Dual Job Search and Migration

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Abstract

From 1964-1990, the aggregate intercounty migration rate remained largely unchanged, after which it began to decrease. During this same period, however, the intercounty migration rate of married couples steadily declined while the migration rate of single individuals concurrently increased. This paper builds on the extensive demography and labor literature by asking how much of the decline in the mobility of married couples can be accounted for by the rapid increase in female labor force participation and the rise of female wages relative to male from 1964 to 2000? We first show that dual searching couples are 10% less likely to move and 36% less likely to move for job related reasons than their single searching counterparts. We then use a two location model with both single and dual searching households to decompose these historical trends into a composition effect and a wage effect. We find that the rise of female labor force participation among married couples can account for 18% of the decline in migration, whereas rising relative wages of wives can account for 20% of this decline.

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1 Introduction

Over the last half century the increase in female labor force participation was more rapid for married women than single women, leading to a more than a doubling in the the fraction of families with both spouses in the labor force, from 35% in 1964 to 75% in 2000. At the same time there has been a nearly 30% increase in the female to male median wage ratio among married couples. In addition, the intercounty migration rate (moves from one county to another) of married couples has declined sharply. In this paper we ask how much of the decline in the mobility of married couples can be accounted for by the rapid increase in female labor force participation and the rise in the relative wages of females? We estimate the effect of being a dual searcher household on the intercounty migration rate of married couples and develop a model of joint job search with multiple locations to disentangle these two effects. Throughout this paper we focus on married couples. We define a single searcher household as one in which only one spouse is in the labor force and a dual searcher household as one in which both are in the labor force.

From 1964-1990, the aggregate intercounty migration rate remained largely unchanged, after which it began to decrease. Decomposing migration by marital status, however, reveals very different trends: The intercounty migration rate of married couples steadily declined while the migration rate of single individuals increased. These differential trends suggest important differences in how multi-member households and individuals make decisions.

Motivated by these labor market and migration trends, we use household level data from the Current Population Survey to test the effect of the joint decision process on migration. We find that households with both members in the labor force are 10% less likely to move. Furthermore, we show that among all households that moved, the relative probability that a dual searching household moves for job related reasons than for other reasons is 26% lower than for single searching households. These results are consistent with classic work by Mincer (1978) who shows that the co-location problem faced by couples has a significant impact on migration decisions.

To disentangle the wage effect from the composition effect, we model the decisions of dual searcher households. We allow both individuals to receive local and foreign offers while unemployed and *employed*, and interpret the acceptance of any foreign offer as a move. Once a move has taken place, only the spouse receiving the foreign offer remains employed. Overall, the model can account for 38% of the decline in the intercounty migration of married couples over this time period. Moreover, we find that wage effect is quantitatively more important than

the composition effect. Indeed, the wage effect can account for roughly 20% of this decline, whereas the composition effect can accounts for only 18%. These results suggest that the fact that women are becoming more similar to men in terms of their roles within the household is more important than the fact that more women are entering labor force in explaining long term migration trends in the United States. In addition, we show that ignoring the co-location problem has important implications for estimates of lifetime earnings inequality. In fact, ignoring this additional constraint on households can bias these estimates upward by as much as 12% for men and 19% for women. This bias has become more severe for men and less severe for women as increasing wages for women have placed tighter constraints on their spouses and alleviated the constraints placed on themselves.

Previous studies have also investigated the determinants of migration. Chen and Rosenthal (2008) and Nosal and Rupert (2007) study whether or not individuals move for job related reasons or for local amenities from 1970-2000. Kennan and Walker (2011) studies the effect of expected income on migration decisions. Karahan and Rhee (2017) argues that declines in historical migration are partially a consequence of aging populations. These papers have ignored the co-location problem. Finally, Kaplan and Schulhofer-Wohl (2017) and Molloy et al. (2017) argue that demographics such as those proposed here have not changed sufficiently to explain this long run decline. We show empirically that changes in the labor market experience of married women are in fact quantitatively significant. Moreover, our model generates the declines in job-to-job transitions necessary to account for the decline in long run migration identified by Molloy et al. (2017).

A group of empirical studies has also studied the importance of spousal job prospects in on household decisions. McClelland and Mok (2014) and Baldwin et al. (2011) use federal income tax data and Census data, respectively, to estimate labor supply elasticities of married couples. Both find that relative earnings rather than gender are a more important determinant of labor market decisions. Marcassa (2014) instead finds that the effect of spousal labor income on one's labor market behavior is asymmetric for men and women. Moreover, Taskin (2016) and Foged (2016) study how migration decisions of couples may change as relative wages change and find that migration is U-shaped in the wife's share of total family income. Flabbi and Mabli (2018) and Rendon and García-Pérez (2018) also extend the model presented in Guler et al. (2012) to investigate whether or not modeling households as a unit of decision making has important implications for estimated lifetime wage inequality, and the effect of including wealth accumulation, respectively. Both ignore the co-location problem. A recent working

paper by Guler and Taskin (2018) uses a similar model with marriage and divorce to also study historical migration. We instead focus on married couples as this group has seen the most persistent decline in intercounty migration.

The remainder of the paper proceeds as follows. Section 2 presents the CPS data used in our econometric analysis and highlights the key demographic trends underlying our mechanism. Section 3 outlines our model and derives the migration rates of dual and single searching households. Section 4 presents the results of our calibration and section 5 conducts our quantitative experiment. Section 6 concludes.

2 Data

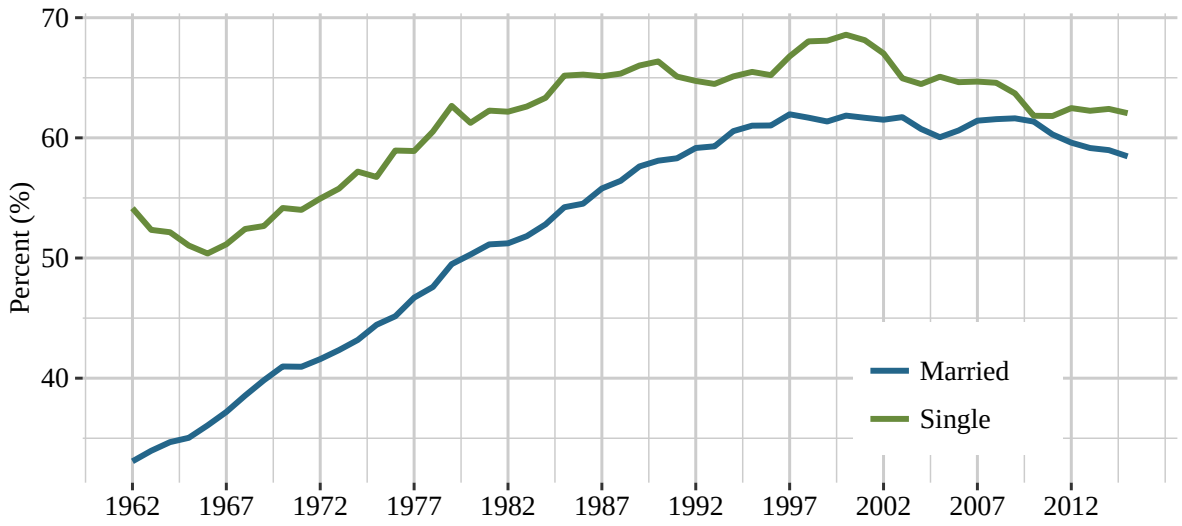
2.1 Trends in Female Labor Force Participation, Women-to-Men earnings Ratio, and Mobility

It is well known that female labor force participation increased rapidly after the end of World War II, nearly doubling from 33% in 1950 to 60% in 2001. This trend is even more prevalent among married couples. Figure 1 shows that both the number of married and single women entering the labor force over this time increased substantially, and that labor force participation rate of married women increased by almost 40 percentage points from 1960 to 2000. Not shown is the labor force participation rate of married men, which decreased from 86% in 1962 to 76% in 2000. Figure 2, however, shows that the percent of dual searcher households, defined as married households in which both spouses are in the labor force, increased from 34% in 1962 to 75% in 2000.

