In the labor force

[b]Married last year

TABLE 4

Migration Rates by Relation to Household Head, 1970-1971

Age	Household Status	Males	Females
18-24	MSP[a]	21.9	20.5
	Other head (OH)	-	12.6
	Primary individual and non-relative (PINR)	24.8	33.0
	Relative of head (RH)	6.7	5.7
25-34	MSP	10.8	9.4
	OH	5.0	9.3
	PINR	18.6	13.8
	RH	8.5	9.5
35-44	MSP	4.8	3.9
	OH	5.7	4.9
	PINR	10.5	10.6
	RH	4.8	4.8
45-64	MSP	2.7	2.6
	OH	1.5	2.0
	PINR	7.2	6.3
	RH	4.1	5.9

Source : CPR, P-20, No. 235, Table 6.

[a]Married, spouse present

income sizeable. This is not to deny the possibility of conflicting non-pecuniary motives. Unfortunately, an empirical classification of families by such criteria is not available, while employment status of spouses is reported in a number of surveys.

All the surveys show higher migration rates of families where the wife is not employed outside the home than in families where the wife is employed (Table 1). As Long (1974) noted, the evidence confuses cause and effect when employment status is reported during the survey week, and migration, if any, during the preceding 12 months. Such findings are partly biased since, of the women who worked at the place of origin and lost their job through migration,[15] many did not, or not immediately, regain employment at destination.

The proper comparison is by employment status which precedes migration. Table 5 (top left panel) shows migration rates of families during a five-year period following 1965, by age of husband and employment status of wife. With the exception of the youngest couples, migration rates are lower in families in which the wives were employed than in families with wives who did not work in 1965. The least propensity to move is shown in families in which wives' job attachment is strongest, here (col. 3) identified by the wifes' employment both in 1965 and 1970.

In young couples (husband's age up to 29 in 1965) where wives worked in 1965 (but not in 1970), migration rates were not lower than in families where the wives did not work in 1965. This finding is confirmed in the NLS sample of young men (next section, Table 7) and can be explained by: (1) investment aspects of migration: Largest investments with biggest (lifetime)

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[15] Increasingly states define this phenomenon as job loss, making the worker eligible for unemployment insurance. The effect is to lower the cost of migration and increase the incidence and duration of the wife's enemployment at destination.

TABLE 5

(A) Wife's Employment Status and Family Migration, 1965-70.

Age of Husband	Percent of Migrants by Employment Status of Wife			Percent of 1965 Working Wives Employed in 1970	
	E_{65}	$E_{65,70}$	N_{65}	Stayers	Migrants
20-24	18.8	16.6	18.8	50.2	41.5
25-29	13.9	10.7	13.1	57.8	44.0
30-39	7.7	5.8	9.0	72.5	57.8
40-49	4.1	3.1	5.4	80.1	65.7
50-59	2.5	1.8	3.1	78.0	62.6

Source: 1970 Census of Population, Mobility for States and the Nation.

(B) Labor Force Rates of Women by Migration and Marital Status, 1971.

Age	Marital Status	All	Stayers	Migrants	Interstate
18-24	S	.60	.58	.71	.72
	M	.45	.47	.43	.42
	MLY	.60	.64	.54	.51
	O	.58	.61	.49	.50
25-34	S	.79	.78	.87	.92
	M	.40	.40	.33	.30
	O	.66	.62	.50	.53
35-44	S	.73	.72	.72	.90
	M	.47	.48	.35	.33
	O	.67	.68	.60	.56
45-64	S	.70	.70	.70	-
	M	.44	.64	.32	.24
	O	.60	.61	.44	.50

Source: CPS, P-20, No. 235.

payoffs are made early in the working life. The prospective family gain in the early career building of the husband is evidently seen to be larger at this stage than in later mobility, outweighing the possible adverse, but weaker effects on the market earnings of the wife. (2) Wives' participation in the labor market is highly transitory at the child-bearing stage. Significantly, Table 5 shows that in young families where wives had a strong attachment to their market work (employed both in 1965 and 1970), the deterrent effect on migration is visible even in the youngest families (compare col. 2 & 3): Evidently, a rise in investment costs -- in this case, larger foregone earnings of wives -- does reduce migration rates. Nevertheless, the deterrent effect on migration, even of wives who are more strongly attached to the labor force, is weaker at younger ages, reflecting the strong incentives to invest in market careers of husbands.

