Husband's Unemployment and Wife's Labor Supply – The Added Worker Effect across Europe

Julia Bredtmann[a,b] Sebastian Otten[a,b] Christian Rulff[a]

[a]Ruhr University Bochum
[b]RWI Essen

8th European Workshop on Labour Markets and Demographic Change

September 12, 2013

Introduction

- Added Worker Effect: An increase in women's labor supply due to their husband's unemployment.
- It has been investigated in various studies (e.g., Lundberg, 1985; Spletzer, 1997; Stephens, 2002), but mixed results have been produced.
- Cross-country evidence on the existence of the Added Worker Effect is scarce.
- Exceptions are McGinnity (2002), comparing the UK and West Germany, and Prieto-Rodríǵguez, Rodríǵguez-Gutiéérrez (2000) for 11 European countries.

Theoretical Framework

- The Added Worker Effect can be justified as a simple manner from the labor-leisure choice.
- Considers a “traditional” family, in which the wife is out of the labor force and the husband is employed.
- If the husband becomes unemployed,
  - his non-market time increases, and
  - the household income decreases.

$\Rightarrow$ This lowers the shadow price of the wife’s non-market time and raises her probability to enter the labor market.

Data: EU-SILC

European Union Statistics on Income and Living Conditions:

- Covers all EU Member States and Norway
- Longitudinal data (2004-2010)
- All household members aged 16 and above are surveyed

Sample:

- Married or cohabiting couples, who live in the same household and are aged between 16 and 65
- Previously traditional couples are considered only

$\Rightarrow$ 69,410 person-year observations

Dependent Variables

4 different changes in women's labor supply are considered:

(1) inactivity to activity: $IA_{t-1} \rightarrow A_t$

(2) inactivity to unemployment: $IA_{t-1} \rightarrow UE_t$

(3) inactivity to employment: $IA_{t-1} \rightarrow E_t$

(4) has not searched for a job in $t-1$ and searches for a job in t: ΔJS

Descriptive Statistics

Table 1: Women's Transition Probabilities

Wife's change	**Husband's change**		
	$E_{t-1} \rightarrow E_t$	$E_{t-1} \rightarrow UE_t$	Difference
$IA_{t-1} \rightarrow A_t$	0.181	0.224	$0.044^{\dagger}$
	(0.385)	(0.417)	
$IA_{t-1} \rightarrow UE_t$	0.039	0.090	$0.052^{\dagger}$
	(0.193)	(0.287)	
$IA_{t-1} \rightarrow E_t$	0.142	0.134	-0.008^{**}
	(0.349)	(0.341)	
Δ Job search	0.058	0.123	$0.065^{\dagger}$
	(0.233)	(0.329)	

Source: EU-SILC, own calculations. Notes: † $p < 0.001$; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Model Specification

For each outcome m ($m = 1, ..., 4$) we estimate the following model:

$$\Delta Y_{ijt}^{m} = X_i^{'} \beta^m + \gamma^m \Delta E_i + \sum \phi_j^m C_j + \sum \theta_t^m T_t + M_{jt}^{'} \alpha^m + \varepsilon_{ijt}^m \qquad (1)$$

ΔE_{ijt} $\sim$ Added Worker dummy ($E_{t-1} \rightarrow UE_t$)

X_i $\sim$ Set of individual and household controls

C_j $\sim$ Country dummies

T_t $\sim$ Year dummies

M_{jt} $\sim$ Set of macro variables

Table 2: Marginal Effects of Probit Estimations: Pooled Regressions

	IA→A ME/StdE	**IA→UE** ME/StdE	**IA→E** ME/StdE	**Δ JS** ME/StdE
Household characteristics				
Married	−0.0251***	−0.0156†	−0.0126*	−0.0207†
	(0.0078)	(0.0046)	(0.0068)	(0.0056)
No. of children	−0.0188†	−0.0067†	−0.0120†	−0.0087†
	(0.0031)	(0.0014)	(0.0028)	(0.0020)
Child aged 0–3	−0.0009	0.0001	−0.0011	−0.0101**
	(0.0076)	(0.0035)	(0.0070)	(0.0045)
Child aged 4–6	0.0265***	0.0070*	0.0196**	0.0078
	(0.0087)	(0.0039)	(0.0080)	(0.0053)
Disposable income (ln)	0.0420†	−0.0069†	0.0512†	−0.0077***
	(0.0045)	(0.0017)	(0.0043)	(0.0024)
Repayment of debts	0.0256†	0.0075***	0.0172†	0.0181†
	(0.0048)	(0.0024)	(0.0044)	(0.0033)
Wife's characteristics				
Age	−0.0049†	−0.0012†	−0.0037†	−0.0024†
	(0.0006)	(0.0003)	(0.0005)	(0.0004)
Education (ref.: medium skilled)				
Low skilled	−0.0384†	−0.0053*	−0.0336†	−0.0103***
	(0.0051)	(0.0028)	(0.0045)	(0.0033)
High skilled	0.0640†	0.0031	0.0563†	0.0171***
	(0.0083)	(0.0034)	(0.0076)	(0.0056)

