

THE ADDED WORKER EFFECT, EMPLOYMENT CONTRACTS, AND THE REASONS FOR THE WIFE'S INACTIVITY

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- Intra-household insurance: do inactive women enter the labour market after the job displacement of their husbands?
- A negative income shock leads to an increase in labour supply of family members (see Stephens, (2002)) - the added worker effect (henceforth AWE)
- What factors influence the size of the AWE?

- Women do significantly increase their labour supply after job displacement of their husbands
- The size of the AWE depends on reasons for wife's inactivity (discouragement vs. family vs. health)
- Public social insurance crowds out the intra-household insurance (self-employment vs. FTC vs. PC)

Recent studies established the presence of the significant AWE in:

- Australia (Gong, 2011)
- Austria (Halla, Schmieder and A. Weber, 2018)
- Brazil (Fernandes and Felício, 2005)
- Italy (Baldini, Torricelli and Brancati, 2018; Ghignoni and Verashchagina, 2016)
- Turkey (Ayhan, 2017; Karaoglan and Okten, 2015)
- UK (Bryan and Longhi, 2018)
- European countries (Bredtmann, Otten and Rulff, 2018)

Macro studies

Bredtmann, Otten and Rulff, (2018):

- The size of the AWE increases with unemployment rate
- AWE is smaller in high-welfare countries (Nordic countries) than in low-welfare countries (Mediterranean countries): crowding-out of the AWE by social benefits?

- Crowding out of intra-household insurance. Does the husband's employment contract type matter for the size of the AWE?
- Those who do not look for a job, because they believe no work is available for them (discouraged people) are more likely to enter the labour force than those inactive for reasons of family or health (Gray, Heath and Hunter, 2005; Jones and Riddell, 1999). What about the AWE?

- Individual data from Polish Labour Force Survey
- A source of unique, detailed information about labour market situation of individuals
- Possibility of capturing labour market flows and merging information about household members
- Period of analysis: 2007-2017

Summary statistics

- I take only those women, who were not active in the previous period ($A_{i,t-1} = 0$), and at the same time their partners worked ($NE_{i,t-1}^D = 0$).
- I limit the sample to opposite-sex married couples 25-49 years old. I drop those who were inactive due to education and retirement, those whose husbands worked in agriculture.

$$A_{i,t} = \alpha + \gamma NE_{i,t}^p + \beta X_{i,t} + \epsilon_{i,t} \quad (1)$$

$$A_{i,t} = \alpha + \gamma NE_{i,t}^p + \theta_0 NE_{i,t}^p * IA_{i,t-1}^f + \theta_1 NE_{i,t}^p * IA_{i,t-1}^h + \beta_0 X_{i,t} + \beta_1 IA_{i,t-1}^f + \beta_2 IA_{i,t-1}^h + \epsilon_{i,t} \quad (2)$$

$$A_{i,t} = \alpha + \gamma NE_{i,t}^p + \theta_2 NE_{i,t}^p * E_{i,t-1}^{p,selfemp} + \theta_3 NE_{i,t}^p * E_{i,t-1}^{p,FTC} + \beta_0 X_{i,t} + \beta_3 E_{i,t-1}^{p,selfemp} + \beta_4 E_{i,t-1}^{p,FTC} + \epsilon_{i,t} \quad (3)$$

Logit results: $IA_{t-1} - A_t$



	(1)	(2)	(3)	(4)	(5)
<i>Added worker effect</i>					
$NE_{i,t}^p$	0.11***	0.11***	0.14***	0.29***	0.07**
<i>Ref. $NE_{i,t}^p$ reason: quit</i>					
$NE_{i,t}^p$ reason: fired			-0.04**		
<i>Ref. $NE_{i,t}^p \times IA_{i,t-1}$ reason: discouraged</i>					
$NE_{i,t}^p \times IA_{i,t-1}$ reason: health				-0.22**	
$NE_{i,t}^p \times IA_{i,t-1}$ reason: family				-0.19**	
<i>Ref. $NE_{i,t}^p \times$ initial husband status: permanent contract</i>					
$NE_{i,t}^p \times$ initial husband status: fixed-term contract					0.04
$NE_{i,t}^p \times$ initial husband status: self-employed					0.20***
Year dummy	yes	yes	yes	yes	yes
Individual characteristics	yes	yes	yes	yes	yes
Partner characteristics	no	yes	yes	yes	yes
Household characteristics	no	yes	yes	yes	yes
N	18,895	18,895	18,895	18,895	18,895