Table 6 shows an interaction of wife's employment status and distance of migration in their effects on migration rates: Migration rates diminish with distance, but they decrease more strongly in families with working wives than in other families. Indeed for the nearest relocations (within counties), migration rates are higher in two-earner than in one-earner families. As Long (1974) puts it: "Having a wife who works may inhibit long-distance movement, but appears to promote short-distance movement". These findings, incidentally, hold for employment status reported after (Table 1) as well as before moving (Table 6).

A search hypothesis can account for the higher local mobility rate of two-earner families, and the progressively lower mobility rate of two-earner compared to one-earner families at increasing distance. If search costs increase with distance (e.g., when repeated travel is required), the incentives

TABLE 6

Married Men 20 to 59 Years Old in 1965 with Nonfarm Occupations in 1970 - Percent Moving Within Counties and Between States Between 1965 and 1970, According to Age and Wife's Employment Status in 1965

			Percent of Wives Employed in 1970			
	Percent Moving Within Counties, 1965-70[a]	Percent Moving Between States, 1965-70[a]	Non-Movers[b]	Movers Within Counties	Movers Between Counties Within a State	Movers Between States
Husbands 20 to 24 in 1965						
Wife employed in 1965	46.6	18.8	54.0	48.2	42.0	41.0
Wife not employed in 1965	42.6	18.8	25.7	31.7	34.0	35.4
Husbands 25 to 29 in 1965						
Wife employed in 1965	41.6	13.9	63.6	55.3	46.3	41.7
Wife not employed in 1965	34.9	13.1	23.6	25.4	23.7	23.4
Husbands 30 to 39 in 1965						
Wife employed in 1965	29.4	7.7	78.9	70.8	60.8	54.7
Wife not employed in 1965	23.8	9.0	25.4	26.3	25.4	23.9
Husbands 40 to 49 in 1965						
Wife employed in 1965	19.7	4.1	83.7	78.5	69.6	61.7
Wife not employed in 1965	16.6	5.4	21.9	23.6	24.2	22.8
Husbands 50 to 59 in 1965						
Wife employed in 1965	16.1	2.5	80.9	76.6	67.9	57.4
Wife not employed in 1965	14.3	3.1	12.9	15.9	16.7	16.8

Source: Bureau of the Census (1973: Table 11).

[a]Percent based on total reporting residence in 1965.

[b]Persons living in the same house in 1965 and 1970.

to search prior to migration are weaker at longer distances for the spouse with the lesser expected returns from migration. With low G_2, migration is not deterred. However, the larger wife's earnings, hence potential net losses ($G_2 < 0$) deter more families from both search and migration at longer distances. At short distances, commutes for search purposes and for job purposes, adjustments in residence for such purposes, as well as visits with friends and relatives are all feasible. Job search is therefore not restricted to one earner and greater (residential) mobility follows almost as a matter of arithmetic.[16]

Consistent evidence is provided by findings that in contrast to long distance migration which is positively related to education of husband, short distance (within counties) moves are inversely related to it (Manpower Report, 1974). The converse is true of wives' labor force participation and of their education. (See Tables 1 and 7.) Apparently, where the female to male wage ratio is higher, migration, if any, is shorter, as the incidence of tied husbands is greater. Short-distance search is a preferable alternative to a potentially large loss at longer distances.

3. The Family Context in Multivariate Analysis

Some of the well-established findings in empirical migration studies are: the positive effects of education and the negative effects of family size, particularly the presence of school-age children.[17] In studies of labor force behavior, mothers' labor force rates are lowest when the children

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[16] This is not to deny the possible validity of another factor mentioned by Long (1974), namely that many of the wives work in order to upgrade family housing.

[17] See Long (1972, 1973) and the references therein.