Source: EU-SILC, own calculations. Notes: † $p < 0.001$; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. *Robust standard errors in parentheses (clustered at household level).*

Table 2: Marginal Effects of Probit Estimations: Pooled Regressions (cont'd)

	IA→A ME/StdE	**IA→UE** ME/StdE	**IA→E** ME/StdE	**Δ JS** ME/StdE
Husband's characteristics				
Age	−0.0022†	−0.0003	−0.0019†	−0.0005
	(0.0006)	(0.0003)	(0.0005)	(0.0005)
Education (ref.: medium skilled)				
Low skilled	−0.0104*	−0.0006	−0.0114**	0.0007
	(0.0055)	(0.0028)	(0.0050)	(0.0036)
High skilled	−0.0260†	−0.0031	−0.0242†	−0.0070*
	(0.0064)	(0.0031)	(0.0057)	(0.0041)
Country characteristics				
Unemployment rate	0.0020	0.0030†	−0.0046***	0.0024**
	(0.0016)	(0.0007)	(0.0015)	(0.0010)
Female LFP rate	−0.0133†	−0.0023	−0.0127†	−0.0039*
	(0.0031)	(0.0015)	(0.0028)	(0.0021)
Added worker dummy	0.0481†	0.0304†	0.0116	0.0473†
	(0.0110)	(0.0061)	(0.0097)	(0.0081)
Pseudo-R^2	0.108	0.109	0.109	0.114
Wald χ^2	3,032.7	3,042.4	3,044.1	3,405.8
Observations	69,410	69,410	69,410	60,278

Source: EU-SILC, own calculations. Notes: † $p < 0.001$; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. *Robust standard errors in parentheses (clustered at household level).*

Interaction – Unemployment Rate

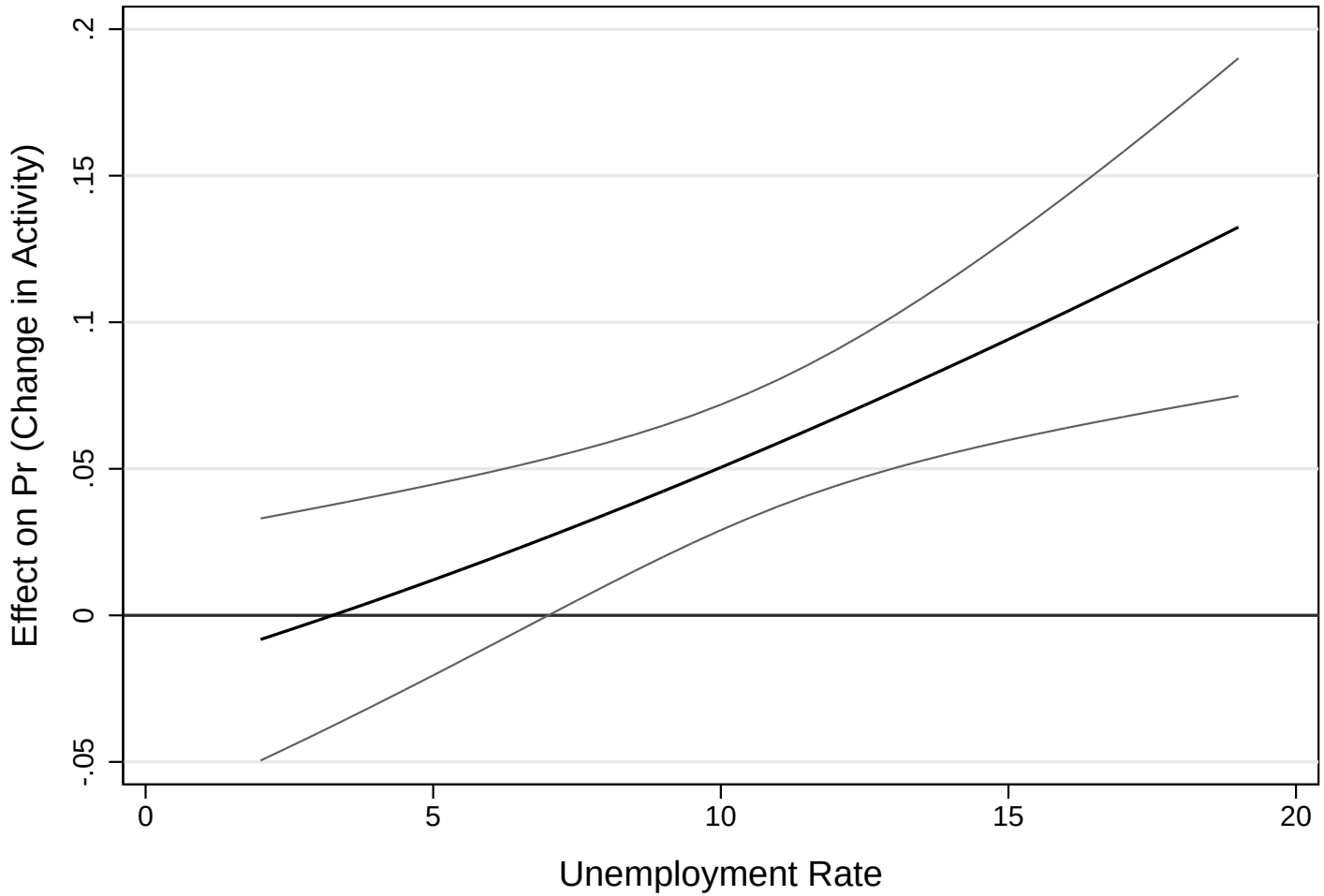

Figure 1: Interaction: Added Worker Dummy x Unemployment Rate (Marginal Effect)