Next, our migration data come from the March sample of the Current Population Survey (CPS). The variable of interest is the one year mobility question in which respondents were asked if they had changed residence since March of the previous year. Movers are divided into five categories: those who had moved within the same county (intracounty); those who had crossed county lines but stayed in the same state (intercounty - intrastate); those who had resided in a different state (interstate); and those who had migrated from abroad.

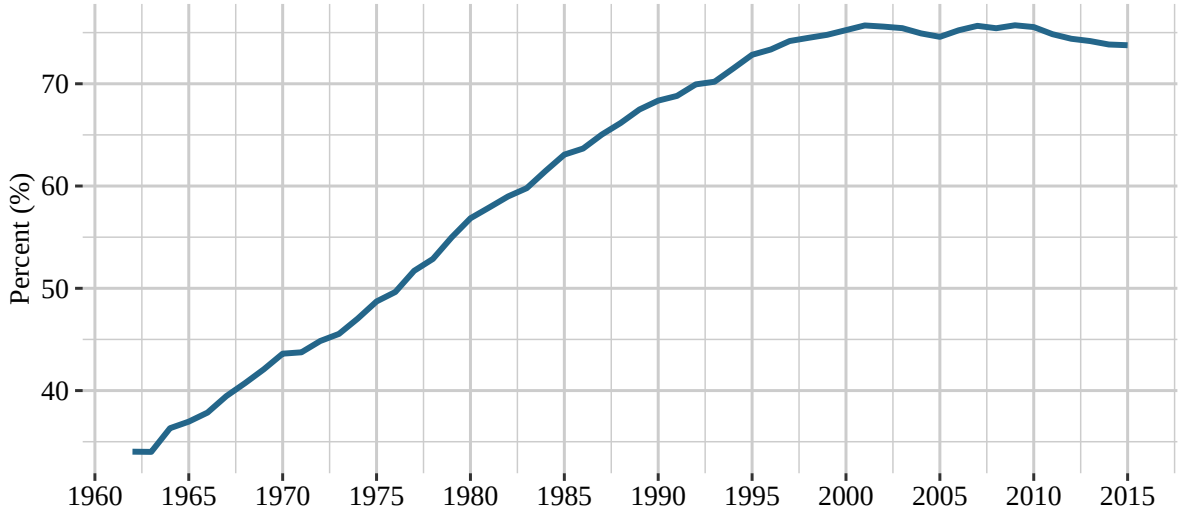
Figure 3 shows the percent of civilian households that moved each year from 1964 to 2015 by marital status of the head of households. The figure reveals that the trends in intercounty mobility are very different across marital status. While the percent of single movers increased from 5.3% in 1964 to 8.7% in 2000, the percent of married movers decrease from 5.7% to 5.1% over the same time period. Since the fraction of dual searching households has stayed

Figure 1: Female Labor Force Participation by Marital Status



Notes: The figure shows the percent of women, age 16 or older, that are in the labor force by marital status. The data comes from the basic monthly files of the Current Population Survey.

Figure 2: Dual Searcher Households



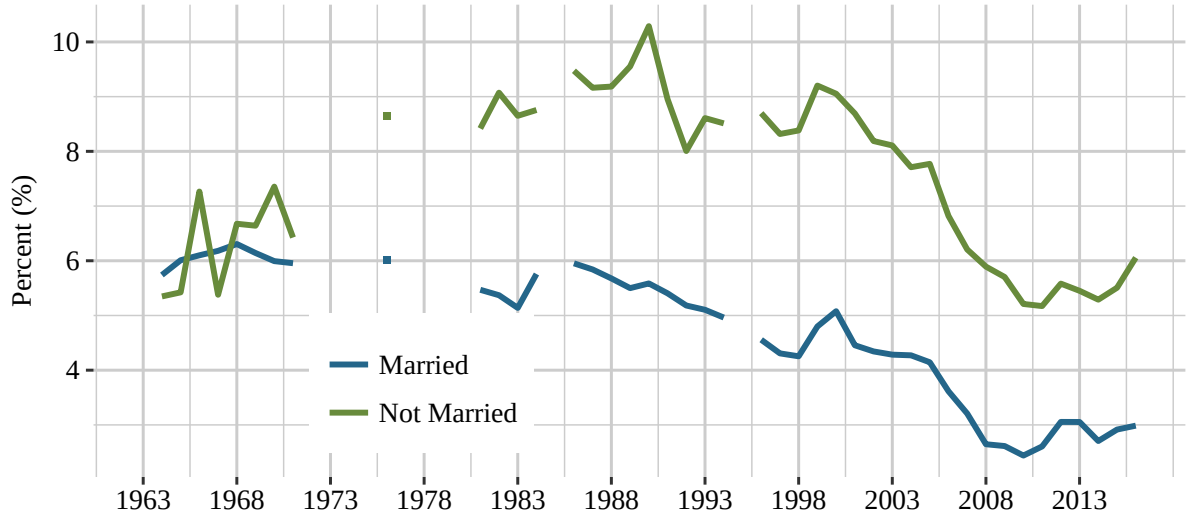
Notes: Plotted is the percent of households in which the head of household is in the labor force that have a spouse who is also in the labor force. Households in which the head of household is not married are included in the sample and the percent of dual earner households is calculated as: (# of married households with both spouses in the labor force)/(Total # of married households). The data comes from the basic monthly files of the Current Population Survey.

relatively constant since late the 1990's, the increase in female labor force participation cannot explain the rapid decrease in the mobility rate of married couples after 2000. Figure 3 suggests that a structural change may explain the decrease that occurred after 2000 since both single and

married mobility decrease rapidly. As a result, we exclude this period from our analysis.

To ensure that the decrease in married household mobility is not coming from changes in the demographic composition of married households we adjust the data to control for such changes. Figure 4 plots the unadjusted and adjusted percent of married households that moved across county lines within the year. The adjusted series controls for changes in the age, sex, race, and education of both the head of household and spouse, total real family income, and the number of family members living in the household. The figure shows that holding constant the composition of these factors at their 1964 levels does not change the trend in migration of married households. We therefore conclude that changes in the demographic composition of married households alone cannot explain the decrease in mobility.

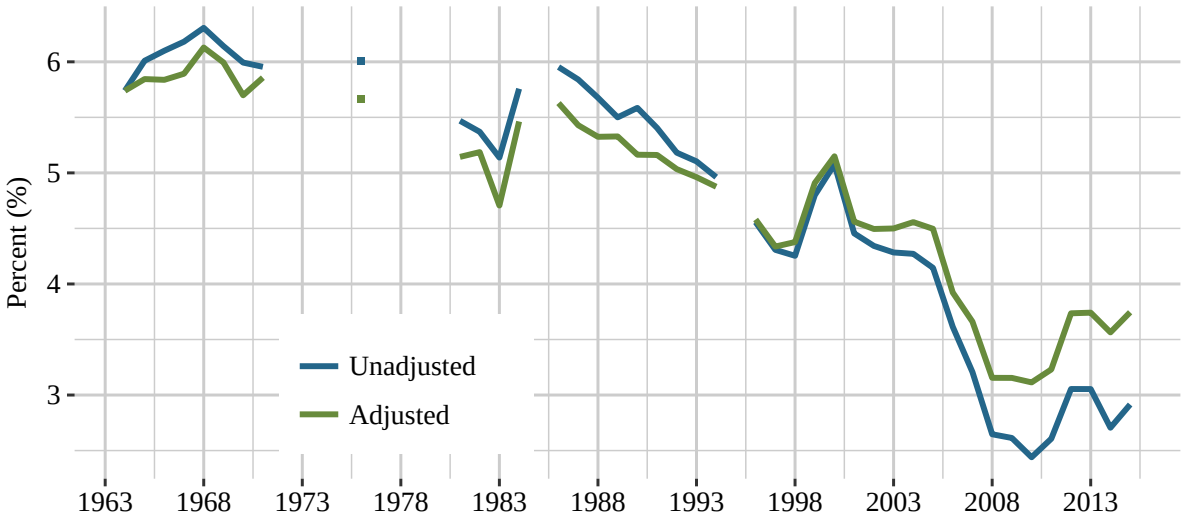
Figure 3: Intercounty Mobility by Marital Status



Notes: The 1-year geographic mobility question was not asked between 1972 to 1975, 1977 to 1980, 1985 and 1995. The figure shows the percent of civilian households that moved across county lines within the previous year by marital status. The sample only includes single individuals that are in the labor force and married households in which at least one individual is in the labor force.