TABLE 7

Probability of Migration in 1966-69, Regressed on 1966 Origin Variables

Variables	Probability of Quitting and Migrating		Probability of Migrating Given Quit		Probability of Quitting	
	Coefficient	t value	Coefficient	t value	Coefficient	t value
	(A) NLS, MEN, AGE 45-59 IN 1966					
Education	.0022	1.95	.0186	2.13	-.0034	-1.28
Wage	-.0044	-2.61	-.0212	-1.12	-.0122	-3.29
Married	-.0066	- .39	-.0084	- .09	-.0954	-2.40
School-Age Children	-.0163	-1.61	-.1274	-1.55	.0039	.17
Wife Working	-.0058	- .71	-.1272	-1.77	.0470	2.29
Wife's Education	-.0002	- .15	-.0123	-1.27	.0063	2.22
	(B) COLEMAN-ROSSI, MEN, AGE 30-39 IN 1968 Migration 1963-1967, Variables 1963					
Education	.0056	1.53	.0150	1.46	-.0272	-2.35
Wage	-.0001	-2.16	-.0001	- .94	-.0002	-1.65
Married	.0207	.50	.1034	.95	.1610	1.84
Wife Working	-.0363	-1.09	-.1013	-1.61	.0090	1.99
School-Age Children	-.0907	-2.57	-2.664	-2.83	n.a.	
	(C) NLS, YOUNG MEN, AGE 18-28 IN 1971 Migration 1971-73, Variables 1971					
Education	.0049	1.25	.0380	3.30	-.0187	-3.11
Experience	-.0101	-3.57	-.0181	-2.08	-.0181	-4.17
Wage	-.0065	-1.28	-.0055	- .37	-.0187	-2.37
Married	.0062	.24	.0467	.66	-.0364	- .93
Wife Working	.0073	.32	-.0121	- .18	.0498	1.42
Wife's Income	-.00001	- .43	-.00001	- .54	-.0000	- .72
School Age Children	-.0422	-1.11	-.0496	- .40	-.0914	-1.56

are of pre-school age and they increase substantially when children are enrolled in school. Thus, the positive effect of education (or of wage level) of husband on his migration reflects not only greater "private" gains from migration, but also an intra-family substitution effect. The greater comparative advantage in the husbands' market work leads to lesser market work of the wife and, therefore, to fewer obstacles to family migration. Similarly, the pre-school status of young children signifies not only a lesser locational attachment of the family, but also little labor market attachment of the mother, hence again a lesser obstacle to geographic mobility. Moreover, intertemporal substitution is also at work: Anticipated locational attachment related to schooling of children may well induce a speedup of migration in young families.

Obviously, age of parents and of children, education of husband, fertility, and labor force behavior of wife are all interrelated. Whether and to what extent each of these factors affects migration is a question requiring multi-variate statistical analyses. Several recent studies provide evidence in the form of multiple regressions or several-way cross-tabulations of data: On the whole the biases created by left-out variables tend to be minor, and most of the variables appear to be relevant.

Thus Long (1972) finds that school-age children reduce migration not merely because their parents are older than the parents of pre-school children: At each age (of parents) and at each family size, the effect is pronounced. Also, given ages of parents and children, numbers of children have a (weak) negative effect on migration. Similarly, separated and divorced women migrate more readily than married women not merely because they are less likely to have children: At each age of mother and number and ages of children, their

migration rates are higher. Based on regressions for NLS women who were 30-44 years old in 1966, Sandell (1976) summarizes the net effects of wife's employment status in 1967 and of the children's age composition on family migration in the subsequent five-year period as follows:

Probability of Family Migration (1967-1972)

Wife's Job Tenure	Children 6 - 18 None	Children 6-18 Some
0	13.2	10.7
5	7.9	6.3
10	5.5	4.4

In regressions of migration probabilities of families in the Michigan Income Dynamics Sample, Polachek and Horvath (1976) also find separate effects of wife's market work, her education, and of the presence of school age children. Consistent with our discussion, the stronger the wife's labor force attachment and the more important her earnings, the greater the negative effects on family migration. Polachek and Horvath measure their variables by wives' occupation ("menial" vs. higher level) and education. As already mentioned, husband's education has a positive effect in all studies, and is not much weakened by the inclusion of the family variables.[18]

In our current NBER study[19] of work experience as it shapes the lifetime evolution of wages, we find that husband's labor force turnover is positively associated with labor market activities of the wife. Both in Coleman-Rossi and in the NLS data for husbands age 45-59, there was a strong positive

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[18] Higher education of husband indicates greater gains from migration. This appears in the Polachek-Horvath regression where estimated gains from migration are used as an independent variable in the migration regression. Husbands' education, when included together with the gain variable, loses all significance.

