Marriage, Money and Migration

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Abstract

The thesis consists of a summary and four self-contained papers.

Paper [I] examines the effects of interregional migration on gross earnings in married and cohabiting couples. In particular, we examine the link between education level and income gains. We find that pre-migration education level is a key determinant of migration and economic outcomes and is also a determinant of the effect of migration on income distribution within the household. The positive average effect on household earnings is largely explained by income gains among highly-educated males. Females generally experience no significant income gain from migration in absolute terms.

Paper [II] analyzes the effect of the spouse’s education on individual earnings. In this study, we control for time-invariant heterogeneity that may be correlated with the spouse’s education level and use a rich data set that includes observations of individuals when they are single and when they are married. The results support the hypothesis of cross-productivity for both males and females. Furthermore, couples with education within the same field experience even larger effects.

In Paper [III] we aim to study how the spouse’s productivity in the labor market affects one’s own individual earnings when married. Using longitudinal data on individuals as both single and married allows us to estimate the spouses’ productivity as single persons and thereby avoid problems of endogeneity between the two spouses’ labor market performances. Productivity is approximated with residuals from estimates of pre-marriage earnings equations. Results indicate that there are negative effects of the spouse’s productivity on individual earnings for both males and females, and that this effect appears to be enhanced by the duration of the marriage.

Paper [IV] studies spousal matching on earnings for females in second-order marriages. We aim to follow women who marry, divorce, and subsequently remarry compared with females who marry and stay married over the course of the study interval. Overall, we find significant positive correlations for all three of the marital partitions. The correlation tends to be smaller for the first of a sequence of marriages for women who divorce than for women who marry and stay so. For the second of the successive marriages, however, the correlation of the residuals is larger than that for women who marry but once.

Keywords: Regional migration, two earner households, marriage, education, human capital spillover, specialization, assortative mating, remarriage
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This thesis consists of an introductory part and four papers.


Introduction and Summary

1 Introduction

The research area of family economics has expanded greatly during the last few decades where the interdependence between work and family is increasingly acknowledged (Lundberg, 2005). The decision whether to marry and whom to marry has important policy-making implications for income inequality within a society as well as implications on inequality between generations. The economic processes within a family/couple are important determinants for the individual’s behaviour in the labor market. For instance, a mandatory reduction in working hours for German males also decreased the working hours of their wives (Hunt and Katz, 1998) but a working hours-reduction in France had an opposite effect; the women increased their working hours (Ahmed, 2004). Furthermore, the performance on the labor market may also affect an individual’s marital status. (Weiss and Willis, 1997; Norberg-Schöpfeldt, 2007).

The economic conditions for family life have undergone fundamental changes within one or two generations. Becker (1991) noted that the market and the state have taken over many functions that traditionally were performed by the family. The labor force participation of females has risen whilst a closing of the male-female earnings gap has resulted in a new set of demands for the modern family. Nowadays, more women than men attain higher education (Ref.) and contribute substantially to the total family income. At the same time and partially because of the changed role of women in the labour market and society, family life has become more complex with increased divorce rates and the emergence of alternative family constellations. Compared to the era which considered the male being the sole bread winner as the norm, decision making within the family has changed in nature because two careers have to be considered. Decisions on investments in human capital, for instance, can get rather complex since it may depend on the spouses’ relative bargaining power.
The economic outcomes of decisions may also be unevenly distributed between spouses which may have an effect on bargaining power and bargaining processes in subsequent periods. (Lundberg and Pollak, 1996, 2001; Chiappori, 1992).

The thesis consists of four self-contained papers in family economics. Paper [I] studies the location problem for two earner couples. We aim to study the effect of internal migration on earnings and relative earnings for two earner couples and how this is related to the educational levels of the spouses. Papers [II] and [III] analyzes how the partners’ human capital affects the individual’s own earnings. Paper [II] analyzes how the individual’s earnings are affected by the educational level of the spouse. Paper [III] aims to study how the spouse’s informal human capital, as reflected in premarriage earnings, affects individual earnings. In Paper [IV], we study assortative mating on earnings into marriage. The focus is on women who remarry after a divorce.

