Title	Employment Dynamics of Married Women and the Role of Part-time Work: the Case of Korea
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Citation	Hitotsubashi Journal of Economics, 53(1): 25-38
Issue Date	2012-06
Type	Departmental Bulletin Paper
Text Version	publisher
URL	http://doi.org/10.15057/23150
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Hitotsubashi Journal of Economics 53 (2012), pp.25-38.

EMPLOYMENT DYNAMICS OF MARRIED WOMEN AND THE ROLE OF PART-TIME WORK: THE CASE OF KOREA*

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Received August 2011; Accepted November 2011

Abstract

I examine employment dynamics of married women with a particular focus on the role of part-time work using panel data from South Korea. Using a dynamic multinomial logit model with random effects, I find that a part-time work alternative substantially reduces the probability of being out of the labor market for mothers of young children and that the probability of moving into full-time employment is highest among all transition probabilities for part-time workers. These results suggest that part-time employment may act as a stepping stone toward full-time work for women who have been out of the labor market.

Keywords: Female labor supply; Part-time work
JEL classification codes: C23, C25, J22

I. *Introduction*

Women's labor force participation has increased steadily in most developed countries over the past century. For example, only 20% of women were in the labor force at the beginning of the twentieth century in the United States. By 2007, this rate had increased to 60%. Along with the secular increases in women's labor force participation, there have been dramatic changes in family structure, including decreased rates of fertility and marriage, as well as increased marital instability. In accordance with these secular trends, analyzing the behavior of the female labor supply has been a major interest of researchers and policy makers.

A number of earlier studies explored the static labor supply of women and documented that family factors such as the presence of young children and a high level of a husband's or other income reduce the probability of women's labor force participation (Killingsworth and Heckman 1986). The recent literature contains a line of research that examines the intertemporal labor supply behavior of women. A particular interest for dynamic analysis is to examine whether and to what extent current employment status depends on past employ-

* I would like to thank participants at the 2011 ASSA meetings in Denver, and at workshops at Sogang University and Korea Labor Institute for their valuable comments. I acknowledge the financial support from the Sogang University Research Grant 2011. All errors are mine.

ment—that is, state dependence. A positive state dependence implies that temporary policies that help nonemployed women attach to the labor market also have a positive impact on their future labor force participation.

Persistence in employment can be generated by the causal effect of a previous decision to participate in the labor force. However, it is also plausible that unmeasured individual factors persistently affect the employment decision, thereby creating "spurious" state dependence (Heckman 1981a). Therefore, in assessing the "true" state dependence of labor force participation, it is important to control for unobserved individual heterogeneity as well as for observed characteristics. Several studies have shown that state dependence in the labor force participation is substantial, but that the causal effect is overestimated considerably without accounting for unmeasured heterogeneity (Booth, Jenkins and Serrano 1999; Heckman 1981a, 1981b; Heckman and Willis 1975; Hyslop 1999; Knights, Harris and Loundes 2002; Lee and Tae 2005).

Part-time work is often seen as a way for women to integrate work in the labor market and family responsibilities, which include child rearing. A recent survey reports that caring for children and elderly family members is the main reason why women work part-time in several countries (Jaumotte 2003). In addition, it has been suggested that part-time employment acts as a stepping stone toward full-time work for women who have been out of the labor market. Nevertheless, only a handful of studies distinguish part-time work and full-time employment in analyzing the dynamic labor force participation behavior of women. Notable exceptions are Blank (1989, 1994) and Prowse (2009), who investigate the role of part-time work as a stepping stone for women in the United States and Britain, respectively. They both find that state dependence is greater for full-time employment than for part-time work. Regarding a stepping-stone effect, Blank (1989, 1994) discovers that part-time work does not increase the probability of full-time employment in the future, whereas Prowse (2009) finds a positive role for part-time work in the transition to full-time employment.

In this paper, I examine the employment dynamics of married women in South Korea (Korea hereafter), with a particular focus on the role of part-time work. Using a dynamic multinomial logit model with random effects, and controlling for unobserved heterogeneity and initial conditions, I study the effects of family factors in choosing employment alternatives and assess the state dependence and cross-mobility of three employment states: full-time, part-time, and nonemployment. I then investigate the extent to which part-time work helps women move to full-time work.