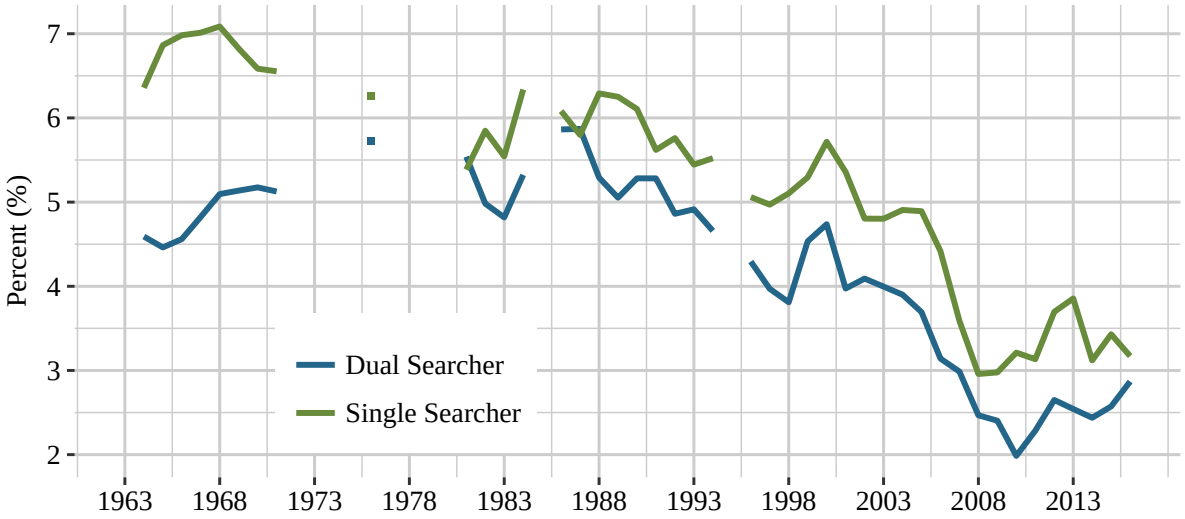
Since we are interested in the extent to which the increase in female labor force participation decreased the mobility rate of married couples we decompose the mobility rate of married couples by type of households. The two types of households we are interested in are dual searcher households, those with both spouses in the labor force, and single searcher households, those with only one spouse in the labor force. Figure 5 plots the mobility rates for both types of households from 1964 to 2015. The figure shows that the mobility rate for dual searching households was lower than that of single searching households. Indeed, the average mobility rate for single searcher households from 1964 to 2004 was 5.9% whereas the average mobility

Figure 4: Intercounty Mobility of Married Households



Notes: The figure shows the unadjusted and adjusted percent of married civilian households that moved within the previous year. The adjusted series is the sum of the percent of married households that moved in 1964 and the coefficients on the time dummies of a linear regression of the one year mobility status on time dummies, age, sex, race and education of the head of household and spouse, family size and total real family income.

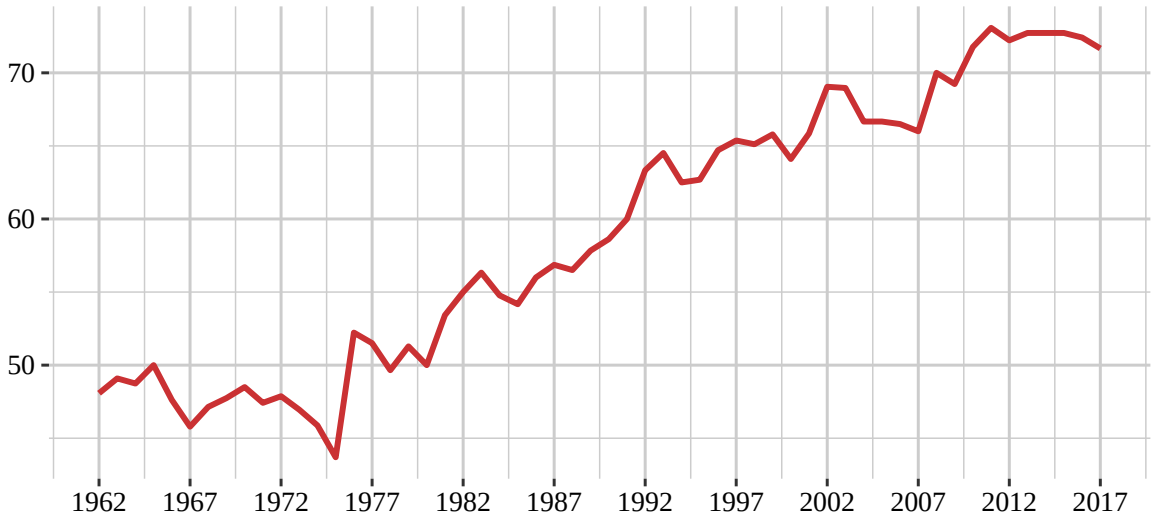
Figure 5: Intercounty Mobility of Marred Households by Household Type



Notes: The 1-year geographic mobility question was not asked between 1972 to 1975, 1977 to 1980, 1985 and 1995. The figure shows the percent of married households that moved across county lines within the pervious year by household type. Dual searching households are those in which both spouses are in the labor force and single searching households are those in which only one spouse is in the labor force.

rate for dual searcher households was 4.8% over the same period. Figure 5 gives some empirical support for the mechanism driving the decline in the mobility of married couples.

Figure 6: Ratio of Women's to Men's Median Earnings



Notes: The figure shows the ratio of women's median yearly earnings to men's median yearly earnings.

The second mechanism we focus on that may drive down the mobility rate for married couples is the ratio of women's to men's earnings. An increase in the ratio of women's to men's earnings may drive down mobility rates of dual searcher households since outside offer must be larger when both individuals are earning more. Figure 6 shows the ratio of median yearly earning of women to men from 1962 to 2017. The figure shows that women's earnings relative to men began to increase in the 1980's, rising from about 49% to 67% in 2004. This time period corresponds to the second half of our period of interest as well as the period that saw the largest decrease in the mobility of married couples. In the next section we analyze more formally the difference in mobility rates across household types using household level data from the March CPS.

2.2 Household-level Analysis

In this section we use the household level data from the March CPS in order to determine whether households in which both spouses are in the labor force are less likely to move across county lines or for job related reasons. Since the primary reason for moving was only asked post 1999 we restrict the data to the year 1999 through 2015. Although this is not our primary time period of interest we use this section as evidence of the mechanism we propose in the model.

We restrict the sample of households to civilian households in which the head of household

is between the ages of 16 and 65. We create 3 samples of households: (1) all households in which the head of household is married (TOT), (2) all households in which the head of household is married and the spouse is present in the home (LT), and (3) all households in the Married-Living Together sample plus households that include unmarried partners (COH). Our variables of interest are the labor force status of both spouses. Thus, we divide the households into 2 subgroups: (1) both spouses are in the labor force (Dual) and (2) one spouse is in the labor force and the other is not (Single).