2 Sorting on the Marriage Market

How individuals sort themselves into marriage has been analysed extensively in previous studies. Often it is found that individuals tend to marry others that are similar to themselves in various aspects. For instance, individuals typically marry people that are of the same race, religion, education and socioeconomic status (Mare, 1991; Kalmijn, 1998; Blossfeldt and Timm, 2003). Positive assortative matching is also found on height, weight, intelligence and earlobe length (Buss, 1985). Economists have focused on matching with regards to earnings and have thus found that individuals tend to marry others with a similar earnings potential (Nakosteen et al., 2004). In paper [IV], we study sorting into two consecutive marriages, whilst particularly looking to answer, is the sorting on earnings stronger for women in their second marriage?
The sorting of individuals into marriage has economic implications for the society in many ways. It affects integration and also has effects on inequality both within and between generations. Marital matching has implications for the income distribution in the society as a whole and plays a significant role in the persistence of economic status across generations (Chadwick and Solon, 2002). Hirvonen (2008) finds that assortative mating on income contributes to intergenerational immobility in Sweden. Furthermore, Ehrmish et al., (2006) reports that up to 50 percent of the immobility in income between generations can be attributed to the person to whom one is married. Fernandez and Rogerson (2001) show that increased sorting on education into marriage increases income inequality in society.

The sorting of individuals is also likely to affect the processes within marriage and thereby the welfare of the individuals in the couple. The relationship between family background and labor market success is widely explored. The educational levels of the parents have been found to have an effect on the educational level of their children. The higher the parent’s own education, the more likely the children are to perform well in school and obtain higher education (Haveman and Wolfe, 1995). Also, there exists a link between parental education and the children’s health (Currie and Moretti, 2003). How the current family’s characteristics affect the earnings of the individual are not studied to the same extent. Papers [II] and [III] studies how a partner’s characteristics affects the individual’s earnings. Will the spouses reinforce or offset each others’ attributes? Interaction effects within marriage may enhance the individual earnings and thereby increase family earnings. This may affect the income inequality in the society as well as having an effect on the degree of intergenerational mobility.
3 Marriage, decision making and earnings

Early models of family behaviour, labelled as common preferences models (Samuelson, 1956; Becker, 1974), imply that family decisions are consistent with maximising a single utility function. The gains from marriage stem from specialization and division of labor due to comparative advantage. This does not imply necessarily that the spouses specialize completely in either housework or market work. Since housework is exhausting, this could lead the individual with more household responsibilities to choose market work that is less demanding which would lead to lower earnings (Becker, 1985). A common feature of the common preference models are pooling of incomes. This means that a given increase in income has the same effect on utility and consumer demand irrespective of which of the spouses earns whatever income. In a bargaining model, the individuals are assumed to maximize their individual utility and the behaviour of the family whilst being not only dependent on total family income (ceteris paribus) but also on the spouses’ bargaining power (Lundberg and Pollack, 1996). Educational level and income are two factors assumed to affect the individuals’ bargaining power. This implies that decisions in the family about for instance: division of labor, fertility, consumption and where to live are likely to depend on the educational level of the spouses. All these different aspects of married life can influence the individual’s earnings.

The decision where to reside can also be rather complex for a family, since the couple may have two careers to encompass. The location that maximizes the family’s joint utility may not be the location that maximizes the individual’s own utility if being single, where one or both spouses may be tied migrants or tied stayers (Mincer, 1978). Paper [1] analyzes the effect of migration on individual earnings as well as on the female earnings share for married couples, in regard to the educational level of the spouses.
If the productivities of the spouses can be seen as substitutes according to Becker’s theory of marriage, optimal matching is achieved if high productivity individuals marry others that are more productive in other areas, such as household work. Becker, furthermore, suggests that the educational levels of the spouses are complements. In this case, positive matching on education is optimal and the gains from marriage are assumed to increase with these complementary attributes. Higher education is likely to result in increased ability in processing information, cognitive skills and the ability to cope with change, which may yield cross-productivity effects. A spouse with higher education might possess better capacity to give advice and share information that can benefit their partner’s career (Benham, 1974). Paper [II] studies the effects of the spouse’s educational level on the individual’s own earnings. The effect of a spouse’s education is assumed to increase if the spouse’s educational fields are the same. The ability to provide knowledge and access to networks ought to be easier if the fields of education are the same. As paper [II] studies the effect of the spouse’s formal human capital, in form of education; paper [III] deals with the effect of the spouse’s informal human capital, “productivity”, as manifested in earnings. An approximation of the spouse’s productivity is achieved by estimating the difference between the spouse’s actual and expected earnings, i.e., residuals from an earnings equation. As stated above, this productivity of the spouse is expected to have a negative effect according to the theory of specialization; however, an alternative hypothesis is that the productivity will yield positive spill over effects on the other spouse’s earnings. The productivity of the spouses may be complements in the labor market where one or both spouses may be able to benefit from each other’s human capital and productivity.
4 Identification