Full table

OLS results

Note: Results represent average marginal effects, calculated as average effects over all individuals obtained from logit estimations of probability of wife's labor market transitions from inactivity ($IA_{i,t}$) to labour force ($A_{i,t}$ - employment or unemployment). $NE_{i,t}^p$ is a dummy variable, which equals 1 if the husband lost his job, and 0 otherwise. The first row shows marginal effect of $NE_{i,t}^p$ (AWE) for the whole sample in Columns (1) and (2), AWE in the case of dismissals in Column (3), AWE for discouraged women in Column (4), and AWE for the wives of husbands working under permanent contract in Column (5). The interactions in Column (3), Column (4), and Column (5) show the contrasts of AWE over reasons for the job displacement of the husband, reasons for the wife's inactivity, and the type of employment contract the husband had at $t - 1$, respectively. Robust standard errors were calculated.

* p<0.1, ** p<0.05, *** p<0.01

Data: Polish Labour Force Survey.

- 2007-2012 vs. 2013-2017: the AWE was weaker after 2013, the variation of AWE depending on the type of employment contract the husband had was constant, and the variation of the AWE depending on the reasons for the wife's inactivity was observed in 2013-2017 only

2007-2012 vs. 2013-2017

employees

income source: wages

- significant AWE in Poland regardless of specification
- AWE much stronger for wives of self-employed people than for wives of husbands with fixed-term or permanent contracts
- crowding-out of intra-household insurance by public social insurance. But: choice of the contract type is not random
- stronger AWE for discouraged persons

THANK YOU

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Macro analyses - the countercyclical labour force participation is a sign of AWE (the procyclical LFPR is a sign of discouraged worker effect).

Recently studied by Congregado et al., (2011), Evans, (2018), Fuchs and E. Weber, (2017), Gałęcka-Burdziak and Góra, (2016), Gałęcka-Burdziak and Pater, (2016) and Nucci and Riggi, (2018)

Summary statistics



	All	$I_{t-1} - A_t$	$I_{t-1} - I_t$
<i>Individual characteristics</i>			
Active	14.95%	100.00%	0.00%
Age	35.44	34.37	35.63
Secondary education	40.36%	35.78%	41.16%
Tertiary education	19.96%	35.64%	17.20%
Disable	6.02%	2.67%	6.61%
Inactivity reason: discouragement	5.33%	5.98%	5.21%
Inactivity reason: family	87.69%	88.91%	87.47%
Inactivity reason: health	6.99%	5.11%	7.32%
<i>Partner characteristics</i>			
$NE_{i,t}^P$	2.84%	4.26%	2.59%
Secondary education	31.41%	32.60%	31.21%
Tertiary education	17.54%	26.14%	16.02%
Younger partner	15.71%	16.51%	15.56%
Reason of displacement: fired	1.07%	1.35%	1.02%
Initial husband status: fixed-term contract	18.42%	18.93%	18.33%
Initial husband status: self-employed	18.91%	18.26%	19.03%
<i>Household characteristics</i>			
One child	30.93%	36.36%	29.97%
Two children	42.73%	45.03%	42.33%
Three and more children	18.28%	12.99%	19.21%
Medium town	19.88%	21.54%	19.59%
Small town	13.02%	12.64%	13.09%
Rural area	44.10%	36.58%	45.42%
N	18,895	2,812	16,083

Note: The first column shows the percentages of persons with selected characteristics in the whole sample. The second column shows the percentages among those, who transitioned to labour force after a year. The third column shows the percentages among those, who remained inactive.

