

# INTERNAL MIGRATION AND ITS INFLUENCE ON EARNINGS OF WORKING HUSBANDS AND WIVES\*

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## Introduction

Human migration long has been recognized as a vehicle for social change and economic vitalization at the aggregate level and for self improvement at the individual level. Studies of individual migrants generally analyze migration in a human capital context following Sjaastad (1962).

Recent human capital studies of migration have examined migration as a family decision, where family costs are weighed against family benefits associated with a move. While one spouse's earnings may increase as the result of a move, the other spouse's earnings may decrease. Human capital theory predicts the family will move if family income will be greater in a destination region. In this context one spouse (often the wife) may experience lower earnings in the destination region and can be considered to be a "tied" mover (Mincer, 1978).

The increasing prevalence of dual career families has had a strong impact on geographical relocation from the standpoint of both families and employers. Employers increasingly are offering either employment or employment assistance for spouses when recruiting prospective employees. The decision to relocate often hinges on earnings potential of not only the primary earner, but of his or her spouse as well.

This study investigates the impact of family migration on husbands and wives of dual earner families using microdata from the *Panel Study of Income Dynamics* (PSID). Earning differences between husbands and wives are investigated for dual earning families for the year of migration and two subsequent years. Earnings functions are estimated for each year in order to compare the rates of return to human capital variables of husbands and wives.

This study differs from past studies in that it focuses on husband-wife earnings differentials and it disaggregates earnings differences in an attempt to isolate the role of human capital in explaining earnings differences. Results indicate that while husband-wife differentials lessen following a move, productive characteristics explain less and less of these differentials over time.

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## Migration and Earnings of Married Couples

Emphasis of migration as a family decision rather than as an individual's decision began in the 1970s (DaVanzo, 1972; Kaluzny, 1975; Sandell, 1975). Mincer (1978) established the theoretical framework for family migration, hypothesizing that a married couple will relocate only if one spouse's financial gain from migrating more than offsets the earnings loss of the other spouse. This implies that subsequent to a couple's migration, the tied mover (often the wife) will work less and experience lower earnings.

Using data from the National Longitudinal Survey (NLS) sample of older women, Lichter (1983) contends that while migration has a significantly negative effect on earnings of women in the short term, this effect is minimal over time. This is consistent with an early study by Wertheimer (1970), who finds migrants (men and women) accept a temporary decline in earnings following migration. More recently, Borjas *et al.* (1992) find the same conclusion using data from the National Longitudinal Survey of youth.

Spitze (1984) uses the young and mature women samples of the NLS to study how migration affects both employment and earnings of married women. Spitze finds that effects of migration are negative for women's employment status, weeks worked, and earnings.

Data from the NLS also are used by Maxwell (1988) in studying the effect of changes in marital status on the returns to migration. Maxwell finds that changing marital status significantly influences the returns to migration for women. Maxwell shows that women who remain married not only suffer immediate losses, but that these losses increase over time.

Use of PSID data in this study makes possible examination and comparison of earnings for both husbands and wives. The focus of this paper is earnings differences between husbands and wives following a move and the underlying determinants.

## Data and the Model

### *The Data*

Data used in this study were taken from the *Panel Study of Income Dynamics* (PSID) for the years 1981 to 1987. The PSID data are longitudinal and contain person-specific information on a representative sample of individuals and their family units residing in the United States. The sample is ideal for this study as it contains demographic and economic characteristics of both spouses as well as geographic location.<sup>1</sup>

Couples chosen from the sample were married the year of an inter-county move and each of the following two years. An *intercounty move*

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<sup>1</sup>For a comprehensive discussion of the use of microdata in studies of migration, see Greenwood (1985; 1990).

refers to a change in place of residence. It is possible for a family to move to another county while keeping the same job. The data are county specific, however, making this the best working definition. In addition, each spouse was employed outside the household during these periods. The sample yields a total of 1,908 couples to be used in the analysis.

### *Econometric Model*

Earnings of both husbands and wives for three years following a move are compared. Further earnings functions are estimated in order to determine the underlying causes for earnings differences between husbands and wives. These estimations allow a more precise examination of the returns to migration.

Earnings are estimated as a function of various individual characteristics associated with earning potential. A semilog form is used because earnings tend to be skewed to the right because earnings cannot take a negative value. Consequently, estimated coefficients of the estimations represent the rate of return to the independent variables included in the model. The model is specified as follows:

$$(1) \text{ EARN} = f(\text{AGE}, \text{AGESQ}, \text{HOURS}, \text{TEN}, \text{HS}, \text{COL})$$

Dependent variable

EARN = Natural logarithm of annual earnings.