Table 1: Summary Statistics: Married Households

	Dual LT	Single LT	Dual TOT	Single TOT	Dual COH	Single COH
County Move	0.03	0.04	0.03	0.04	0.04	0.04
Real Family Income	83347.83	63295.21	83256.22	62064.81	80620.66	61534.55
Own Home	0.84	0.75	0.84	0.73	0.82	0.73
Head of Household Characteristics						
Age	43.09	44.05	43.09	43.87	42.69	43.76
White	0.85	0.84	0.85	0.83	0.85	0.84
Black	0.07	0.07	0.07	0.07	0.07	0.07
One race - Other	0.06	0.08	0.06	0.08	0.06	0.08
Multiple races	0.01	0.01	0.01	0.01	0.01	0.01
Less than High School	0.03	0.07	0.03	0.07	0.03	0.07
High School	0.32	0.39	0.32	0.39	0.33	0.40
Some College	0.11	0.08	0.11	0.08	0.11	0.08
College	0.24	0.19	0.24	0.19	0.23	0.19
Advanced Degree	0.13	0.10	0.13	0.10	0.13	0.10
Spouse Characteristics						
Age	43.20	44.46	43.19	44.45	42.76	44.12
White	0.85	0.84	0.85	0.79	0.85	0.84
Black	0.07	0.07	0.07	0.06	0.07	0.07
One race - Other	0.06	0.08	0.06	0.07	0.06	0.08
Multiple races	0.01	0.01	0.01	0.01	0.01	0.01
Less than High School	0.03	0.07	0.03	0.07	0.03	0.07
High School	0.32	0.39	0.32	0.37	0.33	0.40
Some College	0.11	0.08	0.11	0.08	0.11	0.08
College	0.24	0.19	0.24	0.18	0.23	0.18
Advanced Degree	0.13	0.10	0.13	0.15	0.13	0.10
Observations	786,811	362,938	788,249	385,321	832,238	378,940

Table 1 gives summary statistics of the head of household and spouse characteristics, real family income and home ownership rates for each subsample. Households across the samples differ in several respects. First, dual searching households tend to have higher homeownership rates than single searching households. Second, single searching households tend to have a lower real family income. Households also differ slightly with regards to educational attainment. In particular, dual searching households tend to be slightly more educated than single

searching households. Both dual and single searching households are roughly the same age and demographic makeup.

We use the data to answer two questions regarding the moving and work decisions of married households: First, we ask if households in which both spouses are in the labor force are less likely to move across county lines than households in which only one spouse is in the labor force. Second, we restrict our analysis to only households that moved within the year and ask if households with both spouses in the labor force are less likely to move for job related reasons than households with only one spouse in the labor force. For moves, we use all intercounty moves, Appendix A shows all estimates using only interstate moves.

We answer our first question using a probit model with an indicator variable that takes on the value 1 if the household moved across county lines within the last year. Specifically we run,

$$\text{P}(\text{move}_i = 1) = \Phi(\beta_0 + \beta_1 dual_i + X_i\gamma + \eta_t + \varepsilon_i) \tag{1}$$

where dual_i is an indicator for both spouses in household i being in the labor force, X_i is a set of household covariates that include: age, age squared, race, education for both the head of household and the spouse, an indicator for homeownership, real total family income, and an indicator that takes on the value 1 if a child is present in the home. η_t is a year fixed effect and $\Phi(\cdot)$ is the c.d.f. of the normal distribution. We have defined single households to be our base case so our coefficient of interest is β_1. If the mechanism that we propose is in fact important for household migration decisions, then we would expect β_1 to be negative.

Table 2 gives the estimated coefficients on the labor market indicators. The sign of β_1 indicates that the probability of moving when both spouses are in the labor force is in fact less than that when only one spouse is in the labor force. Table 3 gives the marginal effects of the labor market indicator for a household in which both spouse are white, 40 years old, have a college degree, own a home, and have a child present in the home in the year 2000. Focusing on the “Total" column of Table 3 shows that the probability of moving when both spouses are in the labor force is 0.323 percentage points lower than when a only one spouse is in the labor force. Given that the average probability of moving across county lines across the entire sample of married households is 3.1%, this effect is quite large.

Next we use the reason for moving response to ask if households with both spouses in the labor force are less likely to move for job related reasons. There are 19 categories for the reason for moving variable which we regroup into 4 broader categories. Our main category of interest is “New job or transfer," which includes only households that indicated that a new job or job

Table 2: Probit Estimation Results

	Total	Living Together	Cohab
dual	−0.0416***	−0.0412***	-0.0183
	(0.0102)	(0.0102)	(0.00948)
N	366041	365363	401310

Robust Standard errors in parentheses
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 3: Probit Marginal Effects

	Total	Living Together	Cohab
dual	−0.00323***	−0.00319***	-0.00146
	(0.000809)	(0.000808)	(0.000764)
N	366041	365363	401310

Marginal effects evaluated for a household in which both spouse are white, 40 years old, with a college degree, own a home and have a child present in the home in the year 2000. Robust standard errors in parentheses.
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

transfer was their primary reason for moving. Our second category is “Other job reasons", which includes all households that indicated they moved to look for work or lost job, for an easier commute, retired, or other job-related reason as their primary reason for moving. Our third category is “Family," which includes all households that indicated a change in marital status, to establish own household, or other family reason as their primary reason for moving. Our fourth category is “Other," which includes all remaining reasons for moving.[1] Table 4 gives a summary of the reasons for moving for all of our subgroups. For all subgroups, “Other" is the largest reason for moving and “New job or transfer" is the second largest for all subgroups. For the full sample of single searching households, the percent of households that moved for “New job or transfer" reasons, 32.3%, is almost the same as the percent of households that moved for other reasons, 34.5%.

We use the 4 broader categories to estimate the probability that a household with both spouses in the labor force will move for job related reasons. Specifically we model the probability that a move occurred for reason $j \in$ {New job or transfer, Other job reasons, Family,

[1]The remaining reasons for moving are: wanted own home - not rent, wanted new or better housing, wanted better neighborhood, for cheaper housing, other housing reason, attend/leave college, change of climate, health reasons, other reasons, natural disaster, and foreclosure or eviction.

Table 4: Reasons for Moving: Married Households

	Dual-TOT	Single-TOT	Dual-LT	Single-LT	Dual-COH	Single-COH
New job or transfer	27.0	32.3	27.1	32.4	24.5	29.6
Other job reasons	12.1	12.8	12.1	12.9	12.3	12.7
Family	22.4	20.4	22.3	20.3	25.0	22.3
Other	38.5	34.5	38.5	34.4	38.2	35.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Observations	11071	6775	11028	6757	15032	8035

Other$\} = K$ as,

$$\text{P(whymove}_i = j) = \frac{e^{(\beta_{0j}+\beta_{1j}dual_i+X_i\gamma_j+\eta_{tj}+\varepsilon_i)}}{1+\sum_{k\in K} e^{(\beta_{0k}+\beta_{1k}dual_i+X_i\gamma_j+\eta_{tk}+\varepsilon_i)}} \tag{2}$$

where the variables are define as in the probit estimation. Here again, our base case is single households so our coefficient of interest is β_{1j}. If dual searching households are in fact less likely to move for new jobs than single searching households, then we should expect β_{1j} to be negative.

Table 5: Multinomial Logit Results

	Total	Living Together	Cohabitating
New job or transfer			
dual	−0.296***	−0.300***	-0.248***
	(0.0564)	(0.0564)	(0.0530)
Other job reasons			
dual	-0.109	-0.114	-0.0519
	(0.0735)	(0.0736)	(0.0679)
Family			
dual	0.0813	0.0796	0.0997
	(0.0619)	(0.0620)	(0.0557)
N	10618	10582	13430

Robust standard errors in parentheses. Base case is other reasons for moving.
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 5 gives the estimated coefficients on the labor market indicators where all probabilities are relative to moving for other reasons. Again focusing on the "Total" column, we find that the coefficient on *dual* is negative and statistically significant for both the new job or transfer reasons for moving. The estimated coefficient implies that the relative probability a household with both spouses in the labor force moves for a new job or transfer is 36.4% lower than for a household with one spouse in the labor forced[2]. The coefficients for all other reasons for moving across all subsamples are not statistically different from zero. Thus we conclude that

[2]The relative probabilities of the multinomial logit are $exp(\beta_j)$.

the strongest evidence of the difference between single and dual searching household migration patterns points towards differences in the job search process.

We have documented the fact that mobility rates have declined for married couples from 1960 to 2000 while female labor force participation and the fraction of dual searcher households concurrently increased. This evidence suggest that the need for two jobs has played a role in decreasing the fraction of married couples that choose to move. We have presented some empirical evidence of this mechanism using household level data from the Current Population Survey showing that dual searching households are less likely to move across county lines and for job related reasons than their single searching counterparts. In the following section, we model this mechanism using a model of dual labor search and try to quantify the extent to which an increase in the fraction of dual searching households and the rise in the female-to-male median wage ratio has contributed to the observed decrease in mobility.

3 Model

We are interested in modeling the job search problem for married couples under two different circumstances. First, the single searcher household, in which only one spouse is actively searching and receiving job offers and second, the dual searcher household, in which both spouses are actively searching and receiving job offers. The key features of our model are that searchers can receive either local job offers or foreign job offers, and that men and women receive offers from gender specific offer distributions.