[19] Work Experience and Lifetime Earnings (Bartel, Borjas, Mincer) in progress.

association between wives' labor force participation as well as wives' education and husbands' quit, but not layoff experience. A somewhat weaker relation is found also in the youngest NLS cohort. This suggests that the wife's contribution to family income permits greater scope for search activities and job choices of the husband. Evidently, a strong market position of the wife simultaneously encourages job mobility of the husband and discourages geographic mobility of the family.[20] This intra-family relation suggests at least one interesting implication: If migration is, in part, a consequence of job turnover rather than conversely, the probability of job-related migration (more precisely, the joint probability of quit and migration) will not show the deterrent effects of wives' market work as clearly as the (conditional) probability of migration (M) given a quit (Q), since $P(Q \cap M) = P(Q) \cdot P(M/Q)$, and the two terms on the right are affected in a contradictory fashion by wife's employment status.

Table 7 compares regression effects on joint, conditional probabilities of migration, and on probabilities of quit of the older (NLS), younger (CR) and youngest (NLS) cohorts of men. Family variables, especially wives' employment and education have positive effects on quits of husbands, negative effects in the conditional regressions for quit-related migration, and weak effects in the regressions of joint probabilities. Among the youngest men, wife's work has no significant effect on migration, as we also found in the Census data (Table 5; Cf. discussion on p.). The presence of school-age children inhibits migration in the multiple regressions as well. Again, families of the youngest men are exceptions. The family variables have no effect in layoff regressions, not shown in the Table.

20This may be an additional factor in the greater residential mobility of two-earner families.

A possible explanation of the lay-off case is that unemployment brings a reduction in opportunity costs of migration which outweighs most of the potential loss in wives' earnings. Unemployment of husbands makes "tied movers" out of some of the working wives.

Generally, the regressions confirm the previously described effects of marital status, of its recency, and of other family variables. It should be noted, that the small numbers of migrants in the sample produce statistics with low levels of significance.

4. Effects of Migration on Family Employment Status

Since unemployment reduces opportunity costs of migration, it is not surprising to find that the migration rate of the unemployed is higher than the migration rate of the employed.[21] We do find, however, in both the C-R and NLS data that the migration rate of those who quit exceeds the rate of those laid-off (temporary layoffs excluded). This suggests that some quits are motivated by migration -- indeed, one half of the quits who migrated acquired the new job before quitting. Layoffs, however, are not likely to be induced by migration opportunities.

As we would expect, men who migrate have higher unemployment rates than non-migrants both at origin and at destination (see Table 8). In the NLS sample, origin unemployment rates of migrants whose wives worked (at origin) were 6% points higher than rates of non-migrants, compared to a 2% differential for migrants whose wives did not work in the period prior to migration. Similarly, the average duration of unemployment of stayers was 3 months, while unemployment at origin of movers with non-working wives was 4 months and with

[21] See, for example, Special Labor Force Report, No. 44, BLS, 1964.

TABLE 8

(A) 1970 Unemployment Rates by Mobility in 1965-1970

	Same Residence	Same County	Same State	Different State
Men 16+	3.5	4.3	4.0	4.5
Men 35-44	2.0	3.0	2.6	3.3
Women 16+	4.1	5.8	6.0	7.1
Women 35-44	3.5	4.8	5.2	6.2

Source: 1970 Census, Mobility for States and the Nation, Table 6.

(B) Unemployment Rates of Men at Origin in 1962 and Destination in 1963

		AGE		
		18-24	25-44	45-64
Origin 1962	Movers	13.0	7.1	10.4
	Stayers	8.7	4.7	4.4
Destination 1963	Movers	5.8	7.5	8.3
	Stayers	6.5	4.3	3.7

(C) Employment Status of Movers in Stayers in 1963, by Employment Status in 1962, Male Family Heads, Age 25-64

1962 (Origin) Status		Employment Status in 1963 (Destination) Employed	Unemployed	Not in Labor Force
Employed	Movers	91.3	5.7	3.0
	Stayers	96.3	2.6	1.1
Unemployed	Movers	78.5	18.2	3.3
	Stayers	57.8	36.8	5.4
Not in Labor Force	Movers	67.6	8.7	23.7
	Stayers	20.9	5.2	73.9

Source for (B) and (C): Geographic Mobility and Employment Status, March 1962-March 1963, BLS, Special Labor Force Report, No. 44, 1964.

working wives 5 months: It takes a greater amount of unemployment and a longer local search before "tied" husbands are induced to move. This is an interesting example of the effect of dual job families on the volume of unemployment.[22]

While family ties tend to lengthen the unemployment of husbands prior to migration, they create unemployment among wives at destination. As shown in Table 8, migrating husbands also have higher unemployment rates than others at destination, but their unemployment is reduced relative to what it was at origin:[23] this, after all, was the purpose of migration. In contrast, wives of migrants have unemployment rates at origin that are no greater than those of wives of stayers, but the rate is much higher at destination (Table 8). Reflecting the lesser effect on family income, wife's search for a new job at destination is either less intensive prior to migration or postponed until after migration.