It is interesting to examine the employment patterns of married women in Korea. First, along with rapid industrialization, Korea has experienced dramatic changes in female labor force participation and fertility over the past few decades. Women's labor force participation in Korea has grown from 39.3% in 1970 to 50.1% in 2007 albeit it is still lower than the rates in Western countries. Concurrently, the fertility rate has decreased dramatically—the total fertility rate was 4.53 in 1970 but 1.25 in 2007, and now is among the lowest in the world. Given the unprecedentedly rapid aging of the population caused by a decline in fertility, support for balancing work and family has become a key policy issue. Second, despite increased female labor force participation, many married women in Korea still withdraw from full-time work to raise young children, as in other East Asian countries such as Japan and Taiwan. Understanding the employment patterns of Korean women may shed light on the characteristics of labor markets in countries that have experienced rapid economic growth but are still influenced by

traditional values.

The results from my analysis show that the number of young children decreases the labor market involvement for married women. However, I find that a part-time work alternative considerably reduces the probability of being out of the labor market for mothers of young children, which suggests that women with young children choose to work part-time in order to balance their work and family responsibilities.

The predicted employment-transition patterns clearly show that state dependence is overestimated when I ignore unobserved heterogeneity and initial conditions, which highlights the importance of using an appropriate empirical model to control for the endogenous nature of employment decisions. Another notable finding is that the predicted probability of moving into full-time employment is highest among all transition probabilities for part-time workers. Additionally, I find that part-time workers are more likely to have been nonemployed than to have worked full-time in the previous year. These findings support the notion that part-time work can provide a way to achieve full-time employment for married women who were out of the labor force.

The rest of the paper is organized as follows. Section II presents an empirical model that analyzes the transition into and out of three employment states: nonemployment, part-time employment, and full-time employment. Section III describes the data that I use in the empirical analysis. Section IV discusses my findings, and section V concludes the paper.

II. *Empirical Model*

I model transitions between different labor market states by assuming that, each year, married women choose between three mutually exclusive alternatives: nonemployemt (NE), part-time employment (PT), and full-time employment (FT). Each individual chooses the state that gives rise to the highest expected utility. Assuming a first-order Markov model, I approximate the state-specific expected utility of individuals as the following linear function:

$$Y_{it}^{*m} = X_{it}\beta^m + D_{it-1}\gamma^m + u_{it}^m, \tag{1}$$

where m represents each state (NE=1, PT=2, FT=3) for worker i at time t. The vector X_{it} contains observed individual characteristics and environmental factors that affect the value of each state: the numbers of children in various age groups (aged 0-3, 4-6, 7-12, and 13-17), a quadratic in age, schooling-level dummy variables, husband's monthly earnings, local unemployment rate, and a dummy variable for whether the individual lives in one of the seven largest cities. The vector D_{it-1} represents dummy variables indicating the previous employment state (nonemployment is a base category). The unobserved term u_{it}^m for each alternative m is written as below:

$$u_{it}^m = \alpha_i^m + \varepsilon_{it}^m, \tag{2}$$

The second component ε_{it}^m represents an error term that is drawn from an extreme value distribution and is assumed to be independent across individuals, alternatives, and time. The first component α_i^m represents an individual specific factor, which generates persistence in employment choice over time.

I do not observe individuals from the start of the employment decision process. Treating

initial states as exogenous results in inconsistent estimates (Flinn and Heckman 1982; Heckman 1981a). Also, some observed characteristics in vector X_{it}—for instance, the number of children, and husband's earnings—are potentially correlated with unobserved traits that affect employment decisions. Following Chamberlain (1980) and Wooldridge (2005; 2009), to account for the initial conditions problem and the correlation between the unobservables and the explanatory variables, I specify the structure of individual specific random effects as:

$$\alpha_i^m = D_{i0}\,\theta^m + \overline{X_i}\,\delta^m + \eta_i^m, \tag{3}$$

where D_{i0} represents the dummy variables indicating initial employment states; $\overline{X_i}$ represents the vector of mean time-varying covariates over the observation period; and η_i^m represents the individual specific random term.