Interaction – Labor Force Participation Rate

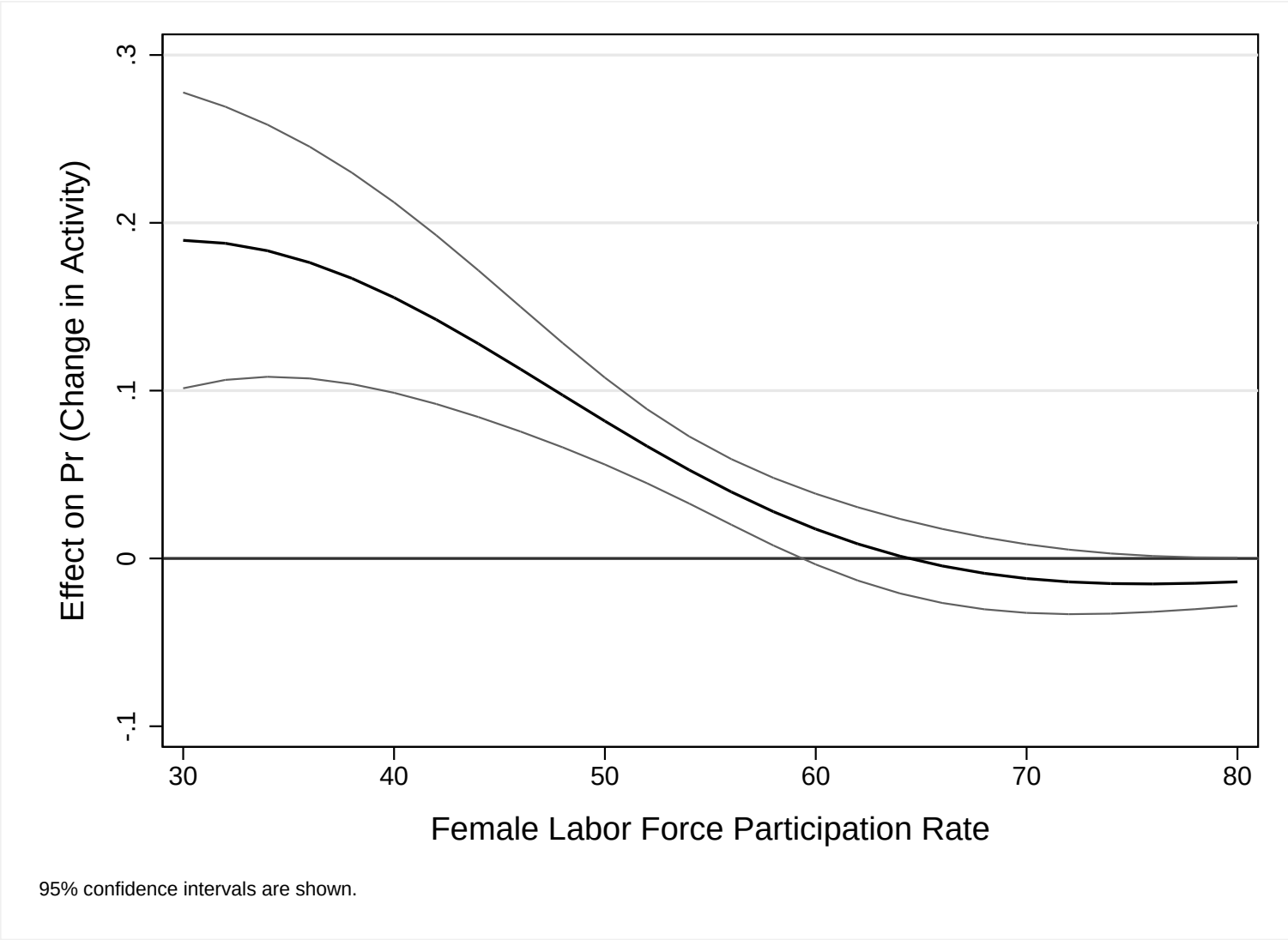

Figure 2: Interaction: Added Worker Dummy x Female LFP Rate (Marginal Effect)