The notion that married men have higher earnings than unmarried men is a well known finding in empirical labor economics. These gains stem partly from selection into marriage (Ribar, 2004), i.e., males that get married are more productive in either state, single or married. Also, highly educated individuals tend to marry other highly educated individuals and likewise high earners tend to marry each other (Mare, 1991; Smith, 1979; Lam, 1988; Nakosteen et al., 2004). A number of studies report a positive correlation between individual earnings and spousal education (Benham, 1974; Jepsen, 2005; Tiefenthaler, 1997). Since there is positive matching into marriage on both earnings and education, some of the correlation is due to selection. When studying the effects of spousal education on individual earnings in paper [II], we exploit data on individuals over a period of time within which they experience both singlehood and marriage. This allows us to isolate the effect of spousal education that arises within the marriage from selection effects on the marriage market.

As depicted above, the labor supply and earnings during marriage may be affected by the division of labor within the couple, the behavior of the partner, circumstances that characterize married life as well as other exogenous factors that affect both spouses’ earnings. The earnings of the spouses during marriage are the result of both potential specialization processes and cross-productivity, which means that identifying the effect of the spouse’s characteristics on individual earnings from observations on existing couples, is problematic. Clearly one spouse’s labor market outcomes are endogenous to the other’s market outcomes, such as working hours and earnings. A common solution to this is to estimate with instrumental variable techniques (Daniel, 1992; Gray, 1997; Chun and Lee, 2001). Another empirical strategy is however employed in this thesis. Paper [III] utilizes information about the
individuals before they marry to avoid this endogeneity. The spouse’s productivity is estimated from observations on the individuals when single three years before marriage.

A similar setup is used in paper [IV]. The empirical literature on assortative mating is fairly large. Most studies estimate the correlation in earnings as married, i.e., based on observations earnings among existing couples. Using this approach, Smith (1979) and Lam (1988) find a positive correlation implying positive assortative mating. A limitation in these studies is that they estimate the correlation of residuals for existing marriages. These residuals are likely to be affected by the marriage and processes within the marriage, and thus might not be informative about the sorting process that paired the spouses to begin with. In Paper [IV], we estimate the correlation in pre-marriage earnings among individuals that eventually marry and compare the sorting between first and second marriages.

5 Data and Institutional setting

The data used in all four studies within this thesis consists of Swedish register data covering the entire Swedish population. This exploits detailed data registers from the Swedish population, which are compiled by Statistics Sweden and the Labor Market Board of Sweden. These registers are longitudinal in nature, which allows us to follow individuals through time. Each individual has a family identification code which makes it possible to link family members and married couples to each other. Unmarried cohabitant couples are only registered if they have a child in common. Cohabitation is common in Sweden, it is generally accepted, so having children without being married is not controversial. A survey from 1999, show that, an overwhelming majority of the young Swedes approve of childbearing and childrearing within
unmarried couples (Bernhardt, 2002). Swedish legislation provides some protection for the weaker party if a cohabitant relationship ends; however, it is limited compared to that provided for married couples. Thus, we will use the terms married and marriage synonymously with cohabitating and cohabitation.