I assume that η_i^m differs across states and allow for correlation with these terms. For identification, I normalize the coefficients associated with utility for nonemployment to zero, that is, $\beta^1 = 0$, $\theta^1 = 0$, $\delta^1 = 0$, and $\eta_i^1 = 0$. In addition, I assume that the distribution of the random effects is described by a bivariate normal distribution: $(\eta_i^2, \eta_i^3) \sim N(0, \Sigma)$, where

$$\Sigma = \begin{pmatrix} \sigma_{22} & \sigma_{23} \\ \sigma_{23} & \sigma_{33} \end{pmatrix}. \tag{4}$$

By adopting a random-effects structure with a multivariate normal distribution, I relax the restrictive assumption known as the "independence from irrelevant alternatives"—the relative odds of choosing between two alternatives are independent of any other alternatives—in a standard multinomial logit model.

III. *Data*

1. Sample Selection

I use data from the Korean Labor and Income Panel Study (KLIPS). Funded by the Ministry of Labor, the KLIPS began in 1998 with a nationally representative sample of 5,000 Korean households and their members aged 15 years or older. The survey is conducted annually and collects detailed information on individuals such as employment status, hours worked, earnings, numbers and ages of children, and other demographic and household characteristics. The most recent survey wave available for use is 2007. In this paper, I use data from ten survey years, 1998 through 2007.

For analysis in this study, I focus only on married couples in which the wife is between the ages of 20 and 60. I exclude older women because the employment decisions of individuals near retirement age are not the focus of this study. Additionally, I drop the cases that do not contribute at least three usable observations on employment status and earnings. The resulting sample consists of 2,692 married women, which provides 18,368 person-year observations—6.8 years per individual on average.

TABLE 1. PATTERNS OF LABOR MARKET INVOLVEMENT

	Part-time work		Full-time work		Nonemployment	
	Number	Percent	Number	Percent	Number	Percent
Individuals who experience each employment status	513	19.06	1,482	55.05	2,235	83.02
Percent spending in each employment status						
less than 25	329	64.13	349	23.55	315	14.09
25 - 50	127	24.76	336	22.67	335	14.99
50 - 75	42	8.19	354	23.89	426	19.06
75+	15	2.92	443	29.89	1,159	51.86
Mean	24.3		52.8		68.0	
Std. Dev.	18.2		30.6		31.6	

2. Employment Patterns

To determine the employment status for each woman in my sample for each year, I use reported weekly hours worked at her primary job. I consider respondents to work part-time if they report working fewer than 35 hours per week.[1] Table 1 demonstrates patterns of labor market involvement for married women during the observed years. Among the married women in my sample, during the observed periods, 19% (513) have experienced part-time work at some point, 55% (1,482) have been involved in full-time work at some point, and 83% (2,235) have been nonemployed at some point.

In the lower part of table 1, I show the distribution of percentages spent in each employment status for the three groups. Of those who have "ever worked part-time," a majority (64.13%) spend less than a quarter of the observed period in part-time work, whereas only 57 individuals (11%) work part-time for more than half of the observation period. The average percentage of time spent doing part-time work is 24.3. In contrast, nonemployment and full-time employment are quite stable: more than 70% of those who women were "ever nonemployed" are out of the labor market, and more than half of women who have ever experienced full-time work spend time in each labor market state for at least half of the observed years. The average percentages of time spent in nonemployment and full-time work are 68.0 and 52.8, respectively.

In order to examine the persistence of labor market involvement in detail, I report two-year transition patterns of nonwork, part-time work, and full-time work in table 2. Overall, married women tend to stay in the same state—the diagonal elements account for 83.3% of total transitions. Table 2 indicates that women who are not employed or who work full-time have very high probabilities of maintaining the same employment status—in both cases, over 80%. While the rate of PT-to-PT transitions (44.5%) is higher than the rate of PT-to-NE or PT-to-FT transitions, part-time work shows far less stability compared with any other employment status. The above-mentioned patterns clearly show that part-time work represents a transitional status for married women and explain why the rate of part-time employment appearing in

[1] The weekly work hours criterion used to define part-time work is based on Blank (1989, 1994). Although using annual work hours is an alternative method, it does not allow us to distinguish part-time work from part-year employment.

TABLE 2. TRANSITION PATTERNS: PART-TIME, FULL-TIME, AND NONWORK

	Year t		
Year t-1	Nonemployment	Part-time work	Full-time work
Nonemployment	54.0 (88.3)	1.7 (2.7)	5.5 (8.9)
Part-time work	1.3 (22.1)	2.6 (44.5)	1.9 (33.5)
Full-time work	4.8 (14.4)	1.6 (4.8)	26.7 (80.8)
All	60.1	5.8	34.1

Note: 15,676 observations. The numbers in parentheses are row percentages.

pooled data is less than a third of the rate for those who were "ever employed part-time" (5.8% versus 19.1%). Table 2 also reveals that part-time workers are more likely to move to full-time work than to nonwork (33.5% versus 22.1%), which shows some positive aspects of part-time work in the career paths of married women.