3.1 Environment

Risk neutral households search for jobs and enjoy utility over pooled income similar to Guler et al. (2012).[3] There are two types of households, single searcher households and dual searcher households. Within dual searcher households, both individuals receive job offers and are ex ante heterogeneous as they have gender specific job prospects and receive gender specific flow utility of unemployment. In the single searcher household, individuals differ as only one is searching for jobs. Since we take the increase in female labor force participation as given we do not model the household's decision of becoming either a single searching household or dual searching household.

[3]Examples of alternatives to the unitary model of the household include Dey and Flinn (2005), Gemici (2016), and Lundberg and Pollak (1993).

Individuals who are out of the labor force receive flow utility b_O and do not receive job offers. Individuals who are in the labor force but unemployed receive flow utility b_U^i, where $i \in \{M, F\}$ indexes the gender of each household member, and can receive either local or foreign job offers. They receive local offers at wage w drawn from the c.d.f. $F^i(w)$ at exogenous poisson arrival rate α_l^u, and foreign offers at wage w drawn from the same c.d.f. at exogenous poisson rate α_f^u. Individuals also search for jobs while employed and can again receive local or foreign offers at wage w drawn from the same c.d.f. at rate α_l^e and α_f^e, respectively. All jobs separate at exogenous rate δ and households discount utility at rate r. If an individual accepts a foreign offer, the household must quit any locally held jobs and move locations. Here, we abstract from moving costs since we are ultimately interested in the difference between moving rates for single searcher and dual searcher households. If monetary moving costs do not differ across these households, they will simply create a wedge between the reservation wage of local and foreign offers that is similar for both single and dual searching households.[4]

3.2 Single Searcher Household

A single searcher household is composed of two individuals: one which is out of the labor force and the other of gender i that is in the labor force searching for jobs. Such a household can be in one of two states: employed-out of the labor force with value function $EO^i(w)$ or unemployed-out of the labor force with value function UO^i. The value functions are given by:

$$\begin{aligned} rUO^i = b_O + b_I^i + \alpha_l^u \int \max\{EO^i(w) - UO^i, 0\}\, dF^i(w) \\ + \alpha_f^u \int \max\{EO^i(w) - UO^i, 0\}\, dF^i(w) \end{aligned} \tag{3}$$

$$\begin{aligned} rEO^i(w) = b_O + w + \alpha_l^e \int_w EO^i(w') - EO^i(w)\, dF^i(w') \\ + \alpha_f^e \int_w EO^i(w') - EO^i(w)\, dF^i(w') \end{aligned} \tag{4}$$

In either state the household receives flow utility b_O from the spouse that is out of the labor force. Since there is no cost to moving, the reservation wage for both local and foreign offers is the same. Let R_s^i be the reservation wage such that $EO^i(R_s^i) = UO^i$. This reservation wage

[4]Incorporating moving costs may differentially impact single and dual searching households when they are risk averse.

is given by the implicit equation,

$$R_s^i - b_I^i = (\alpha_l^u + \alpha_f^u - \alpha_l^e - \alpha_f^e) \int_{R_s^i}^{\infty} \frac{1 - F^i(w)}{r + \delta + (\alpha_l^e + \alpha_f^e)[1 - F^i(w)]} \, dw. \tag{5}$$

The steady state unemployment rate, u_s^i, and steady state distribution of households employed at wage less than or equal to w, $G^i(w)$, are given by Equation 6 and Equation 7.

$$u_s^i = \frac{\delta}{\delta + (\alpha_l^u + \alpha_f^u)[1 - F^i(R_s^i)]} \tag{6}$$

$$G^i(w) = \begin{cases} \frac{\delta[F^i(w) - F^i(R_s^i)]}{\{\delta + (\alpha_f^e + \alpha_l^e)[1 - F^i(w)]\}[1 - F^i(R_s^i)]} & w \geq R_s^i \\ 0 & else \end{cases} \tag{7}$$

Each are derived as in Burdett and Mortensen (1998). The migration rate for single searcher households of type i is the weighted sum of the migration rate of the unemployed plus the migration rate of the employed, where the weights are given by the mass of households in each employment state. The migration rate of the unemployed is: $\alpha_f^u[1 - F^i(R_s^i)]$. The rate at which workers employed at wage w migrate is $\alpha_f^e[1 - F^i(w)]$. Therefore, the aggregate migration rate for single searcher households of type i, M_s^i, is:

$$M_s^i = u_s^i \cdot \alpha_f^u(1 - F^i(R_s^i)) + (1 - u_s^i) \cdot \alpha_f^e \int_{R_s^i}^{\infty} 1 - F^i(w) \, dG^i(w). \tag{8}$$

The aggregate migration rate for single searching households is then given by a simple weighted average over all household types as follows:

$$M_s = \xi_M \cdot M_s^M + (1 - \xi_M) \cdot M_s^F \tag{9}$$

where ξ_M denotes the fraction of single searching households with the husband in the labor force.

3.3 Dual Searcher Household

A dual searcher household is composed of two individuals both of whom are searching for jobs. Such a household can be in one of four states: employed-employed with value function $EE(w, w')$, husband employed-wife unemployed with value function $EU^M(w)$, wife employed-husband unemployed with value function $EU^F(W)$, and unemployed-unemployed with value function UU.

Just as in the single searcher household, the reservation wage for accepting jobs while in the unemployed-unemployed state is the same for both local and foreign offers.[5] Let R_1^i be the reservation wage for spouse i when both members of the household are unemployed. Because both the offer distribution and flow utility of unemployment for each spouse is different, $EU^i(w)$ will differ by i. As a result, the reservation wage, R_1^i, is also indexed by i. The corresponding value function is:

$$\begin{aligned} rUU = b_U^M + b_U^F + (\alpha_l^u + \alpha_f^u) \int_{R_1^M}^{\infty} EU^M(w') - UU \, dF^M(w') \\ + (\alpha_l^u + \alpha_f^u) \int_{R_1^F}^{\infty} EU^F(w') - UU \, dF^F(w'). \end{aligned} \tag{10}$$

If one member of the household is employed, several decisions about accepting job offers need to be made. First, if the unemployed spouse receives a local job offer, they may take that offer if either the value of joint employment or the value of switching roles exceeds the current value of single employment. In the former case for example if the wife is employed at wage w' the husband will accept any local offer w such that $EE(w, w') \geq EU^F(w')$ and the household will enter a state of joint employment. Let $R_2^M(w)$ and $R_2^F(w)$ be the reservation wage for men and women to make this transition defined by $EE(w, R_2^F(w)) = EU^M(w)$ and $EE(R_2^M(w'), w') = EU^F(w')$, respectively. In the latter case on the other hand if the husband receives a wage offer sufficiently high to accept, but not high enough to enter joint employment, each spouse will switch roles and the household will remain in a state of single employment. Related to this second transition is the fact that both the employed and unemployed spouse may receive a foreign offer. If the foreign offer is received by the spouse that is currently employed, the household will be willing to move for any wage greater than the one it is currently receiving. We do not allow for the possibility that members of the household can live in separate locations or that the household can split up. Therefore, if the unemployed spouse receives a foreign offer, the employed spouse must quit their job and transitions into the unemployed state. Since individuals are heterogeneous within the household, spouse i will accept the foreign wage offer, w', if and only if $EU^i(w') \geq EU^{-i}(w)$. Thus, the reservation wage to transition from employed-unemployed to unemployed-employed denoted R_3^i is given by $EU^i(w) = EU^{-i}(R_3^{-i}(w))$. Note that this reservation wage is identical for the local switching case discussed above and is not

[5] Ex post inspection of the steady state value functions reveals that a cutoff strategy is optimal for the dual searching household.

generally the 45° line. The value function for the employed-unemployed state is then given by:

$$\begin{aligned} rEU^i(w) = b_U^{-i} + w + (\alpha_l^e + \alpha_f^e) \int_w^\infty EU^i(w') - EU^i(w)\, dF^i(w') \\ + \alpha_l^u \int_{\phi^{-i}(w)}^\infty \max\left\{EE(w,w') - EU^i(w), EU^{-i}(w') - EU^i(w)\right\}\, dF^{-i}(w') \\ + \alpha_f^u \int_{R_3^{-i}(w)}^\infty EU^{-i}(w') - EU^i(w)\, dF^{-i}(w') \\ + \delta[UU - EU^i(w)]. \end{aligned} \tag{11}$$

where $\phi^{-i}(w) = \min\left\{R_2^{-i}(w), R_3^{-i}(w)\right\}$.