The unemployment of women migrants at destination is either a result of job loss at origin, or of labor force entry at destination by women who did not work in the period prior to migration. This does not mean that, in sum, more women migrants are in the labor force at destination than at origin. The opposite is true: The lower panel of Table 5 showed that labor force rates of wives who migrated are smaller than the labor force rates of stayers within 12 months after migration. While the effects are strongest immediately after migration, they last at least several years: It was shown in Table 5 (upper right panel) that only 40% of the younger migrant wives who worked at origin (in 1965) were employed at destination (in 1970), compared

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[22] A standard example is the "added worker effect", where unemployment of husbands induces labor force entry of wives, which augments the unemployment of women.

[23] Table 8, panel (c).

to 50% of stayers who continued to work. For older wives the percentages who continued to work were 65% for migrants and 80% for stayers.

It was noted previously that migration rates of two-earner families diminish with distance more rapidly than in single earner families. Employment rates of wives diminish with distance as well (see Tables 5 and 6). They diminish not only because fewer families with working wives move longer distances: As Table 6 shows, employment rates of wives who worked in 1965 declined for movers much more than for stayers, and for long-distance (interstate) movers most. In contrast, roughly the same proportion (about 25%) of wives who were not employed in 1965 worked in 1970, regardless of migration status and location.

It was argued before that incentives for search prior to migration are weaker for tied movers and prior search is costlier the more distant the destination. And search at the unfamiliar destination can be prolonged and unsuccessful. Consequently, the lesser search prior to migration is one possible explanation of the adverse effect of distance on wives' employment. In addition, husbands' gains from migration increase with distance, and both such gains and the probability of migrating long distances increases with the education of the husband. Therefore, the intra-family income and substitution effects induce levels of wives' labor supply inverse to distance and make decreases in their labor supply a positive function of distance.

Both unemployment and labor force withdrawal are results of tied migration of working wives. If employment and earning opportunities turn out to be meager or inferior at destination, withdrawal from the labor force is a likely possibility. Reduction in wives' market labor supply following migration is induced not only by the decrease in the wife's (expected) wage relative to that of the husband's, but also by an increased family demand for

non-market activity necessitated by setting up a new household in a new environment. The last factor may only temporarily remove women from the labor force. In sum, migration results in both temporary interruptions and long-term withdrawals from work.

The contrast between job motivated and tied migration is seen not only in the comparison of effects on work experience of migrating spouses, but also in the comparison of single with married women migrants. As Table 5, panel B indicates, in contrast to married women, single women migrants have higher labor force rates at destination than at origin. Another vivid illustration of family ties in migration is provided by the Polachek and Horvath study of the Income Dynamics data: They find that families with husbands receiving high wages move toward areas with fewer women in the labor force, while families in which the wife has a high wage tend to move toward areas with better opportunities for women, as measured by a higher percentage of women in the labor force and by lower unemployment rates. This is evidence that the effect of existing family ties on work experience following migration is symmetrical for each of the sexes. It is the incidence and magnitude of ties, rather than their effects that differs among the sexes.

Not only tied movers but also tied stayers experience a reduction in the market earnings potential. By definition, "tied" stayers fail to exploit potential gains from labor mobility. The confinement of job mobility to the local labor market, often at short distances, reduces the scope for job change and the quality of the job match. If so, we may expect both a lesser propensity to change jobs on the part of working wives, as well as a greater vulnerability to layoff. Given a job loss, the lesser scope for search results in reduced wage aspirations, more unemployment, and labor force withdrawals. Although the implied duration of unemployment can be shorter because of reduced acceptance

wages and/or labor force withdrawals, its incidence is likely to be greater.