Sweden is often considered one of the most gender equal countries in the world\(^1\) and has among the highest labor force participation rates for women in the OECD. A number of public policies support the combination of family and work for both men and women. The abolishment of joint taxation in 1971 helped increase the labor force participation of females (Gustafsson, 1992). Other explanations for high labor force participation among females are the public parental leave insurance and the vast expansion of public child care. The public provision of child care is highly available and subventionized, where 73 percent of all children aged 1-6 were enrolled in some pre-school facility in 1997 (Skolverket, The Swedish National Agency for Education, 1997). Swedish parental leave\(^2\) is a generous public insurance available to both men and women. The parents are entitled to a total of 360 days of parental leave per child with reimbursement that is a function of their gross wage earnings. Since 1995, one month of the total parental leave is reserved for the father; one objective for this was to contribute to more equal labor market opportunities for men and women. Another feature that increased labor force participation of females is the expansion of the public sector that employs many women.

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\(^1\) See e.g., The Global Gender Gap Report (2009) or Gender Empowerment Measure Index in UNDP (2007).

\(^2\) See Lundqvist and Roman (2008). The rules described are from January 1995 and there have been slight modifications since, e.g., the number of days have been extended to 480.
6 Summary of the four papers

Paper [I] Sex and Migration: Who is the Tied Mover?

Paper [I] analyses the effects of inter-regional migration on two-earner households’ gross earnings and on the relative income between married men and women. In particular, we examine the connection between the education level and relative income gains between spouses. Migration is seen as an investment in human capital that is assumed to increase the welfare and productivity of labor (Becker, 1974). The decision to move is more complex for a married couple compared to singles since they have to consider two potential careers.

Maximising the family’s utility can lead to one or both partners not being able to maximize their individual utility as if they were single which is commonly throughout the literature called tied migration (Mincer, 1978). In bargaining models, individuals are generally assumed to maximize their individual utility where the behaviour of the family is not only dependent on total family income (ceteris paribus) but also on the spouses’ bargaining power (Lundberg and Pollak, 1996). The educational level is in this paper considered a potential proxy for bargaining power.

The empirical analysis is based on longitudinal data and functional regional labour markets as regional entities. We use propensity score matching to estimate the effect of migration. The outcome of a sample of stayers generally serves as an estimate for a counterfactual outcome. The estimated effect of migration can be biased if the selection mechanism is correlated with the outcome, i.e., migrants may have attributes that makes them more productive in any location. Propensity score matching relies on the assumption that, conditional on some observable characteristics, outcomes are independent of the assignment to treatment. Using this approach, it is found that migration
generally increases total gross wage earnings of households and has no significant impact on the male/female earnings gap. Furthermore, we find that the level of education is a key determinant of migration and the economic outcome. The positive average effect on household earnings is largely explained by income gains among highly educated males. Females experience, on average, no significant income gain in absolute terms from migration. Judging from the overall pattern of point estimates in earnings effects, the relative male/female educational level seems to affect the relative income gain between spouses in the anticipated direction. However, females gain significantly in terms of relative income only if highly educated and married/cohabitant with a low educated male. The statistical evidence in this study does not provide a sufficient basis for strong conclusions in this regard.

**Paper [II] The Effects of Spousal Education on Individual Earnings – A Study of Married Swedish Couples.**

Paper [II] studies if the earnings of an individual are affected by the educational level of the spouse. A positive association between spousal education and individual earnings is a common empirical finding (e.g. Benham, 1974 and Rossetti and Tanda, 2000). This association is most often attributed to selection and cross productivity.

A spouse with higher education might possess better capacity to give advice and share information that can benefit their partner’s career (Benham, 1974). Also, it may be the case that a highly productive spouse counteracts the depreciation of the partner’s human capital. Education does not only have direct economic benefits, such as higher earnings and lower probability for unemployment, it also affects the individual in other parts of life. Individuals with higher education have better health and are more likely to engage in healthy behavior (Grossman and Kaestner, 1997; Cutler and Glaeser, 2005).
Higher education also decreases the probability to engage in criminal behavior (Lochner and Morreti, 2004). The lifestyle and health choices of a spouse may thereby affect the partner's own health and thus affect earnings. Relatively speaking, the general effect from education that influences health and lifestyle is likely to be closely associated to the spouse's level of education. Moreover, a common field of education should have a larger impact on the cross productivity effect. The possibility to provide direct help and specific knowledge is expected to be greater if the spouse has a degree in the same field of education.