3. Covariates

Now I turn to the covariates in my analysis. Table 3 provides summary statistics of the variables used for the dynamic multinomial logit model. Consistent with the transition patterns shown in the previous subsection, previous employment status is highly associated with current status—but to a lesser degree for part-time employment. One thing to note is that part-time workers are more likely to have been nonemployed than to have worked full-time in the previous year (0.286 versus 0.271). Along with the pattern that part-time workers show a higher transition rate into full-time employment than into nonwork, this may reflect the possibility that part-time work acts as a way to achieve permanent employment for women who have been out of the labor force.

In the rest of table 3, I present summary statistics for demographic and household characteristics, and environmental factors by employment status. Average ages of respondents are similar among different states—more or less than 41 years old. Variables capturing the number of children with various age categories (ages 0-3, 4-6, 7-12, and 13-17) illustrate that the number of preschool children under 7 years old is positively associated with nonemployment. The average number of children ages 0 to 6 years is 0.51 for nonworkers, and the corresponding figures for full-timers and part-timers are 0.27 and 0.35, respectively. However, the presence of children ages 4 to 6 does not appear to lower the probability of part-time work, whereas having infants (ages 0-3) is negatively related to both part-time and full-time employment. On average, part-time workers have the same number of children ages 4 to 6 (0.23) as nonworkers, whereas the corresponding figure for full-timers is 0.14—60% of those for other types of workers. This pattern may suggest that part-time work is an effective tool for balancing child-rearing and work in the labor market for married women in Korea.

In contrast to the negative impact of preschool children on female labor market involvement, the number of children ages 7 and older is shown to be positively related with the mother's labor force participation. The positive association is more pronounced in part-time work: the average number of children ages 7 to 17 is 0.9 for part-timers, whereas the

TABLE 3. SUMMARY STATISTICS FOR VARIABLES USED IN DYNAMIC MULTINOMIAL LOGIT MODEL

Variable	Nonemployment	Part-time	Full-time
1 if nonemployment$_{t-1}$	0.8994	0.2863	0.1601
1 if Part-time$_{t-1}$	0.0213	0.4426	0.0571
1 if Full-time$_{t-1}$	0.0792	0.2710	0.7828
Age	41.3799	40.9552	41.7820
No. children aged 0 to 3	0.2758	0.1158	0.1272
No. children aged 4 to 6	0.2318	0.2317	0.1403
No. children aged 7 to 12	0.3558	0.5454	0.3716
No. children aged 13 to 17	0.2282	0.3552	0.3822
Earnings of husband (Monthly)*	2.0457	1.8332	1.6421
Schooling level			
1 if less than high school	0.3106	0.3257	0.3665
1 if high school graduate	0.4673	0.3934	0.3996
1 if 2-year college	0.1068	0.1016	0.0999
1 if 4-year college or above	0.1152	0.1792	0.1340
Local unemployment rate	3.9324	4.0403	3.8331
1 if reside in a large city	0.5663	0.6262	0.5504
Industry			
Agriculture/Fishery		0.0153	0.0092
Manufacturing		0.1563	0.2668
Utilities (electricity, gas, water)		0.0350	0.0125
Wholesale/Retail Trade		0.2197	0.1714
Finance/Real Estate		0.1475	0.1370
Public/Heath service		0.1891	0.1753
Private service		0.2372	0.2279
Occupation			
Executive/professional		0.0962	0.1009
Semi-professional		0.1792	0.1095
Clerical		0.0623	0.1211
Service, except private household		0.1497	0.2049
Sales		0.1497	0.1345
Agriculture/Fishery		0.0153	0.0084
Craftsmen		0.0940	0.1203
Operator		0.0350	0.0962
Private household		0.2186	0.1042
Number of observations	9,416	915	5,345

* In million of CPI-deflated Korean Won (KRW), using 2000 as a base year. 1,000 KRW approximately equals 1 USD.

corresponding numbers are 0.75 and 0.58 for full-timers and nonworkers, respectively. This may reflect the possibility that married women who have primary- and secondary-school-aged children tend to join the labor market—preferably part-time—in order to support the high cost of private education in Korea. Like a few other East Asian countries, such as Japan, Taiwan, and Hong Kong, Korea is well known for widespread private tutoring that is often aimed at ensuring entrance into prestigious universities. Over three quarters of primary and secondary students participate in private tutoring, and an average household with school-aged children spends about 9% of its income on private tutoring alone (KEDI 1999; Kim and Lee 2010).