Data: Polish Labour Force Survey.

Back

Logit results: $I A_{t-1} - A_t$



	(1)	(2)	(3)	(4)	(5)
<i>Added worker effect</i>					
NE_{it}^P	0.11***	0.11***	0.14***	0.29***	0.07**
<i>Ref. NE_{it}^P reason: quit</i>					
NE_{it}^P reason: fired			-0.04**		
<i>Ref. $NE_{it}^P \times IA_{i,t-1}$ reason: discouraged</i>					
$NE_{it}^P \times IA_{i,t-1}$ reason: health				-0.22**	
$NE_{it}^P \times IA_{i,t-1}$ reason: family				-0.19**	
<i>Ref. $NE_{it}^P \times$ initial husband status: permanent contract</i>					
$NE_{it}^P \times$ initial husband status: fixed-term contract					0.04
$NE_{it}^P \times$ initial husband status: self-employed					0.20***
<i>Individual characteristics</i>					
<i>Age</i>	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
<i>Ref. Primary education</i>					
Tertiary education	0.15***	0.13***	0.13***	0.13***	0.13***
Secondary education	0.02***	0.02***	0.02***	0.02***	0.02***
<i>Ref. Not disabled</i>					
Disabled	-0.07***	-0.07***	-0.07***	-0.10***	-0.08***
<i>Ref. $IA_{i,t-1}$ reason: discouragement</i>					
$IA_{i,t-1}$ reason: health				0.02	
$IA_{i,t-1}$ reason: family				-0.06***	
<i>Partner characteristics</i>					
<i>Ref. Primary education</i>					
Tertiary education		0.00	0.00	0.00	0.00
Secondary education		-0.00	-0.00	-0.00	0.00
<i>Ref. Older partner</i>					
Younger partner		0.01	0.01	0.01	0.01
<i>Ref. Initial husband status: permanent contract</i>					
Initial husband status: fixed-term contract					0.01
Initial husband status: self-employed					-0.01*
<i>Household characteristics</i>					
<i>Ref. No children</i>					
One child		0.02*	0.02*	0.03***	0.02*
Two children		0.01	0.01	0.02*	0.01
Three and more children		-0.02*	-0.02*	-0.01	-0.02
<i>Ref. Big city</i>					
Medium town		-0.00	-0.00	-0.00	-0.00
Small town		-0.01	-0.01	-0.01	-0.01
Rural area		-0.03***	-0.03***	-0.03***	-0.03***
Year dummy	yes	yes	yes	yes	yes
N	18,895	18,895	18,895	18,895	18,895

Back

Note: Results represent average marginal effects, calculated as average effects over all individuals obtained from logit estimations of probability of wife's labor market transitions from inactivity (IA_{it}) to labour force (A_{it} - employment or unemployment). NE_{it}^P is a dummy variable, which equals 1 if the husband lost his job, and 0 otherwise. The first row shows marginal effect of NE_{it}^P (AWE) for the whole sample in Columns (1) and (2), AWE in the case of discouraged inactivity in Columns (3) and (4), and AWE in the case of family inactivity in Column (5).