If both members of the household are employed, each will accept local job offers above their current wage. If one receives a foreign offer, the household must decide whether or not to move. If the household chooses to move, the spouse who did not receive the offer transitions into the unemployed state and begins receiving flow utility b_U^{-i}. Moreover, if spouse i loses their job, their partner must decide whether or not to remain employed at their current wage or voluntarily quit and transition to the UU state rather than remain in the $EU^{-i}(w)$ state. Clearly iff $w \geq R_1^{-i}$, spouse $-i$ will remain employed rather than quit. Let $M^i(w,w')$ be the moving reservation wage for spouse i defined as $EE(w,w') = EU^i(M^i(w,w'))$ such that the household decides to move for all foreign offers above $M^i(w,w')$. Then the value function for the employed-employed state is:

$$\begin{aligned} rEE(w,w') = w + w' + \alpha_l^e \int_w^\infty EE(w'',w') - EE(w,w')\, dF^M(w'') \\ + \alpha_l^e \int_{w'}^\infty EE(w,w'') - EE(w,w')\, dF^F(w'') \\ + \alpha_f^e \int_{M^M(w,w')}^\infty EU^M(w'') - EE(w,w')\, dF^M(w'') \\ + \alpha_f^e \int_{M^F(w,w')}^\infty EU^F(w'') - EE(w,w')\, dF^F(w'') \\ + \delta\left[\max\left\{EU^M(w), UU\right\} - EE(w,w')\right] + \delta\left[\max\left\{EU^F(w'), UU\right\} - EE(w,w')\right]. \end{aligned} \tag{12}$$

Again, notice that because the value of being in the employed-unemployed state differs by the gender of the employed spouse, $M^i(w,w')$ is indexed by gender. A steady state among dual searcher households consists of a set of 4 value functions, 8 reservations wages, four measures of households, and three steady state distributions of households across jobs. As in the case of single searcher households, the reservation wages, measure of households in

each state, and steady state distributions are necessary to derive the aggregate migration rate. Let uu_d, eu_d^M, eu_d^F, and ee_d be the measure of households in the the unemployed-unemployed state, husband employed-wife unemployed state, wife employed-husband unemployed, and employed-employed state. Moreover, let $T^i(w)$ be the measure of households in the respective employed-unemployed state that are employed at wage less than or equal to w and let $H(w,w')$ be the measure of households in the employed-employed state in which one member is employed at wage less than or equal to w and the other is employed at wage less than or equal to w'.

The migration rate for dual searcher households is the weighted sum of the migration rates of all four states. uu_d households can move if either spouse receives an acceptable foreign offer while unemployed whereas ee_d households move if either spouse receives a foreign offer while employed in excess of $M^M(w,w')$ and $M^F(w,w')$, respectively. eu_d^i households employed at wage w can move for two reasons: if spouse i receives a foreign offer above w while employed or if spouse $-i$ receives a foreign offer while unemployed above $R_3^{-i}(w)$. Thus, the aggregate migration rate for dual searchers, M_d, is given by

$$
\begin{aligned}
M_d = {} & \alpha_f^u(2 - F_m(R_1^m) - F_f(R_1^f)) \cdot uu \\
& + \alpha_f^e \left(eu_f \cdot \int_{R_1^F}^{\infty} 1 - F_f(w) dT_f(w) + eu_m \cdot \int_{R_1^M}^{\infty} 1 - F_m(w) dT_m(w) \right) \\
& + \alpha_f^u \left(eu_f \cdot \int_{R_1^F}^{\infty} 1 - F_m(R_3^m(w)) dT_f(w) + eu_m \cdot \int_{R_1^M}^{\infty} 1 - F_f(R_3^f(w)) dT_m(w) \right) \\
& + ee \cdot \alpha_f^e \left(\int_{R_1^M}^{\infty} \int_{R_2^f(w)}^{\infty} 1 - F_m(M_m(w,w')) d^2H(w,w') + \int_{R_1^F}^{\infty} \int_{R_2^m(w')}^{\infty} 1 - F_f(M_f(w,w')) d^2H(w,w') \right)
\end{aligned}
\tag{13}
$$

Finally, the aggregate migration rate of married couples is then a weighted average of that for single and dual searching households:

$$
M_{agg} = \zeta_d \cdot M_d + (1 - \zeta_d) \cdot M_s \tag{14}
$$

where ζ_d is the fraction of dual searching households among married couples.

4 Calibration

To carry out our quantitative experiment and decompose the contribution of the increase in female labor force participation and the increase in relative wages of women to the decline in the aggregate inter-county migration rate of married households, we first calibrate the model economy at an annual frequency. We fix a number of parameters and functional forms and use simulated method of moments to calibrate the remaining parameters.

The discount rate is set to 0.04 to match an annual discount factor of 0.96. We normalize the flow value of being out of the labor force, b_0, to 0. The wage offer distribution, $F^i(\cdot)$, is assumed log-normal. The separation rate, δ, is set to 0.4.

This leaves the local and foreign arrival rates of job offer both on and off the job, $\{\alpha_l^e, \alpha_f^e, \alpha_l^u, \alpha_f^u\}$ the flow values of unemployment for both men and women, $\{b_U^M, b_U^F\}$, and the location and scale parameters of the male and female offer distributions, $\{\mu^M, \sigma^M, \mu^F, \sigma^F\}$. These parameters are calibrated by matching key moments in the data. Due to data availability, we are unable to calculate transition probabilities prior to 1976. As a result, our target year is 1976.

We use the March ASEC supplement to the CPS to calculate the median observed wage of married men and women measured in 1999 dollars, the inter-county migration rate of both single searching and dual searching households, and the mass of single and dual searching households in each state. We then calculate the average yearly transition probabilities between household states as in Shimer (2012) using monthly CPS data. Because we cannot observe households after they move, we are restricted to using local transition probabilities. The results of the calibration are shown in Table 6 and Table 7.[6,7]

The resulting reservation wages implied by the model are shown in Figure 7 and Table 8. Panel (a) shows the local reservation wages for a spouse in the uu, eu_M, and eu_F states. Noticeably, $R_2^F(w)$ is everywhere above R_1^F and $R_2^M(w)$ is everywhere above R_1^M, indicating an insurance effect. That is, as your spouse is currently employed, they are able to insure against unempoyment risk, allowing the ability to be more selective in job choice. Moreover, $R_2^M(w)$ is decreasing in w. This captures the location effect. As the female spouse garners a higher wage, it becomes more difficult for the unemployed male spouse to accept foreign offers. As a result, the increasingly constrained male spouse is less picky with respect to local job offers as they become less likey to be the spouse limiting the household to a particular labor market. On the

[6] b_I^M and b_I^F fall inside the range of those given in Hall and Milgrom (2008), Hall (2005), and Anderson and Meyer (1997). While they are low relative to Hagedorn and Manovskii (2008) and Shimer (2005), we do not explore unemployment or wage volatility in this paper.

[7] We classify individuals as employed if they report usual weekly time spent working of at least 20 hours.