Among the other observed characteristics shown in table 3, the differences in husbands' earnings across the subsamples are generally consistent with previous findings that increased income from other sources lowers labor force participation rates for women (Killingsworth and Heckman 1986). Average monthly earnings of husbands of nonworking wives are greater than for husbands whose wives participate in the labor market. Furthermore, among working women, husbands of part-time workers earn more, on average, than husbands of full-time workers.

While not included in the regression analysis, the distributions of industries and occupations differ by work status, as shown in table 3. Part-time jobs are less likely than full-time jobs to belong to the manufacturing industry but are more likely to belong to the wholesale/trade industry. In terms of occupational classification, a large percentage of part-timers (22%) are employed as private household workers, whereas about a fifth of full-time workers are service workers—employed, for example, in cleaning, food, and personal services.

IV. *Results*

1. Model Estimates

I present the estimated coefficients for the logit models and the partial effects in table 4 and table 5, respectively. Although the model I described in section V uses a random-effect specification accounting for individual heterogeneity and initial conditions (model 2), I also report the estimates from a naïve, pooled multinomial logit (model 1) for comparison.

The parameter estimates reported in table 4 indicate that controlling for unobserved heterogeneity and initial conditions is important in modeling employment dynamics. First, the improvement in the log likelihood (from -7, 941 to -7, 594) with only 17 more parameters indicates that model 2 clearly improves the fit of the model. Second, the estimated correlation coefficient (ρ_{23}) is 0.58, which suggests that unobserved factors that determine part-time work and full-time work are positively related but are different from unobserved factors of nonemployment. Third, the estimated variances of unobserved characteristics for part-time and full-time work are 1.75 and 2.91, respectively, and are statistically different from zero at the 1% significance level. Compared to the idiosyncratic error variance ($\pi^2/6=1.6$), the impacts of time-invariant individual heterogeneities on determining employment states are sizable. Fourth, controlling for unobserved heterogeneity and initial states substantially reduces the estimated persistence of labor market states, while the estimated coefficients for lagged employment states still suggest strong state dependence. I turn to this issue in the next subsection.

I now turn to the individual and household characteristics. The estimated effects of the children-associated variables are consistent with the patterns shown in section III. The coefficients in both models reveal that having children aged 0 to 3 years decreases the probability of working both full-time and part-time, although the negative impact for part-time work is statistically insignificant in model 2. However, the number of children aged 4 to 6 appears to increase the probability of part-time work, whereas it decreases the probability of working full-time. The number of school-aged children appears to have some positive effects on labor force involvement, although the estimated coefficients in model 2 are not significant at conventional levels of significance.

Table 4 indicates that the husband's monthly labor income decreases the probability of