OLS results: $I A_{t-1} - A_t$



	(1)	(2)	(3)	(4)	(5)
<i>Added worker effect</i>					
$NE_{i,t}^P$	0.10***	0.10***	0.12***	0.28***	0.06**
<i>Ref. $NE_{i,t}^P$ reason: quit</i>					
$NE_{i,t}^P$ reason: fired			-0.06		
$NE_{i,t}^P$ x $I A_{i,t-1}$ reason: health				-0.22**	
$NE_{i,t}^P$ x $I A_{i,t-1}$ reason: family				-0.19*	
$NE_{i,t}^P$ x initial husband status: fixed-term contract					0.03
$NE_{i,t}^P$ x initial husband status: self-employed					0.17**
<i>Individual characteristics</i>					
Age	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
<i>Ref. Primary education</i>					
Tertiary education	0.15***	0.14***	0.14***	0.14***	0.14***
Secondary education	0.02***	0.02**	0.02**	0.02**	0.02***
<i>Ref. Not disabled</i>					
Disabled	-0.06***	-0.07***	-0.07***	-0.11***	-0.07***
<i>$I A_{i,t-1}$ reason: discouragement</i>					
<i>$I A_{i,t-1}$ reason: health</i>					
<i>$I A_{i,t-1}$ reason: family</i>					
<i>Partner characteristics</i>					
<i>Ref. Primary education</i>					
Tertiary education		0.00	0.00	0.00	0.00
Secondary education		-0.00	-0.00	-0.00	0.00
<i>Ref. Older partner</i>					
Younger partner		0.01	0.01	0.01	0.01
<i>Ref. Initial husband status: permanent contract</i>					
Initial husband status: fixed-term contract					0.01
Initial husband status: self-employed					-0.02***
<i>Household characteristics</i>					
<i>Ref. No children</i>					
One child		0.02*	0.02*	0.03**	0.02*
Two children		0.01	0.01	0.02	0.01
Three and more children		-0.03**	-0.03**	-0.01	-0.02**
<i>Ref. Big city</i>					
Medium town		-0.00	-0.00	-0.00	-0.00
Small town		-0.01	-0.01	-0.01	-0.01
Rural area		-0.03***	-0.03***	-0.03***	-0.03***
Year dummy	yes	yes	yes	yes	yes
Log likelihood					
R^2	0.18	0.18	0.18	0.18	0.18
N	18,895	18,895	18,895	18,895	18,895

Back

Results represent parameters from OLS estimation of linear model of probability of wife's transitions from inactivity ($I A_{i,t}$) to labour force. $NE_{i,t}^P$ is a dummy variable, which equals 1 if a husband lost his job, and 0 otherwise. Heteroskedasticity-consistent standard errors were

2007-2012 vs. 2013-2017



Table: 2007-2012

	(1)	(2)	(3)	(4)	(5)
<i>Added worker effect</i>					
$NE_{i,t}^w$	0.14***	0.14***	0.17***	0.19**	0.09**
$Ref.NE_{i,t}^w$ reason: quit					
$NE_{i,t}^w$ reason: fired			-0.05		
$Ref.NE_{i,t}^w \times IA_{i,t-1}$ reason: discouraged					
$NE_{i,t}^w \times IA_{i,t-1}$ reason: health				-0.10	
$NE_{i,t}^w \times IA_{i,t-1}$ reason: family				-0.06	
$Ref.NE_{i,t}^w \times$ initial husband status: permanent contract					
$NE_{i,t}^w \times$ initial husband status: fixed-term contract					0.05
$NE_{i,t}^w \times$ initial husband status: self-employed					0.20**
Year dummy	yes	yes	yes	yes	yes
Individual characteristics	yes	yes	yes	yes	yes
Partner characteristics	no	yes	yes	yes	yes
Household characteristics	no	yes	yes	yes	yes
N	9,666	9,666	9,666	9,666	9,666

Note: Results represent average marginal effects, calculated as average effects over all individuals obtained from logit estimations of probability of wife's labor market transitions from inactivity ($IA_{i,t}$) to labour force ($A_{i,t}$ - employment or unemployment). $NE_{i,t}^w$ is a dummy variable, which equals 1 if the husband lost his job, and 0 otherwise. The first row shows marginal effect of $NE_{i,t}^w$ (AWE) for the whole sample in Columns (1) and (2), AWE in the case of dismissals in Column (3), AWE for discouraged women in Column (4), and AWE for the wives of husbands working under permanent contract in Column (5). The interactions in Column (3), Column (4), and Column (5) show the contrasts of AWE over reasons for the job displacement of the husband, reasons for the wife's inactivity, and the type of employment contract the husband had at $t-1$, respectively. Robust standard errors were calculated.

* p<0.1, ** p<0.05, *** p<0.01

Data: Polish Labour Force Survey.