Table 3: Marginal Effects of Probit Estimations: Country Group Regressions

	IA→A ME/StdE	IA→UE ME/StdE	IA→E ME/StdE	Δ JS ME/StdE
Continental Europe				
Added Worker Dummy	−0.0015	0.0063	−0.0117	0.0138
	(0.0249)	(0.0078)	(0.0244)	(0.0148)
Scandinavia				
Added Worker Dummy	0.0836*	0.0201	0.0539	0.0814**
	(0.0470)	(0.0187)	(0.0460)	(0.0400)
Mediterranean				
Added Worker Dummy	0.0860†	0.0402†	0.0434†	0.0605†
	(0.0150)	(0.0099)	(0.0125)	(0.0120)
Central and Eastern Europe				
Added Worker Dummy	0.0224	0.0193**	−0.0036	0.0505†
	(0.0156)	(0.0084)	(0.0136)	(0.0148)
Anglo-Saxon				
Added Worker Dummy	0.0069	0.0676**	−0.0816**	0.0468
	(0.0550)	(0.0332)	(0.0415)	(0.0368)

Source: EU-SILC, own calculations. Notes: † $p < 0.001$; *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. *Controls are the same as in Table 2. Robust standard errors in parentheses (clustered at household level).*

Conclusion

- In a pooled regression for all countries, we find evidence for the existence of an Added Worker Effect.
- However, this effect is mainly driven by wives' changes from inactivity to unemployment.
- Moreover, women seem to start looking for a job when their husbands become unemployed.
- The Added Worker Effect seems to be countercyclical and is most prevalent among the Mediterranean countries.

Interaction – Unemployment Rate

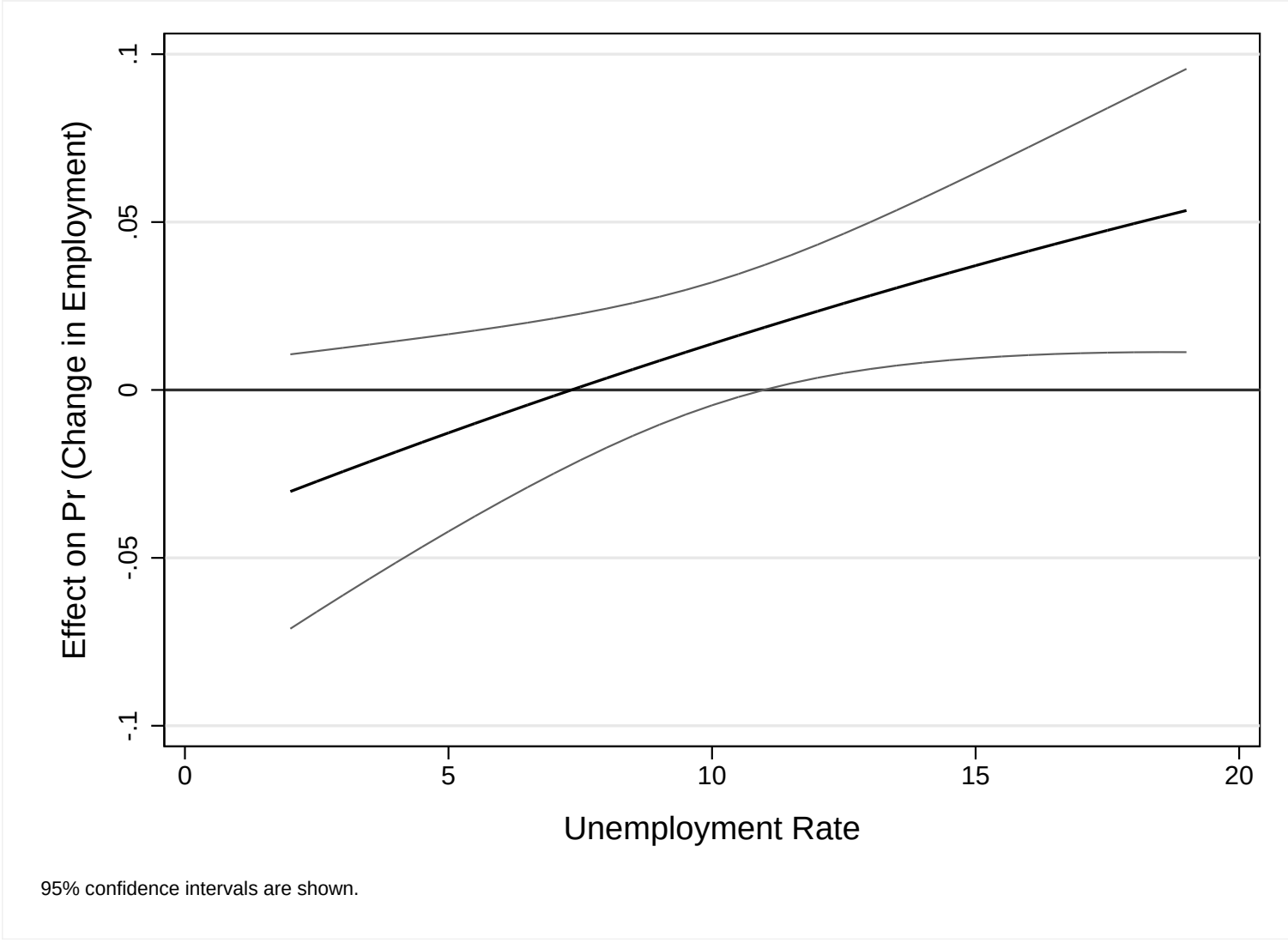

Figure 3: Marginal Effect of the Interaction between the Added Worker Dummy and the Unemployment Rate.