In two studies of job mobility in 1955 and 1961, the Current Population Survey found that the proportion of job changers among working women was 20-30% smaller than among men. But, since women work almost 20% fewer weeks during the year, the proportion of job changers does not appear to be different among the sexes per unit of time. Still, the conclusion that women's (purposive) job mobility is smaller than men's is correct: Women's job tenure is on average half the length of men's tenure. In view of the just quoted statistics on job change, this reduction in tenure is due entirely to labor force withdrawals. As is well known, job turnover declines rapidly with tenure. Consequently, if frequency of job change of women were the same as that of men at each level of tenure, women would be observed to have a larger overall frequency of job change per unit of time since their tenure is shorter. Evidently, their job mobility is lower than that of men at comparable levels of tenure. This inference is confirmed in Table 9: For each level of tenure, except the earliest, the job change rate of women (col. 4) is less than the rate of men (col. 5), even though the men are about 10 years older. Total separation rates of men (not shown here) are only slightly larger than in col. 5. Total turnover among women is twice as high as job mobility in the first 2 years of tenure, and the proportional excess increases with level of tenure (compare col. 1 with 4). The difference is, of course, due to labor force withdrawals. Note that their rate (col. 2) is largely unrelated to tenure, in contrast to job mobility rates, which decline. Note also that reported "quits for family reasons", an independent statistic, is very close to the estimate of labor force withdrawals. The former does, of course, imply the

TABLE 9

Labor Turnover, Job Mobility and Labor Force Withdrawal in 1969-1971, of Married Women, Age 35-49, by Level of Tenure in 1969 NLS Samples

Years of Tenure	Total Separation Rate (1)	Labor Force Withdrawal Rate (2)	Quit for Family Reasons (3)	Job Mobility Rate (1)-(2)	Job Mobility Rate[a] of Men Age 45-59[b] NLS Sample (5)
0-2	46.9	20.6	18.0	26.3	25.1
2-4	15.8	10.4	7.6	5.4	17.5
4-6	14.9	7.8	6.7	7.1	11.0
6-8	18.5	9.9	8.8	8.6	12.4
8-10	13.4	9.0	6.7	4.4	6.3
10-12	15.7	11.8	13.7	3.9	7.0
12-14	16.4	12.5	12.2	3.9	3.8
14-18	11.8	9.6	9.3	2.2	4.5
18+	12.8	11.2	9.0	1.6	3.8

[a]Average of periods 1967-1969 and 1969-1971.

[b]Age in 1966.

latter, though not always -- for example, migration need not imply a withdrawal from the labor force, though it very frequently does.

Census tabulations of unemployment by source suggest that most of the excess of female over male unemployment is due to the unemployment of labor force entrants, and especially of re-entrants. However, among the unemployed who worked prior to unemployment, job leavers represent about one-third of all unemployed women (over 20 years of age), while they amount to only one-sixth to one-fifth of the comparable category of unemployed men: Most likely, this is a reflection of the family, rather than of job motivated quits. Such "exogenous" quits of women (or men) tend to involve unemployment to a larger degree than job-motivated quits, which occur usually after workers have lined up the next job.

5. Gains and Losses in Earnings

As has been documented in many studies (Greenwood, 1975), geographic migration usually increases earnings of men. However, effects on employment of wives suggest that earnings of wives may suffer. Indeed, Galloway (1963) was the first to find that interregional migration was associated with a decrease in the earnings of women (he did not distinguish marital status).

In the NLS Report (1976), Sandell finds that between 1967 and 1971, incomes of migrant husbands increased by $1,174 per year more than incomes of nonmigrant husbands, while incomes of migrant families increased by $952 per year. The difference (- $222) represents the average loss of wives. The wives' income loss is partly a result of a reduction in labor supply and partly a reflection of lesser wage growth of tied migrants. Adverse effects were also found both in the growth of annual earnings as well as in wage rates of

migrant wives by Polachek and Horvath (1976) in the Michigan Income Dynamics Panel for 1968-1969 migrants.

Losses of migrant wives' earnings (relative to earnings of non-migrant wives) diminish with the passage of time, as do the differences in weeks worked, as Sandell reports. Initial uninformed search and family demands connected with setting up a new household are temporary and account for the initially strongest declines in employment and earnings of wives. A conclusion for the study of gains from migration is that, although conceptually less appropriate, they are discernable in earnings of husbands more quickly (though not immediately after migration) than in family incomes.