TABLE 4. ESTIMATED COEFFICIENTS FOR DYNAMIC MULTINOMIAL MODELS

	Pooled estimation (Model 1)		Control for unobserved heterogeneity (Model 2)	
	Part-time	Full-time	Part-time	Full-time
Part-time$_{t-1}$	4.0113 (0.1306)**	2.5732 (0.1039)**	2.8853 (0.1603)**	2.0676 (0.1363)**
Full time$_{t-1}$	2.3295 (0.1059)**	3.9258 (0.0707)**	1.6948 (0.1320)**	2.4919 (0.0846)**
Age	0.2632 (0.0608)**	0.2276 (0.0345)**	0.3472 (0.0732)**	0.3544 (0.0530)**
Age^2	−0.0032 (0.0007)**	−0.0029 (0.0004)**	−0.0044 (0.0008)**	−0.0045 (0.0006)**
No. children aged 0 to 3	−0.409 (0.1325)**	−0.3355 (0.0800)**	−0.3191 (0.2199)	−0.6065 (0.1320)**
No. children aged 4 to 6	0.2879 (0.0959)**	−0.1055 (0.0623)+	0.3672 (0.1805)*	−0.2254 (0.1159)+
No. children aged 7 to 12	0.2363 (0.0651)**	0.0377 (0.0465)	0.1569 (0.1437)	−0.0361 (0.0938)
No. children aged 13 to 17	0.1293 (0.0765)+	0.1141 (0.0477)*	0.1329 (0.1279)	0.123 (0.0830)
Earnings of husband	−0.1118 (0.0437)*	−0.1593 (0.0365)**	0.0218 (0.0375)	−0.1248 (0.0304)**
Less than high school	0.2848 (0.1256)*	0.132 (0.0732)+	0.2445 (0.1533)	0.0871 (0.1348)
2-year college	0.241 (0.1670)	0.1537 (0.0954)	0.2027 (0.2011)	0.1195 (0.1675)
4-year college or above	0.5546 (0.1426)**	0.2801 (0.0938)**	0.8194 (0.1834)**	0.3300 (0.1623)*
Unemployment rate	0.1409 (0.0687)*	−0.0253 (0.0430)	0.0988 (0.0979)	0.0199 (0.0687)
Reside in a large city	−0.0045 (0.1333)	0.0259 (0.0830)	0.1881 (0.4240)	0.2875 (0.2721)
σ_{22}			1.7525 (0.2890)**	
σ_{23}			1.3013 (0.2250)**	
σ_{33}			2.9166 (0.2803)**	
ρ_{23}			0.5756 (0.0629)**	
No. Observations	15,676		15,676	
Log likelihood	−7941.1753		−7593.7586	

Note: The model also includes year dummy variables. Standard errors are in parentheses.
+ Significant at 10%, * Significant at 5% ** Significant at 1%

full-time employment in both models. But the husband's earnings appear to have a negative effect on part-time employment only when not controlling for heterogeneity and initial conditions (model 1). The estimated coefficients for the schooling-level dummy variables suggest that high school graduates are least likely to join the labor market, whereas women with a 4-year college education or greater are most likely to work either part-time or full-time. As shown in table 4, among environmental variables, the local unemployment rate appears to increase the probability of being part-time worker only in the model 1 specification.

In order to assess the magnitudes of the covariates' effects, I present the partial effects in table 5.[2] The numbers in parentheses indicate the change in probability expressed as a fraction of the overall probability of being in a given employment state.

The estimated partial effects reveal that the number of children under school age—in particular those aged 0 to 3—clearly lowers the likelihood of labor force participation for married women. However, the negative effect of preschool children on female employment is mainly driven by the reduction in probability of being employed full-time. According to the partial effects of children variables in model 2, the decrease in employment probability for each additional child aged 0 to 3 (0.059) is primarily induced by a decrease in the probability of working full-time (0.056). Moreover, a reduction in the probability of working full-time by having an additional child aged 4 to 6 (0.032) is almost offset by an increase in the probability of working part-time, resulting in a slight decrease in employment probability (0.008). Although little influencing labor market participation, the effects of having children aged 7 to 12 are broadly similar to the above-mentioned pattern—a decrease in the probability of working full-time and an increase in the probability of working part-time. The result that part-time work alternative substantially reduces the probability of being out of the labor market for mothers of young children suggests a positive role for part-time work in balancing work in the labor market and family responsibilities and in preventing career interruptions due to child rearing.

Contrary to the negative effect of young children on full-time labor market participation, having additional children of secondary-school age increases the probabilities of both full-time and part-time employment, which leads to a decrease in the probability of nonwork for married women. This finding possibly reflects the "education fever" in Korea, which may contribute to the increase in mothers' labor market participation to support private tutoring aimed at securing their children's admission to prestigious Korean universities. Several studies document that private tutoring is widespread across different levels of income groups and that expenditures for private education burden families who have school-aged children (KEDI 1999; Kim and Lee 2010; Lee 2005).

Consistent with findings from previous studies on the female labor supply, an increase in husbands' earnings lowers the probability of women's employment (by 0.01). However, the negative effect of husbands' earnings on female employment is mainly driven by the reduction in probability of being employmed full-time (by 0.014), whereas the part-time employment probability changes little. The partial effects associated with educational attainment indicate that schooling levels of 4 years of college or greater encourage labor force participation, whereas

[2] The partial effects are obtained by calculating the average of the partial effects for each individual in the sample. In assessing the individual partial effects for continuous variables, I compute the change in the probability in a given state when that variable is increased by one unit. For dummy variables, I compute the difference in the probability when the variable equals, alternatively, one and zero.