Table 6: Calibrated Moments

	Model	Data	Targeted
$P(EUm\|UU)$	0.969	0.987	✓
$P(EUf\|UU)$	0.945	0.903	✓
$P(EE\|EUm)$	0.946	0.964	✓
$P(EE\|EUf)$	0.942	0.985	✓
$P(EOm\|UOm)$	0.940	0.966	✓
$P(EOf\|UOf)$	0.956	0.979	✓
M_s	0.062	0.063	✓
M_d	0.058	0.057	✓
$\text{med}(w_m)$	\$39,154	\$37,164	✓
$\text{med}(w_f)$	\$20,836	\$17,714	✓
ee	0.790	0.684	
eum	0.110	0.199	
euf	0.092	0.077	
eom	0.893	0.873	
eof	0.883	0.753	
$\overline{w}_m$	\$41,444	\$41,877	
$\overline{w}_f$	\$22,302	\$19,315	

Table 7: Calibrated Parameters

Parameter	Value	Description
α_l^u	20.591	Local unemp. arrival rate
α_l^e	6.878	Local emp. arrival rate
α_f^u	1.543	Foreign unemp. arrival rate
α_f^e	0.960	Foreign emp. arrival rate
μ_M	9.601	Male location parameter
σ_M	0.521	Male scale parameter
μ_F	8.980	Female location parameter
σ_F	0.515	Female scale parameter
b_I^M	3,768	Male flow utility of unemp.
b_I^F	3,284	Female flow utility of unemp.

other hand, because women are not the primary spouse limiting the household to a particular labor market, $R_2^F(w)$ is instead increasing in w. This again reflects the insurance effect. As male spouses garner a higher wage, they are able to better insure the searching spouse against unemployment risk. This allows women to be more picky. Both of these effects are small, however, as $R_2^i(w)$ quickly flattens out for both men and women.

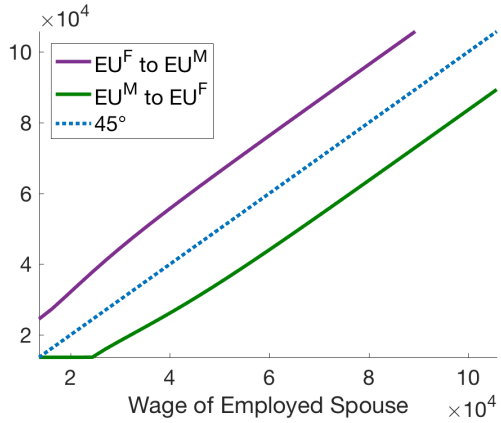
Panel (b) displays $R_3^m(w)$, $R_3^f(w)$, and the 45-degree line. Note that both $R_3^M(w)$ and $R_3^F(w)$ are bounded below by R_1^M and R_1^F, respectively. Here, the reservation wage for an unemployed male to begin working and their employed spouse to quit either voluntarily or due to a move is everywhere above the 45-degree line, whereas the opposite is true for an unemployed female and employed male. Because men have better job prospects than their wives, the option value

for a searching male is higher than that for a searching female. As a result, couples are willing to sacrifice a small amount of consumption today with the wife working so that the unemployed male spouse can search for an even better job. On the other hand, it is costly for couples to allow the female spouse to search while the husband works because he is less able to take advantage of his superior offer distribution.

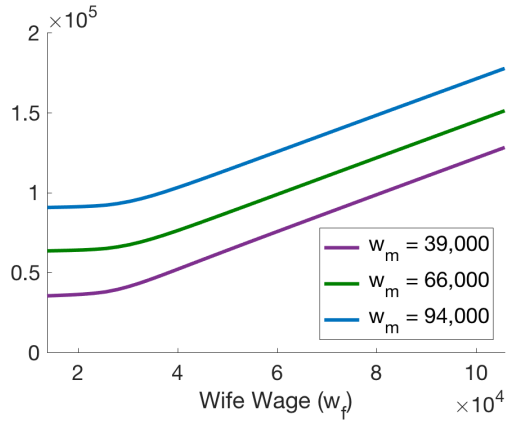
Panels (c) and (d) show the moving reservation wage for dual searching households in the *ee* state. The reservation wage is increasing in both spouses wages, again illustrating the increasing location effect as your spouse's wage increases. Note that this implies that there are foreign jobs that a dual searcher in the employed state will reject that their single searching counterparts would move for and accept. Furthermore, the moving reservation wage is everywhere below the sum of both spouses' wages. Upon moving, spouses enter the *eu* state, increasing the value of search for both spouses. This move frees the household to climb the job ladder quicker by reducing a couple's location ties.

Figure 7: Model Reservation Wages

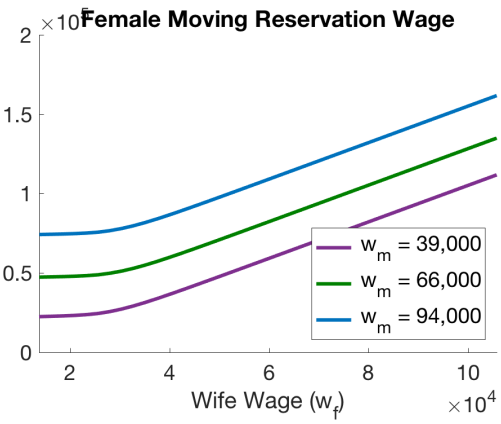
(a) Local Reservation Wages



(b) Switching Reservation Wages



(c) EE Male Moving Reservation Wage



(d) EE Female Moving Reservation Wage

Table 8 shows the reservation wages of single searching households in the *uo* state and dual searching households in the *uu* state. The reservation wage of dual searchers in the *uu* state is lower than that of their single searcher counterparts in the *uo* state. This arises due to the fact that accepting a mediocre job offer as a dual searching couple is less harmful than for a single searcher. That is, unemployed spouses are willing to accept comparatively worse offers today to boost household consumption and later quit either because their unemployed counterpart accepts a foreign offer or because they enter the breadwinner cycle.[8] Neither of these types of quits are available to single searching couples.

Table 8: Reservation Wages in the *uu* and *uo* States

	Men	Women
Dual Searcher	\$24,365	\$13,680
Single Searcher	\$25,276	\$13,977

5 Quantitative Experiment

5.1 Composition and Wage Effects

We now turn to our main quantitative experiment. In particular, we are interested in the effect of the increase in female labor force participation among married households and the increase in the relative wage of wives on the aggregate migration rate. To find the composition effect, we hold all calibrated parameters constant and adjust the share of dual searching households to match that in 2000 and 1964.

To calculate the wage effect on migration, i.e., ONLY the changing relative wages of women, we keep all calibrated parameters constant and recalibrate the μs of the log normal offer distribution to match the observed median wages of men and women in 1964 and 2000. The findings are given in Table 9.

The model implies a decline in the aggregate migration rate of 0.07 percentage points, from 6.00% to 5.93%, between 1976-2000 and a decline of 0.05 percentage points, from 6.05% to 6.00%, between 1964-1976 from the composition effect. In the data, we see that the migration rate fell instead by 0.93 percentage points, from 6.01% to 5.08%, between 1976-2000 and rose 0.27 percentage points, from 5.74% to 6.01%, between 1964-1976. Thus, we conclude that the

[8] This result is analogous to a singer searchers problem with a higher job separation rate.

composition effect accounts for approximately 17.4% of the decline in intercounty migration of married households.

Next, we investigate the contribution of the wage structure to the decline in the migration rate. In our sample, the median real female wage increased from $\$15,243$ in 1964 to $\$25,000$ in 2000. The median real wage for men increased from $\$31,273$ to $\$39,000$ over this same period. These changes correspond to an increase in the female to male median wage ratio from 0.48 to 0.64. Increasing the relative wage of married women simultaneously increases the intercounty migration rate of single searching households in which the wife is in the labor force and decreases the migration rate of dual searching households. Overall, the model implies a decrease in the aggregate migration of 0.12 percentage points, from 6.00% to 5.88%, between 1976-2000 and a decline of 0.01 percentage points between 1964 and 1976 as a result of the wage effect. Thus, we conclude that the wage effect accounts for 19.1% of the decline in intercounty migration of married households. Moreover, the model implies that the wage effect is stronger overall than the composition effect. This indicates that the fact that women are becoming more similar to men in their roles within the household is more important than the fact that more women are simply entering the labor force in explaining long term migration trends within the United States.

Table 9: Quantitative Results

	1964	1976	2000	Change
Composition Effect				
Model	100	99.2	98.0	−2.0
Data	100	105	88.5	−11.5
Contribution	–	–	–	17.4%
Wage Effect				
Model	100	99.8	97.8	−2.2
Data	100	105	88.5	−11.5
Contribution	–	–	–	19.1%
Total Effect				
Model	100	99.8	95.8	−4.2
Data	100	105	88.5	−11.5
Contribution	–	–	–	36.5%

Finally, we estimate the combined effect by simultaneously increasing the share of dual searching households and the relative wage of married women. Together, the model implies a decline in the migration rate of -0.24, from 6.00% to 5.76%, between 1976-2000 and 0.01, from

6.01% to 6.00%, between 1964-1976. Thus, we conclude that the combination of increasing female labor force participation among married households and increases in the relative wage of wives accounts for 36.5% of the decline in intercounty migration of married households.