Independent Variables:

AGE = Years of age;

HOURS = Annual work hours;

TENURE = Months worked for present employer;

HSEDU = Years of education through high school;

COLEDU = Years of college completed;

AGESQ =  $(\text{AGE})^2$ .

### *Explanatory Variables*

Variables chosen in this study to explain earnings consist of traditional measures of human capital (Mincer, 1974; Mincer and Jovanovic, 1981). These variables represent formal schooling (HSEDU and

COLEDU), on-the-job training (TENURE), and other learning that occurs in the normal course of life (AGE). Because the log of annual earnings is being estimated, the number of hours actually worked by individuals is included as a control variable. The square of age is included because earnings of workers generally increase over time, but at a decreasing rate.

The model is restricted to human capital variables in order to estimate husband-wife wage differentials due solely to differences in the accumulation of human capital such as education.

College and high school education are entered in the model separately in order to detect gender differences in the returns to each variable. Due to socialization, women often have been directed toward positions that are less likely to utilize college education. Moreover, it often is argued that employment discrimination inhibits the ability of women to reap gains from college education in upper management. Consequently, we may expect women to receive lower returns to college education.

Table 1 provides mean values of individual characteristics chosen to explain earnings for husbands and wives. As might be expected, husbands tend to be somewhat older and possess approximately the same level of education as their working wives. Hours of work (HOURS) and months of work with present employer (TENURE) are indicators of labor force attachment. Both measures show husbands to have a stronger attachment to the labor force.

Wives, for the year following a move, have worked for their current employer only 58.5 percent as long as have husbands. This may indicate that husbands are more likely to remain with their employer at the same or a new location following a move, whereas wives tend to find new employment. Another contributing factor is that women tend to have a more intermittent work profile than do men (Blau and Ferber, 1986).

### *Decomposition of Earnings Differentials*

Existence of earnings differentials between husbands and wives is not unfair or discriminatory *per se*. Differences in earnings may be partially attributable to differences in acquired human capital rather than to labor market discrimination or unobserved heterogeneity such as quality of education and socialization.

Oaxaca (1973) developed a method of disaggregating wage differentials to uncover the portion of earnings differentials due to differences in estimated rates of return between two groups in separate earnings regressions. This method has been used extensively in studies of employment discrimination (Blinder, 1973; Corcoran and Duncan, 1979; Neumark, 1988; and Krieg, 1990). This disaggregation attempts

to isolate the percentage of the male-female earnings differential that is due to employment discrimination rather than to returns accruing from different levels of human capital possessed by men and women.

Similarly, this study separates portions of the husband-wife wage differential attributable to differences in productive characteristics from portions of the differential due to discrimination and other unobserved heterogeneity that lead to higher rates of return to similar characteristics for husbands as compared to wives. This is done for migrant couples during the year of a move and for two subsequent years.

Earnings differentials between husbands and wives are calculated as:

$$(2) \ln(\bar{E}_H) - \ln(\bar{E}_W) = \bar{X}'_H \beta_H - \bar{X}'_W \beta_W$$

where:

$\ln(\bar{E}_H)$  and  $\ln(\bar{E}_W)$  = The natural logarithms of annual earnings of husbands and wives.

$\bar{X}_H$  and  $\bar{X}_W$  = Mean values of individual characteristics of husbands and wives, given in vectors; and

$\beta_H$  and  $\beta_W$  = The corresponding estimated returns to the characteristics.

Log earnings differences between husbands and wives are disaggregated as follows:

$$(3) \ln(\bar{E}_H) - \ln(\bar{E}_W) = (\bar{X}'_H - \bar{X}'_W) \beta_W + \bar{X}'_H (\beta_H - \beta_W)$$

where the right side of equation (3) illustrates the portion of the differential due to differing levels of human capital plus the unexplained portion due to differences in the estimated returns to these human capital characteristics.

### Empirical Results

Comparison of Tables 2 and 3 indicates that while husbands receive greater returns to age and college education, wives benefit more from hours of work, job tenure, and years of high school education. This supports the contention that women may be limited in the extent to which they can gain returns to higher education in the workplace.

Wives receive greater returns for months on the job; however, this may reflect the fact that they average fewer months with the employer. Thus, we would expect husbands to experience diminishing returns to a greater extent with respect to job tenure. Earnings differences between husbands and wives are illustrated in Table 4.