TABLE 5. PARTIAL EFFECTS OF DYNAMIC MULTINOMIAL LOGIT ESTIMATES

	Pooled estimation (Model 1)			Control for unobserved heterogeneity (Model 2)		
	Part-time	Full-time	NE	Part-time	Full-time	NE
Part-time$_{t-1}$	0.3804 (6.5175)	0.2370 (0.6952)	−0.6175 (1.028)	0.1538 (2.6345)	0.1828 (0.5361)	−0.3366 (0.5603)
Full time$_{t-1}$	0.0193 (0.331)	0.6946 (2.037)	−0.7139 (1.1885)	0.0301 (0.5156)	0.3001 (0.8801)	−0.3302 (0.5497)
Age	0.0000 (0.0000)	−0.0015 (0.0044)	0.0015 (0.0025)	−0.0002 (0.0038)	−0.0024 (0.0071)	0.0026 (0.0044)
No. children aged 0 to 3	−0.0100 (0.1712)	−0.0282 (0.0828)	0.0382 (0.0637)	−0.0026 (0.0442)	−0.0560 (0.1643)	0.0586 (0.0976)
No. children aged 4 to 6	0.0172 (0.2951)	−0.0191 (0.0561)	0.0019 (0.0031)	0.0234 (0.4007)	−0.0317 (0.093)	0.0083 (0.0139)
No. children aged 7 to 12	0.0106 (0.1809)	−0.0016 (0.0046)	−0.0090 (0.015)	0.0079 (0.1355)	−0.0070 (0.0206)	−0.0009 (0.0015)
No. children aged 13 to 17	0.0033 (0.0564)	0.0099 (0.0289)	−0.0131 (0.0219)	0.0034 (0.059)	0.0106 (0.031)	−0.0140 (0.0233)
Earnings of husband	−0.0014 (0.0236)	−0.0153 (0.0449)	0.0167 (0.0278)	0.0033 (0.0574)	−0.0137 (0.0402)	0.0104 (0.0172)
Less than high school	0.0096 (0.1652)	0.0084 (0.0248)	−0.0181 (0.0301)	0.0085 (0.1459)	0.0048 (0.014)	−0.0133 (0.0221)
2-year college	0.0071 (0.1212)	0.0119 (0.035)	−0.0190 (0.0317)	0.0061 (0.104)	0.0090 (0.0265)	−0.0151 (0.0252)
4-year college or above	0.0196 (0.3352)	0.0186 (0.0545)	−0.0381 (0.0635)	0.0326 (0.559)	0.0180 (0.0526)	−0.0506 (0.0842)
Unemployment rate	0.0073 (0.1252)	−0.0062 (0.0183)	−0.0011 (0.0018)	0.0040 (0.0686)	0.0002 (0.0005)	−0.0042 (0.0069)
Reside in a large city	−0.0008 (0.0137)	0.0030 (0.0088)	−0.0022 (0.0037)	0.0026 (0.0446)	0.0269 (0.0788)	−0.0295 (0.0491)
Mean Probability	0.0584	0.3410	0.6007	0.0584	0.3410	0.6007

Note: Figures in parentheses are partial effects as a proportion of the base probability of being in the corresponding labor force state. Partial effects are calculated from the estimates in table 4.

the employment probability is least for high school graduates. Among environmental factors, residing in a large city increases the probability of full-time work, which may reflect higher employment opportunities for women in metropolitan areas.

2. State Dependence

In this subsection, I examine the effects of lagged labor market states on the current employment situation and discuss the role of part-time employment as a stepping stone toward full-time employment for married women.

The estimates reported in table 4 indicate that the partial effects of previous labor market states substantially decrease when I control for unobserved heterogeneity and initial conditions.