Interaction – Unemployment Rate

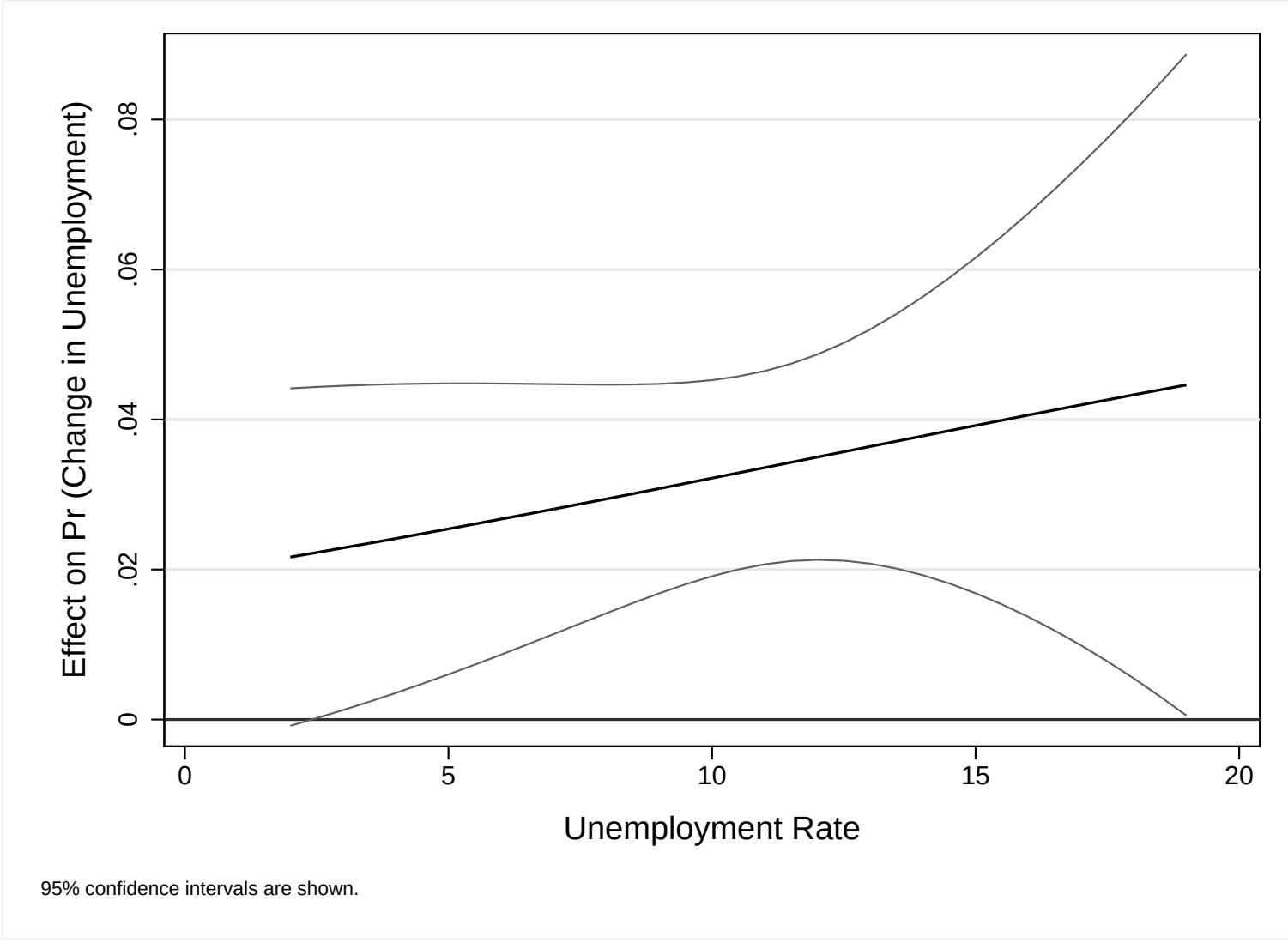

Figure 4: Marginal Effect of the Interaction between the Added Worker Dummy and the Unemployment Rate.