To identify the effect of spousal education within the framework of a fixed effects model there needs to be variation in the educational level of the spouse. However, very limited numbers of individuals change their educational level after they get married. To ensure variation in the educational level of the spouse, we restrict the sample to individuals that are single at least one year during the observed period. The results support the cross productivity hypothesis for both males and females. Furthermore, couples that have education within the same field of experience incur larger additional effects.

**Paper [III] The Effects of Assortative Mating on Earnings: Human Capital Spillover or Specialization?**

In this paper, how the productivity of one’s spouse affects own individual earnings in the labor market is studied. The bargaining processes and the interaction within marriage, affecting labor supply and earnings, are likely to depend on the spouses’ labor market characteristics. Marrying someone successful will probably affect the individual's earnings differently than marrying someone less fortunate or successful in the labor market. The spouses can assist each other in the labor market so the spouses’ productivities may be complements or the spouses will specialize in market work and
domestic work respectively, i.e., take advantage of comparative advantage. Individuals marry persons similar to themselves in age and education which implies that their earnings are likely to be correlated (Mare, 1991; Nakosteen et al., 2004). The part of the spouses’ earnings that are attributed to these and other measured factors will be controlled for. In this study, the focus will be on how the unexplained part of the spouse’s earnings i.e., the difference between expected and actual earnings, affects one’s own earnings. To avoid problems with endogeneity, the productivity of the spouse is estimated before the individuals form a couple. Utilizing information on the individuals being single before they marry makes it possible to study how the high productivity of one spouse will affect the other’s earnings when they are married.

The estimated effects of the spouses’ productivity on individual earnings are on average negative. This suggests that the higher the spouses premarital productivity, the lower the individual’s earnings during marriage. The results also show that this negative effect is enhanced by the duration of the marriage. This is in line with the specialization hypothesis that predicts that the effect will increase as the partners obtain more and more specific skills. However, closer examination shows that it is the sample of young men and women that are driving the results. Males and females over 35 years of age do not seem to be affected negatively by their spouse’s premarital productivity. A possible explanation for differences in results between age groups may be that the demands in household work are greater for young couples.

**Paper [IV] Twice Chosen: Spouse Matching and Earnings. Among Women in First and Second Marriages.**

The economics of marriage markets was followed by research concerning determinants of separation and divorce, as exemplified by Becker, Landes and Michael (1977). There is today a substantial volume of research on marital
matching along with determinants and consequences of divorce. Accompanying the trend in marital disruption has been pervasive incidences of remarriage; a substantial proportion of individuals who end their first marriages tend to enter subsequent unions. This study attempts to extend the literature by examining spousal matching in second-order marriages of females. We follow women who marry, divorce and subsequently remarry against their counterparts who marry and stay married over the course of the study interval.

The sorting in second marriages is important for public policy purposes, since the incomes of single mothers tend to be lower and marriage may be seen as a potential way out of poverty. What the remarriage literature has not yet addressed is the issue of marital matching in second marriages. Knowledge of the matching process can contribute to a better understanding of the extent, if any, to which matching in second marriages differs from first marriages. In particular, given the pervasiveness of higher-order marriages in many countries, improved understanding of the sorting process that brings second spouses together can be informative about the long term stability of second versus first marriages.

As described above, people tend to marry persons with similar levels of education, age and ethnicity, which are correlated with earnings. Moreover, spouses reside in the same region and therefore share the economic fortunes of the regional economy. Consequently, our preferred measure of marital matching, following Becker (1981), Smith (1979) and others, is the estimated correlation between residuals. These residuals capture characteristics of individuals which affect earnings but are not accounted for by explanatory variables as they include traits such as confidence, ambition, possible family connections that impact earnings, and mental or emotional health. However, these characteristics are likely to be visible to potential spouses.
Overall, we find significant positive correlations for all sets of marriages where the magnitudes are consistent with previous studies. Furthermore, the correlation tends to be smaller for the first in a sequence of marriages for women who divorce than for women who marry and stay so. For the second of the successive marriages, however, the correlation of the residuals is larger than that for women who marry only once. Women who marry twice tend to select and match in a similar fashion the second time around; if anything, that tendency for positive matching on earnings is stronger in the second marriage. The continuous sorting of strong earners into marriage may contribute to shifts in the distribution of income.
References