While migration of tied wives interrupts their work experience and reduces their wage progress, gains from migration are larger for married than for other men, according to regressions using the various panel data (C-R, NLS, and MID). The gains are larger especially in families with "tied" wives: Thus Ann Bartel (1975) finds in the Coleman-Rossi data that where wives worked at origin (but not at destination) husbands received the largest gains ($122 per month). Gains were much smaller ($51 per month) where wives did not work at origin (but did at destination). Gains of husbands were average when wives had unchanged employment status. Similarly, in the NLS sample men in their twenties whose wives had large earnings receive larger wage gains than other migrating husbands of wives who worked at origin.

The positive effects of marital status on migration gains of men, especially of husbands of working women (prior to migration) reflect family ties: Potential losses of wives raise the acceptance wage of migrating husbands. Both results follow: the probability of migration diminishes and the "private" gain of the purposive job seeker increases.

We may conclude that the intra-family trade-off in gains and losses from migration involves mutual causality: Gains of husbands induce a reduction in labor supply and earnings losses of wives, while the potential losses of wives' migration reduces migration but increases the gains of husbands in families which move.

6. Migration, Family Stability and Trends

The empirical evidence described thus far reflects the internalization of family ties which, in the context of migration, can be viewed as an externality to the family member in his (her) "private" capacity. As we argued in the theoretical discussion, conflicting "private" locational incentives cannot always be reconciled, and prospective or actual migration leads to family dissolution. Conversely, when families disintegrate for whatever reason, locational equilibrium changes for many of the separated and divorced persons and migration follows.

We have seen the stronger migration propensities of divorced and separated persons compared to others in some of the data cited before. Evidence on temporal sequences which would reflect migration-caused family breakup is difficult to come by. We are able to get some inferences only from one data set: The Coleman-Rossi panel provides chronological data on labor mobility and on family formation and dissolution over a period averaging 15 years -- from completion of high school to the mid-thirties of a sample of about 1,000 men. In this sample:

(1) Less than 2% of the marriages dissolved by separation or divorce in an average year. However, in a 12-month period bracketing a geographic move (inter-state) of the respondent (husband), 5% of the families broke up.

(2) About 8% of the married men moved to another county in a random year, but 19% moved in years bracketing marital breakup.

Although each of the comparison reflect causality running in either direction, the first more nearly shows the effect of mobility on family integrity, while the second is more likely to convey the effect of marital breakup in creating a locational disequilibrium, which underlies the high mobility rates of separated and divorced persons.

By increasing the incidence of tied spouses, trends toward equalization of labor market experience of men and women may contribut to a decrease in migration rates of married couples, as well as to an increase in marital instability of migrants as well as of stayers.[24] However, increases in marital instability, whatever their source, stimulate migration of persons, and trends of divorce and separation are strongly upward.

It appears, on balance, that rates of migration in the U.S. have been relatively stable since World War II, with a slight decline noticeable since 1960. Thus total residential moves declined from 20.1% to 17.7% between 1960 and 1975. In the five year period 1970-1975, intercounty moves declined from 11.4 to 10.8% and interstate moves from 3.4 to 3.0% (CPR, 1976). Without complete multivariate analysis, it is difficult to tell how much changes in the family contributed to the trends. Obviously, several other factors worked in conflicting directions: Growing education of husbands should have increased migration, but the growing education of wives may have produced the opposite effect. Upward trends are also predicted by declining family

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[24] The effect of the intra-family relative earnings on family stability is not restricted to episodes of migration. Cf. Becker (1973) and Santos (1975) for analysis and documentation.

size, but the consequent aging of the population would work in the opposite direction. Improved transportation and communication may reduce costs of migrating, but may also reduce incentives to do so by substituting commuting for migration.

SUMMARY AND CONCLUSIONS

The subject of this paper was the exploration of the effects of family ties on migration, of the effects of migration decisions in the presence of such ties on employment and earnings of family members, and on family stability. Ties are defined only in relation to migration decisions: In the case of a single (aggregated) destination, ties exist when individual ("private") gains of family members differ in sign. The tied person is one whose gain (or loss) is smaller in absolute value. In the more general case of several potential destinations, ties exist so long as the gain of at least one spouse in the family's optimal location is less than his or her "private" maximum. In this case both spouses can be "tied", although the discrepancy from the private optimum is likely to be larger for the spouse with the smaller gain. Indeed, the discrepancy is a measure of the magnitude of the tie. It is a measure of the negative externality which the decision to move (or to stay) imposes on the family members in their individual capacities.