Interaction – Unemployment Rate

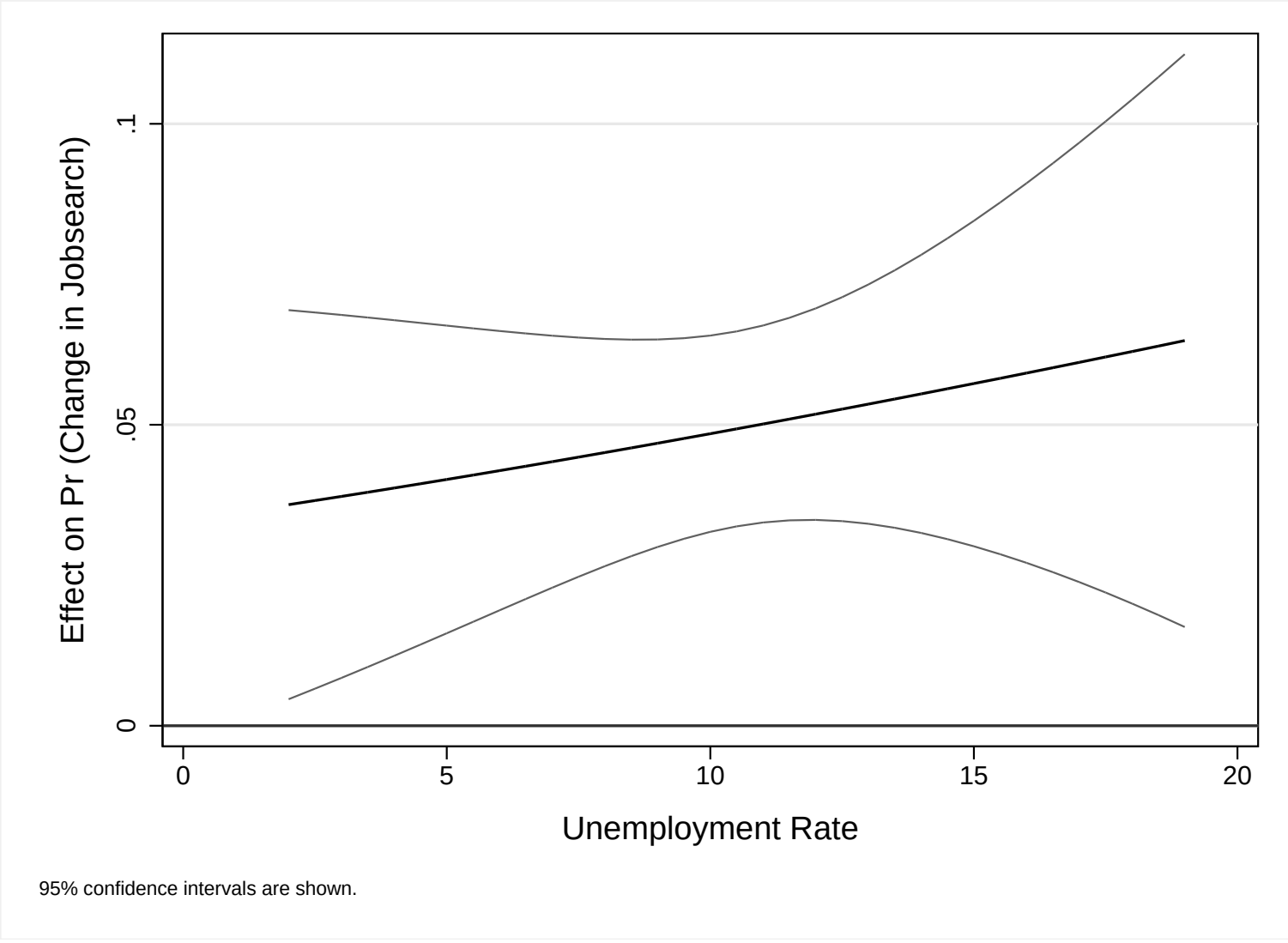

Figure 5: Marginal Effect of the Interaction between the Added Worker Dummy and the Unemployment Rate.