5.2 Lifetime Wage Inequality

Our model also has important implications for estimates of lifetime wage inequality. Flabbi and Mabli (2018) show that ignoring the household as a unit of decision making can bias estimates of lifetime earnings inequality. Here, we extend their result by estimating the bias of lifetime inequality resulting from ignoring the joint search problem and how the importance of explicitly modeling it has evolved over time. We use our previous calibrations and simulate the career paths of 1,000 households of each type. As in Flinn (2002), each household begins in the unemployment state and ends their career with the first labor market spell, either employment or unemployment, that ends after a total work history of 40 years. We then calculate lifetime wage earnings for spouse j as

$$\omega(j) = \sum_{i=1}^{N} e^{-r\tau_i} \int_0^{t_i} w_{i,j} e^{-rv} dv \tag{15}$$

where t_i is the duration of labor market spell i for the household, $\tau_{i+1} = \tau_i + t_i$ is the starting time of the $i + 1$ labor market spell for the household, and N denotes the number of labor market spells that begin prior to the 40th year. Moreover, we set $w_{i,j} = 0$ when spouse j is unemployed. We follow Flabbi and Mabli (2018) and report the coefficient of variation of ω for men and women.

Table 10 displays the coefficient of variation for men and women using only single searchers and when simulating the appropriate mix of dual and single searchers in 1964, 1976, and 2000. Our model shows that ignoring the dual search problem biases estimates of lifetime earnings inequality upward as doing so removes an additional constraint on married couples. Moreover, the bias in these estimates has become more severe for men and less severe for women. As more married women enter the labor force and as their relative earnings within the household increase, the constraints placed on married men by their spouses become more severe. This limits the ability of men to climb the job ladder and compresses the tail of their earnings distribution relative to the mean. On the other hand, as women's job prospects improve, it becomes easier for women to climb the job ladder within the household, thereby widening the tail if their earnings distribution relative to the mean.

Table 10: Lifetime Earnings Inequality

	1964	1976	2000
Men			
Without Dual Searchers	0.1319	0.1212	0.1262
With Dual Searchers	0.1319	0.1184	0.1127
Bias	0%	2.4%	12.0%
Women			
Without Dual Searchers	0.1391	0.1358	0.1349
With Dual Searchers	0.1171	0.1171	0.1195
Bias	18.9%	16.0%	12.9%

6 Conclusion

Between 1964 and 2000, the fraction of couples in which both spouses are in the labor force nearly doubled while the female to male wage ratio increased by 30%. Contemporaneously, the intercounty migration rate of married couples decreased from 5.74% to 5.08%, whereas the migration rate of single couples increased from 5.3% to 9.1%. These differential trends suggest important differences in the decision making process of singles and married couples. Using the March CPS supplement from 1999-2015, we show that dual searching couples are 10% less likely to move than their single searching counterparts. Moreover, among those couples who did move, dual searching couples are 26% less likely to move for job related reasons.

Using a two location job search model with both single and dual searching households we then decompose the contribution of increasing female labor force participation rates and increasing female wages relative to men to the historical decline in migration. We find that these demographic changes account for roughly 36% of the decline in migration among couples. Moreover, we find that the increase in the fraction of dual searching households can account for roughly 18% of the decline whereas the rise in relative female wages can account for approximately 20% of this decline. These results suggest that the fact that women are taking on more similar roles to their male counterparts within the household is a more important factor in accounting for long term migration trends of couples in the United States than the increase in the fraction of wives participating in the labor force.

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A Interstate Moves

Table A.1 gives the summary statistics for the different sample groups for interstate moves. Interstate moves are less, however, single searching household are observed to move more than dual searching household for the living together and total married samples. All other summary states are identical to those presented in Table 1. Table A.2 gives the probit results for interstate moves. The results confirm those presented in Table 2 and are of larger magnitude. The probability of moving across state lines when both individuals in the labor force of moving across states is 0.41 less than when only one spouse is in the labor force. Table A.4 shows the reasons for moving across state lines. Across all samples "New job or transfer" is the most common reason for moving. Consistent with intercounty moves, single searching households are more likely to move across state lines for job related reason than dual searching households across all samples. Table A.5 gives the results for the multinomial logit on interstate moves. Again the results are consistent with than those presented in Table 5 and are of larger magnitude.

Table A.1: Summary Statistics: Interstate Moves

	(1) Dual LT	(2) Single LT	(3) Dual TOT	(4) Single TOT	(5) Dual COH	(6) Single COH
State Move	0.01	0.02	0.01	0.02	0.02	0.02
Total Real Family Income	83347.83	63295.21	83256.22	62064.81	80620.66	61534.55
Own Home	0.84	0.75	0.84	0.73	0.82	0.73
Head of Household Characteristics						
Age	43.09	44.05	43.09	43.87	42.69	43.76
White	0.85	0.84	0.85	0.83	0.85	0.84
Black	0.07	0.07	0.07	0.07	0.07	0.07
One race - Other	0.06	0.08	0.06	0.08	0.06	0.08
Multiple races	0.01	0.01	0.01	0.01	0.01	0.01
Less than High School	0.03	0.07	0.03	0.07	0.03	0.07
High School	0.32	0.39	0.32	0.39	0.33	0.40
Some College	0.11	0.08	0.11	0.08	0.11	0.08
College	0.24	0.19	0.24	0.19	0.23	0.19
Advanced Degree	0.13	0.10	0.13	0.10	0.13	0.10
Spouse Characteristics						
Age	43.20	44.46	43.19	44.45	42.76	44.12
White	0.85	0.84	0.85	0.79	0.85	0.84
Black	0.07	0.07	0.07	0.06	0.07	0.07
One race - Other	0.06	0.08	0.06	0.07	0.06	0.08
Multiple races	0.01	0.01	0.01	0.01	0.01	0.01
Less than High School	0.03	0.07	0.03	0.07	0.03	0.07
High School	0.32	0.39	0.32	0.37	0.33	0.40
Some College	0.11	0.08	0.11	0.08	0.11	0.08
College	0.24	0.19	0.24	0.18	0.23	0.18
Advanced Degree	0.13	0.10	0.13	0.15	0.13	0.10
Observations	786,811	362,938	788,249	385,321	832,238	378,940

Table A.2: Probit Estimation Results: Interstate Moves

	Total	Living Together	Cohab
dual	-0.0983^{***}	-0.0982^{***}	-0.0800^{***}
	(0.0130)	(0.0131)	(0.0121)
N	366,041	365,363	401,310

Robust Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.3: Probit Marginal Effects

	Total	Living Together	Cohab
dual	-0.00413***	-0.00413***	-0.00349***
	(0.000612)	(0.000615)	(0.000569)
N	366,041	365,363	401,310

Marginal effects evaluated for a household in which both spouse are white, 40 years old, with a college degree, own a home and have a child present in the home in the year 2000. Robust standard errors in parentheses.
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table A.4: Reasons for Insterstate Moves: Married Households

	Dual-TOT	Single-TOT	Dual-LT	Single-LT	Dual-COH	Single-COH
New job or transfer	38.6	43.7	38.6	43.9	34.8	40.4
Other job reasons	11.3	11.6	11.3	11.6	11.6	11.5
Family	21.1	19.8	21.1	19.7	23.5	21.6
Other	29.0	24.9	29.0	24.9	30.1	26.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Observations	5,154	3,644	5,154	3,633	6,896	4,232

Table A.5: Multinomial Logit Results: Interstate Moves

	Total	Living Together	Cohabitating
New job or transfer			
dual	−0.406***	−0.414***	−0.335***
	(0.0803)	(0.0805)	(0.0743)
Other job reasons			
dual	-0.204	-0.214	-0.131
	(0.112)	(0.112)	(0.102)
Family			
dual	-0.0148	-0.0217	0.0201
	(0.0930)	(0.0932)	(0.0836)
N	5,208	5,189	6,477

Robust standard errors in parentheses. Base case is other reasons for moving.
$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$