These externalities are usually, but not always, internalized by the family. They are absorbed without undermining family integrity so long as the sum of the ties is less than the gains from marriage. Otherwise, the family dissolves, and at least one person moves. The theorem that families move whenever family gain is positive and stay when it is negative must, therefore, be amended: The sign of the family gain is a necessary, but not sufficient condition, for the decisions to move or not to move as a family.

(1) The presence of family ties deters migration of families, even though it creates "tied" movers as well. Since gains or losses from migration

are increased by job mobility, two-earner families are more likely to be deterred than single-earner families. Single earners in husband-wife families are almost always men, so it is families with working wives whose migration is most likely to be inhibited.

Empirical evidence on the effects of marital status confirms these propositions: Married persons are less likely to move than singles, and the mobility of separated and divorced parents ("others") is by far the highest. The mobility of singles is dampened by the fact that many of them are "tied" members of households headed by parents or other close relatives. In contrast, the mobility of "others" is augmented by their relatively recent change of marital status which creates a change of locational equilibrium. The same effect, of course, holds for newly married couples.

Evidence on lesser migration rates of families with working wives is abundant. The deterrent effects are stronger when wife's attachment is more permanent, and when she is more educated. In contrast, when families are classified by education of husband, they are more likely to move: Educated husbands' contribution to family income is larger and their gain from migration is morelikely to outweigh their wifes' losses.

The deterrent effect of wife's employment and of her education increases with distance, while husband's education is positively related to the distance of migration. At shorter distances (intra-county moves), wives earnings actually permit more inensive search activities of husbands. Indeed, search of both spouses is not inhibited, since residential changes or commutes can accommodate job changes of

each. According to our analysis, where the female to male earnings ratio is higher, the incidence of immobilized husbands increases. Consequently, local mobility increases relative to long-distance migration.

Since earnings of wives permit a greater scope for purposive search of husbands, working wives increase the probability of husbands' job change (by quit). Job changers are more likely to migrate than those who do not quit; thus wives' work exerts indirectly a positive effect on migration, as well as the negative effect already described. The deterrent effect of wives' employment is, therefore, less clearly observed in the unconditional than in the conditional (or quit) probability of family migration.

(2) Migration tends to reduce the unemployment of men and to increase the unemployment of women, since women tend to be tied movers. But to the extent that men are tied, unemployed men with working wives tend to search longer at origin than unemployed husbands of non-working wives, even if they eventually migrate. Migrating wives experience increases in unemployment, reductions in employment, and labor force withdrawals at destination, and these effects increase with distance. The reasons, some of which have already been stated are: Postponement of job search until after the move, change in intra-family income and substitution variables, and at least temporary increases in family demand for household activities. Not only tied movers, but also tied stayers experience adverse effects in the labor market: The restriction of job mobility to short distances reduces the scope of job search and opportunities

for advancement and increases the probability of job mismatch, unemployment and labor force withdrawal.

We may conclude that the growth of two-earner families increases unemployment of both sexes, but primarily of women. By interrupting the continuity of women's work, tied migration leads to slower growth of wages over the life cycle. The adverse effect on wage growth can occur even without discontinuity of employment, since the mere interruption of job tendure reduces incentives of worker and employers for job-specific investments. Tied migration rants next to child-rearing as an important dampening influence in the life-cycle wage evolution of women.

(3) By imposing "private" negative externalities on at least one of the spouses, family location decisions can be a challenge to family integrity. Usually, these externalities are internalized by the family. However, when the externality (T) exceeds the gain from marriage (M), the marriage dissolves. The likelihood of a breakup occasioned by location decisions is increased when marital stability is uncertain for other reasons: If p is the probability of preserving the marriage (regardless of location), then the expected gain from marriage is pM, and the condition for breakup is $T > pM$. Thus, the less stable the marriage the greater its vulnerability to tied migration decisions.

When an unstable marriage dissolves, each of the spouses follows his or her (old or new) private optimal location. Thus, not only do migration incentives contribute to instability, but instability -- whatever its source -- increases migration. The increasing equalization

of labor market attachments of men and women creates an increase in migration ties, thereby deterring migration as well as contributing to marital instability. At the same time, the dramatic recent trends in marital instability stimulate migration of separated persons. The net effect on migration rates is unclear, but the effects on marital instability are reinforcing. In turn, feedbacks on women's labor supply reinforce the upward trends in their market employment.

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