Back

Table: 2013-2017

	(1)	(2)	(3)	(4)	(5)
<i>Added worker effect</i>					
$NE_{i,t}^w$	0.07**	0.07**	0.09**	0.62***	0.02
$Ref.NE_{i,t}^w$ reason: quit					
$NE_{i,t}^w$ reason: fired			-0.02		
$Ref.NE_{i,t}^w \times IA_{i,t-1}$ reason: discouraged					
$NE_{i,t}^w \times IA_{i,t-1}$ reason: health				-0.62***	
$NE_{i,t}^w \times IA_{i,t-1}$ reason: family				-0.56***	
$Ref.NE_{i,t}^w \times$ initial husband status: permanent contract					
$NE_{i,t}^w \times$ initial husband status: fixed-term contract					0.03
$NE_{i,t}^w \times$ initial husband status: self-employed					0.21**

Employees on permanent contracts



	(1)	(2)	(3)	(4)
<i>Added worker effect</i>				
$NE_{i,t}^p$	0.07**	0.07**	0.11***	-0.05
<i>Ref. $NE_{i,t}^p$ reason: quit</i>				
$NE_{i,t}^p$ reason: fired			-0.04	
<i>Ref. $NE_{i,t}^p \times IA_{i,t-1}$ reason: discouraged</i>				
$NE_{i,t}^p \times IA_{i,t-1}$ reason: health				0.23**
$NE_{i,t}^p \times IA_{i,t-1}$ reason: family				0.12**
Year dummy	yes	yes	yes	yes
Individual characteristics	yes	yes	yes	yes
Partner characteristics	no	yes	yes	yes
Household characteristics	no	yes	yes	yes
N	11,804	11,804	11,804	11,804

Back

Note: Results represent average marginal effects, calculated as average effects over all individuals obtained from logit estimations of probability of wife's labor market transitions from inactivity ($IA_{i,t}$) to labour force ($A_{i,t}$ - employment or unemployment). $NE_{i,t}^p$ is a dummy variable, which equals 1 if the husband lost his job, and 0 otherwise. The first row shows marginal effect of $NE_{i,t}^p$ (AWE) for the whole sample in Columns (1) and (2), AWE in the case of dismissals in Column (3), and AWE for discouraged women in Column (4). The interactions in Column (3) and Column (4) show the contrasts of AWE over reasons for the job displacement of the husband and reasons for the wife's inactivity, respectively. Robust standard errors were calculated.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Data: Polish Labour Force Survey.

Main source of income: wages



	(1)	(2)	(3)	(4)
<i>Added worker effect</i>				
$NE_{i,t}^p$	0.09***	0.09***	0.12***	0.23**
<i>Ref. $NE_{i,t}^p$ reason: quit</i>				
$NE_{i,t}^p$ reason: fired			-0.04	
<i>Ref. $NE_{i,t}^p \times IA_{i,t-1}$ reason: discouraged</i>				
$NE_{i,t}^p \times IA_{i,t-1}$ reason: health				-0.16
$NE_{i,t}^p \times IA_{i,t-1}$ reason: family				-0.14
Year dummy	yes	yes	yes	yes
Individual characteristics	yes	yes	yes	yes
Partner characteristics	no	yes	yes	yes
Household characteristics	no	yes	yes	yes
N	14,681	14,681	14,681	14,681

Back

Note: Results represent average marginal effects, calculated as average effects over all individuals obtained from logit estimations of probability of wife's labor market transitions from inactivity ($IA_{i,t}$) to labour force ($A_{i,t}$ - employment or unemployment). $NE_{i,t}^p$ is a dummy variable, which equals 1 if the husband lost his job, and 0 otherwise. The first row shows marginal effect of $NE_{i,t}^p$ (AWE) for the whole sample in Columns (1) and (2), AWE in the case of dismissals in Column (3), and AWE for discouraged women in Column (4). The interactions in Column (3) and Column (4) show the contrasts of AWE over reasons for the job displacement of the husband and reasons for the wife's inactivity, respectively. Robust standard errors were calculated.

* p<0.1, ** p<0.05, *** p<0.01

Data: Polish Labour Force Survey.