Interaction – Labor Force Participation Rate

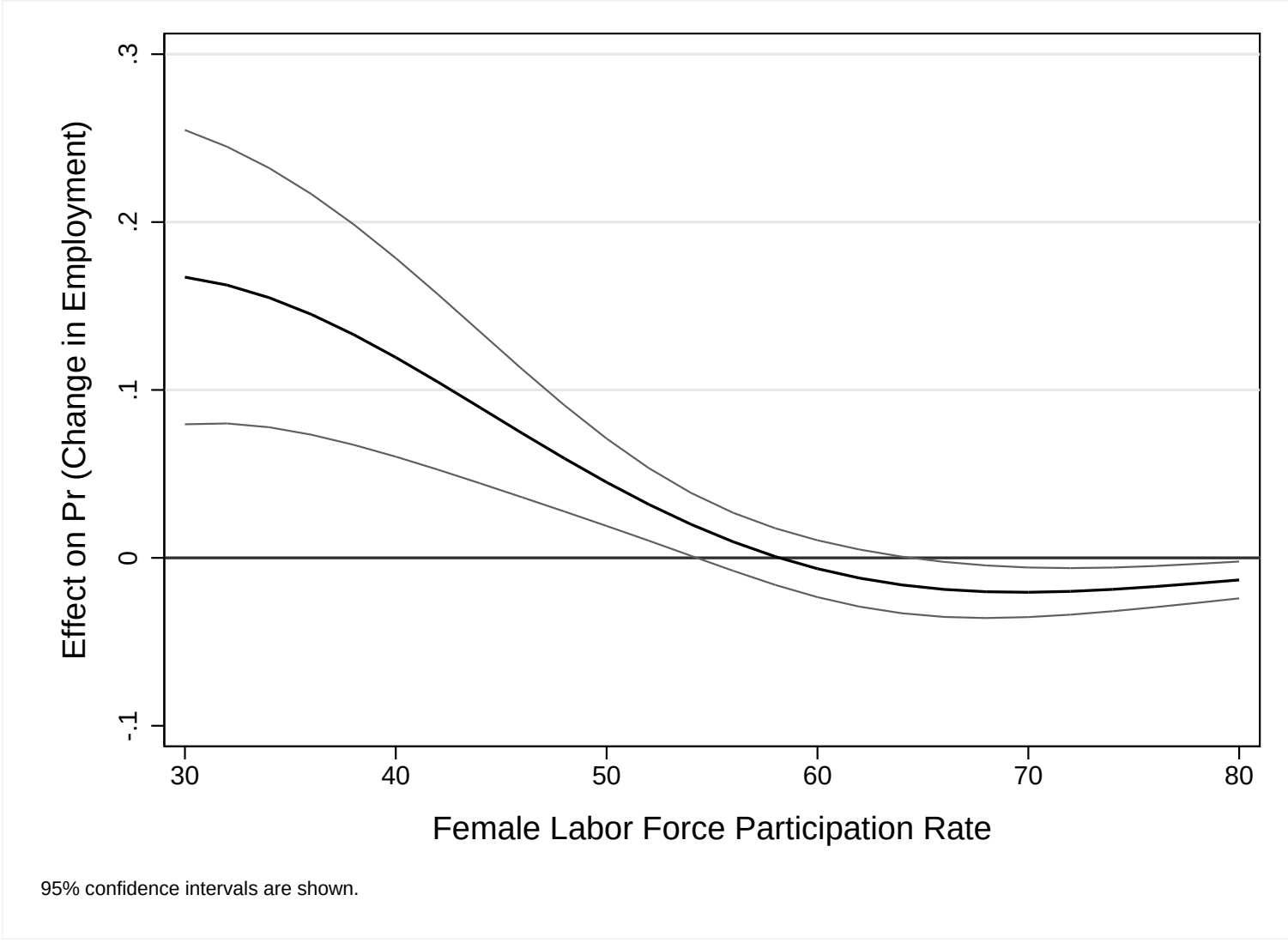

Figure 6: Marginal Effect of the Interaction between the Added Worker Dummy and the Female Labor Force Participation Rate.