Although absolute earnings differences between husbands and wives widened in years subsequent to a move, on average, incomes of wives increased as a percentage of husband incomes. In addition, for years following a move, more and more wives earn higher incomes than their husbands.

Line 5 of Table 4 gives the results of disaggregation of husband-wife earnings differentials. This illustrates that more and more of this differential is due to the fact that husbands receive a higher rate of return for their productive characteristics in the labor market. In other words, while incomes of wives increase as a percentage of husbands' incomes in years following a move, the absolute wage gap and the portion of the gap that is unexplained husband-wife earnings differentials both increase. This suggests that couples may choose destinations relatively more conducive to the husband's human capital investments over the long term.

## **Conclusion**

It generally has been recognized that migration is a family decision and impacts both husbands and wives of dual earning couples. Yet studies traditionally focus on the effects of the aggregate economy, on all individuals, or on individual women. The primary thrust of this paper has been to investigate the effects of migration on relative earnings of married women compared to that of their spouses.

Empirical analysis is done for the year of an intercounty move for married, dual earning couples and for two years subsequent to migration as well. The temporal aspect of the model allows investigation of dynamic effects of a move. Estimates of relative earnings of husbands and wives illustrate that wives tend to earn less during the year of a move, but earn a growing percentage of husband income in years following a move. Working wives receive lower returns to higher education, however, and they reap smaller and smaller returns to their human capital investments in years subsequent to internal migration.

Disaggregation of earnings differentials reveals that differences in individual characteristics such as human capital explain less and less of the differentials. This suggests that while earnings differences between couples diminish over time in percentage terms, couples tend to move to areas where husbands are able to reap greater long-term returns to their productive characteristics.

Possible explanations for higher returns to earnings characteristics for husbands following a move include increasing wage discrimination, relative depreciation of wives' human capital, and a tendency for husbands to be employed in jobs more suitable to their accumulated human capital.

It is difficult to discern the extent to which these factors influence the magnitude of a change in the unexplained portion of the husband-wife earnings differential subsequent to migration. Further research may shed some light on this question. Most economists would agree, however, that each of the three factors plays a role.

Findings of this study indicate that it may be advisable for firms to place more emphasis on locating appropriate jobs for spouses of prospective employees. This would not only increase contentment among their employees' families, but facilitate a more efficient distribution of human capital.

Further research concerning husband-wife earnings differentials is warranted. One possible avenue of study would be to examine the extent to which demand-side factors influence these differentials. A growing body of literature indicates that recent technological change may impact the earnings of men and women differently.

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**Table 1—Mean Values**

	Husbands	Wives
Age	37.40	34.83
Education	12.68	12.70
Hours	2146.51	1547.52
Tenure	91.92	53.73

**Table 2—Parameter Estimates for Earnings, Husbands**

Explanatory Variables	Year 1	Year 2	Year 3
AGE	0.066*	0.076*	0.082*
HOURS	0.0002*	0.0003*	0.0003*
TENURE	0.002*	0.002*	0.003*
HSEDU	0.077*	0.094*	0.099*
COLEDU	0.096*	0.102*	0.092*
AGESQ	-0.0008*	-0.0009*	-0.001*
CONSTANT	6.820*	6.404*	6.187*
R <sup>2</sup>	0.290	0.310	0.345
df	1,902	1,905	1,904
F	129.4	142.3	167.2
AGE	0.066*	0.076*	0.082*

\*Statistically significant at the 1 percent level

**Table 3—Estimated Coefficients for Earnings, Wives**

Explanatory Variables	Year 1	Year 2	Year 3
AGE	0.029*	0.055*	0.077*
HOURS	0.0008*	0.0008*	0.0007*
TENURE	0.003*	0.003*	0.004*
HSEDU	0.119*	0.099*	0.118*
COLEDU	0.082*	0.093*	0.085*
AGESQ	-0.0004*	-0.0008*	-0.001*
CONSTANT	5.577*	5.379*	4.906*
R <sup>2</sup>	0.352	0.425	0.364
F	170.8	233.2	179.2
df	1,890	1,895	1,877

\*Statistically significant at the 1 percent level

**Table 4—Husband and Wife Earnings Differences**

	Year 1	Year 2	Year 3
Mean Husband Income	\$20,780	\$21,945	\$23,342
Mean Wife Income	\$9,823	\$10,725	\$11,534
Percentage of Households Where Husband Earnings Exceeds Wife Earnings	82.8%	80.8%	80.0%
Mean Wife Income as a Percentage of Mean Husband Income	47.3%	48.9%	49.4%
Portion of Earnings Difference not Attributable to Differences in Productive Characteristics	27.3%	28.4%	32.9%