TABLE 6. PREDICTED PROBABILITIES

	Year t		
Year t-1	NE	Part-time	Full-time
Pooled estimation (Model 1)			
NE	0.8834	0.0273	0.0893
	(0.0004)	(0.0001)	(0.0003)
Part-time	0.2206	0.4446	0.3348
	(0.0023)	(0.0026)	(0.0017)
Full-time	0.1441	0.0479	0.8080
	(0.0008)	(0.0002)	(0.0007)
Control for initial conditions and unobserved heterogeneity (Model 2)			
NE	0.8232	0.0329	0.1439
	(0.0033)	(0.0026)	(0.0027)
Part-time	0.3243	0.2698	0.4060
	(0.0083)	(0.0081)	(0.0083)
Full-time	0.2688	0.0612	0.6700
	(0.0037)	(0.0035)	(0.004)

Note: With state-specific random effects being set to their mean values, the predicted probabilities are obtained by first predicting each woman's probability of being in a specific work state and then computing the average of these predicted probabilities for each of the lagged labor market states. The numbers in parentheses are standard errors.

According to the model 1 estimates, working full-time rather than being nonemployed during the previous year increases the probability of working full-time by 0.695, which is about twice the base probability of working full-time. However, the partial effect decreases to 0.300 (by 57%) for the model 2 specification. Similarly, the model 2 estimate indicates that working part-time rather than nonworking increases the probability of working part-time by 0.154, which is less than half the model 1 estimate (0.380).

To examine the extent of "true" state dependences further, I present the predicted transition matrices in table 6 by using estimation results reported in table 4. With state-specific random effects α_i^m being set to their mean values, the predicted probabilities are obtained by first predicting each woman's probability of being in a specific work state and then computing the average of these predicted probabilities for each of the lagged labor market states. As expected, controlling for initial conditions and unobserved heterogeneity dramatically reduces the magnitude of state dependences. In particular, the decline in the persistence in part-time employment is prominent. For a part-time worker, the probability of working part-time in the next year is 0.4446—higher than the probability of moving into any other labor market state—in model 1 but the corresponding probability decreases to 0.2698 (by 39.3%) in model 2. The predicted probability of a PT-to-PT transition is now smallest among all types of transitions for a part-time worker. For a full-time worker, the predicted probability of working full-time in the next year falls from 0.808 to 0.67 (by 17%) when using model 2 estimates. For a nonemployed woman, the predicted NE-to-NE transition probability decreases from 0.8834 to 0.8232 (by 7%).

I now briefly discuss the role of a part-time employment alternative as a stepping stone to full-time work for married women. Interestingly, the probability of moving into full-time

employment is highest (0.406) among all transition probabilities for a part-time worker when I control for endogenous initial conditions and unobserved individual heterogeneity. Also, the predicted probability of being nonemployed in the next year for a part-time worker (0.3243) is far less than the corresponding figure (0.8232) for the nonemployed, albeit the probability of a transition into nonemployment is smallest (0.2688) for full-time workers. Along with the pattern from table 3 that part-time workers are more likely to have been nonemployed than to have worked full-time in the previous year, the findings on the predicted probabilities indicate that part-time work may provides a way to achieve permanent employment for women who were out of the labor force.

V. *Conclusion*

In this paper, I analyze the employment dynamics of married women in Korea with a particular focus on the role of part-time employment. For the analysis, I use data from a nationally representative Korean panel data set, KLIPS 1998-2007, in order to examine whether married women choose a part-time work alternative as a compromise to balance child-rearing responsibilities and market work and in order to investigate whether part-time work can act as a stepping stone toward full-time employment for those who were out of the labor market.

The estimated results of my analysis reveal that a part-time work alternative substantially reduces the probability of being out of the labor market for mothers of young children, and that the negative effect of young children on female employment is mainly driven by the reduction in the probability of being employed full-time. This finding suggests that women with young children choose to work part-time in order to balance their work and family responsibilities. In contrast to the negative effect of young children on female labor force participation, the presence of secondary-aged children increases the probability of labor market involvement for married women, which may support the notion that married women who have school-aged children tend to participate in the labor market in order to support the high cost of private education in Korea.

The predicted transition probabilities clearly show that state dependence is overestimated when I ignore unobserved heterogeneity and the endogenous nature of initial states—in particular, for part-time employment. Another notable finding is that the predicted probability of moving into full-time employment is highest among all transition probabilities for a part-time worker. Given that part-time workers are more likely to have been nonemployed than to have worked full-time in the previous year, these results show the possibility that part-time work provides a way to achieve strong labor market attachment for married women who were out of the labor force.

The fact that part-time employment is an effective tool in preventing the career interruption of married women and that it acts as a stepping stone to full-time employment for nonemployed women may shed light on the direction of policies aimed at supporting the balancing of work and family life.

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