Interaction – Labor Force Participation Rate

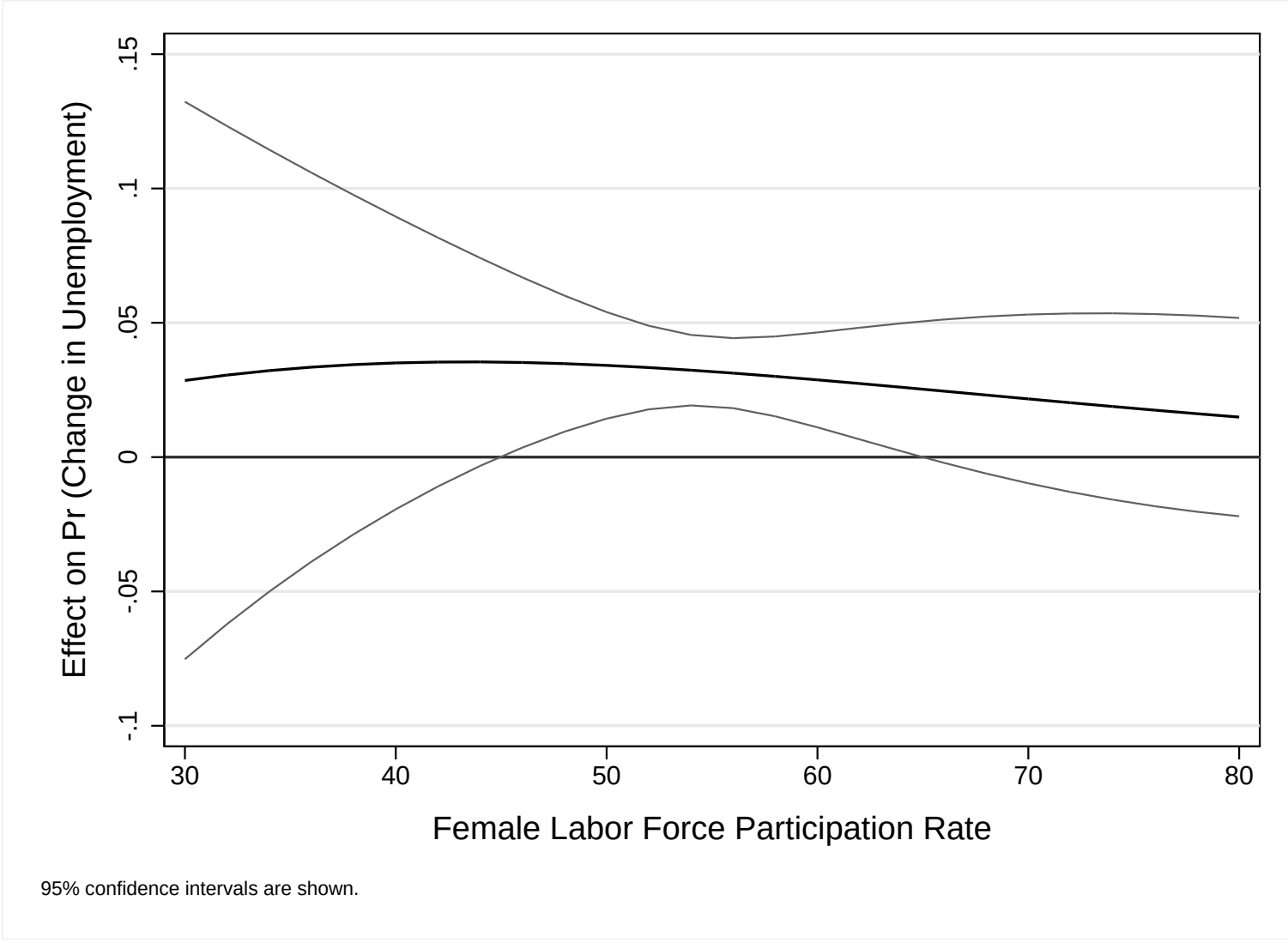

Figure 7: Marginal Effect of the Interaction between the Added Worker Dummy and the Female Labor Force Participation Rate.

Interaction – Labor Force Participation Rate

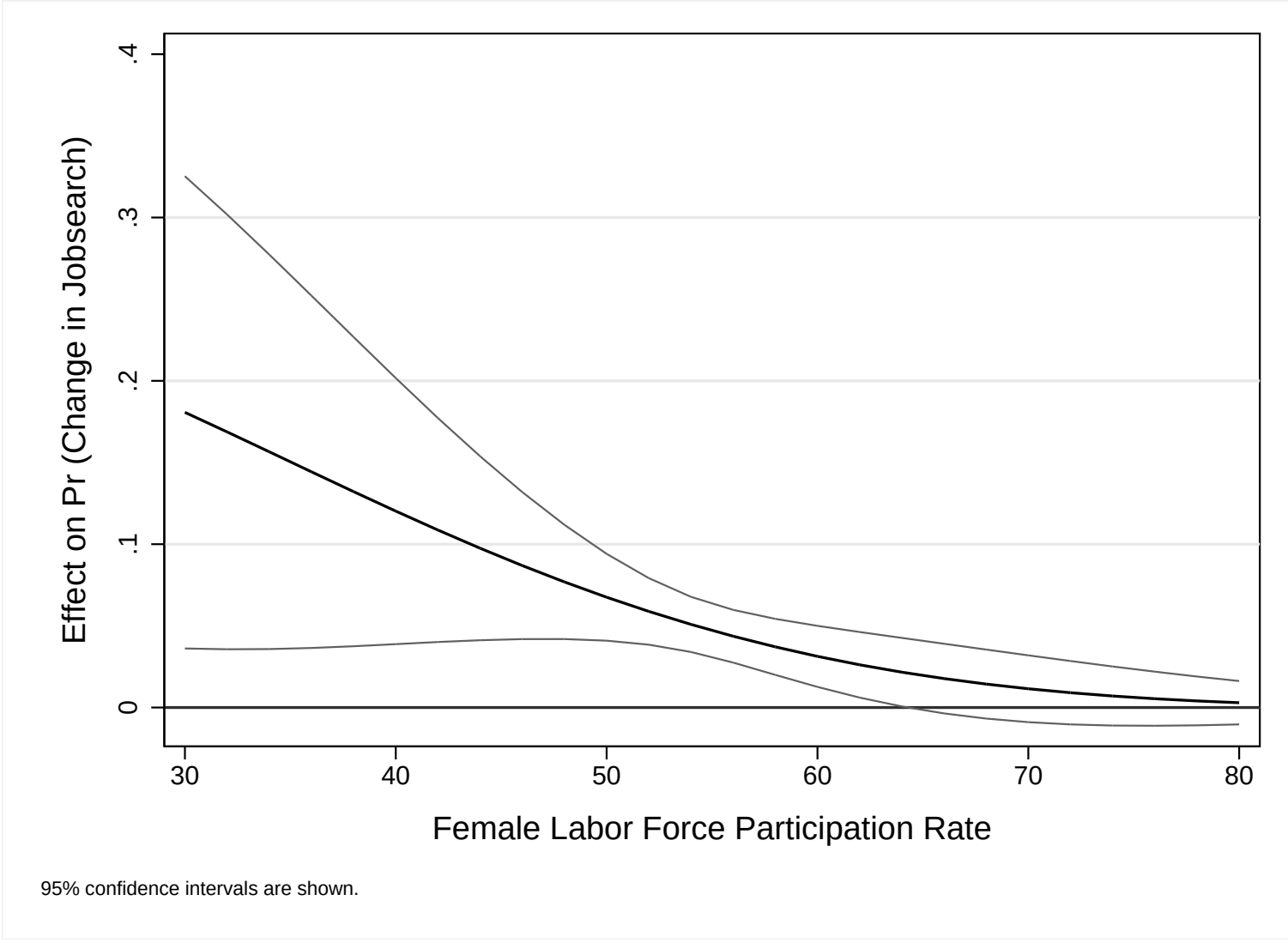

Figure 8: Marginal Effect of the Interaction between the Added Worker Dummy and the Female Labor Force Participation Rate.