## BOOK REVIEW

***Regional Economic Impact Analysis and Project Evaluation.* H. Craig Davis, UBC Press, 1993, Vancouver. vi + 182 pp.**

**Reviewed by R. Bradley Hoppes, Department of Economics, Southwest Missouri State University**

Author H. Craig Davis has put together a two part text comprising regional impact and evaluation analysis. Each part contains four chapters including summary chapters as well as a reference notes section. This book is written for first year graduate students in city and regional planning. It should appeal, however, to anyone interested in these topics who may feel they lack sufficient training in economics and mathematics. The authors suggest "a minimal amount of training in mathematics and economics" will suffice because this is a "nontechnical introduction to the fundamental principles and techniques of regional impact and evaluation analysis."

After the introduction chapter three chapters describe economic base analysis, income-expenditure analysis, and input-output analysis, respectively. Each chapter follows a description-evaluation-extensions-case study approach. These chapters are followed by a brief chapter comparing the techniques.

Economic base analysis (EBA) is described briefly, but well, with a touch of algebra. A good discussion of the major assumptions and limitations of EBA is next. A brief discussion of bifurcation techniques is followed by possible model refinements. Good examples are found throughout the chapter, and case studies using the location quotient and regression approaches end the chapter.

The third chapter describes the income-expenditure (Keynesian) model. Again, a modicum of algebra is used in explaining the Keynesian multiplier process. Four major assumptions—constant coefficients, sector homogeneity, no supply constraints, negligible feedbacks—are discussed. The author provides a brief glimpse into the operation of employment multipliers before evaluating and offering modification/extension of the model. Case studies involve the multiplier effect of a new firm and the impact of Kent State University.

Chapter four provides a good overall discussion of input-output (IO) analysis, but presentation of the payments section, a difficult section for students, is weak. Important relevant tables, transactions, direct requirements, direct and indirect requirements, are discussed. IO models with household exogenous and endogenous are examined. Numerical examples using both models to show the effects of an

expenditure by rounds are well done. There is discussion of the model's most important assumptions: fixed coefficients, linearity, homogeneity, consumption function. Brief discussions regarding practical problems, evaluation of the model, and extensions are followed by two IO models as case studies. An appendix on rectangular IO and make-and-use tables (with some matrix algebra) ends the chapter.

The next chapter is a short chapter comparing the above models. It indicates their similarities and differences in a table. The table utilized ten categories, including static/dynamic, linear/nonlinear, stimulus, number of multipliers, etc. to compare and summarize the models.

The second part of the book contains three chapters on cost-benefit analysis (CBA) plus a summary chapter. In the first chapter, Chapter 6, the author does a thorough job describing and illustrating cost-benefit analysis. As indicated, "[i]n many respects, CBA is to the public sector what profit analysis is to the private sector." Social and private costs and benefits are discussed in some detail using supply and demand, prices, and producer and consumer surplus. Also, there are excellent cogent discussions regarding perfect/imperfect competition, as well as taxes, subsidies, externalities, and public goods. As in previous chapters, the chapter ends with two case studies—recreation benefits and air transport.

Chapters Seven and Eight extend CBA to include the problems of discounting future benefits and costs and risk adjustment and distributional considerations, respectively. In Chapter Seven, several investment criteria are discussed and illustrated numerically. The chapter begins with a discussion of the discount rate and net present value. Later in the chapter the influence of inflation on these measurements is discussed. Also, the benefit-cost ratio and the internal rate of return are discussed at some length. A case study involving an urban renewal project illustrates the concepts discussed.

Chapter Eight begins with a comparison of risk versus uncertainty followed by a discussion of uncertainty and game theory. Addressed by the author at some length is the equity problem and various ways in which to model this criterion. Several weighting schemes as well as other procedures are discussed in order to show how distribution considerations can be incorporated. The distributional effects of the third London airport is the first case study.

A major contribution of the book is its bringing together several models of impact analysis and evaluation through the encompassing framework of CBA. I think the authors does this quite well for his non-technical (student) audience. While most of us teach these topics in our regional classes, it is difficult to find texts with an adequate discussion of them. Through his use of discussion, graphs, theory, practical problems, and case studies the author has provided the student with an

excellent supplement. The reader will come away with a greater understanding of these techniques and a broader perspective of regional impact analysis and evaluation.