

The Effect of Female Labor Supply on Vote Choice in Taiwanese Elections

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Abstract

It is argued that female voters are biased toward female candidates shown to represent the interests of women to a greater extent than their male counterparts. To explore the question of whether women are more likely to vote for female candidates, this paper investigates the influence of rising female labor force participation on female candidates' vote share in elections in Taiwan from 1994 to 2014. The results show that the increasing supply of foreign domestic workers leads to more women entering the labor market, which in turn gives rise to more votes being gained by female candidates.

Key words

female labor supply, foreign domestic worker, gender preference, vote choice

Introduction

The Chinese proverb “Women hold up half the sky” asserts that women are a resource and should be positioned outside of the home in the professional field. In fact, women are claimed to have held up 41% of China’s GDP in 2016, which is the largest share in the Asia-Pacific, and it is believed that they will make an even greater contribution if female representation in the workplace increases.¹ However, what will happen to unpaid household production if women’s paid work increases? Some may consider outsourcing their domestic responsibility to the market, provided that there are supportive public policies when the cost is high. Voters are therefore likely to cast their votes for certain types of candidates they believe will stand for them. In

¹ See “The sky’s the limit: Women could make Asia rich” in the *Economist* (April 28, 2018).

the literature, female politicians are shown to prioritize soft issues to a greater extent than male politicians (e.g., Koch, 2000). Thus, this paper aims to investigate the influence of a rising female labor force participation rate on the vote share of women in the context of Taiwan, while taking the importation of foreign domestic workers into account.

The opportunity cost of market work is the value of the reduced time available for household work. Domestic duties need not be performed by the woman herself, since there are professional workers available to do this. Low-skilled female migrant workers who enter domestic service fill sectors of the economy not favored by locals at lower prices than would be charged by native workers or companies, especially when the expansion of the service sector raises women's relative wages and their time allocation in labor market (Ngai & Petrongolo, 2017). As these temporary domestic helpers act as a substitute for the time spent in household production, they potentially influence the labor supply, a topic that has been investigated by a rich strand of the literature based on data within individual countries (e.g., Barone & Mocetti, 2011; Cortés & Pan, 2013; Cortés & Tessada, 2011; Del Carpio, Ozden, Testaverde, & Wagner, 2015; Farré, González, & Ortega, 2011).

Even though foreign sources of labor allow highly skilled native workers to contribute to the economy, Taiwan is relatively conservative when it comes to tackling the issue of foreign workers. The official foreign worker scheme in Taiwan began in 1992 with the government's policy being presented as a solution to the growing demands for housekeeping and caring services following the expansion in the number of nuclear households and an aging society in contemporary Taiwan (Lan, 2003). According to the program, foreign domestic workers could initially only be employed to take care of the severely ill or disabled but were subsequently allowed to care for children under the age of 12 or for elderly family members over the age of 70 with a limited number of quotas. In recent years, the program has been scaled down even further and only permits special applications for foreign investors and families requiring specialized child or elderly care (Cortés & Pan, 2013). In the first quarter in 2018, only about 250,000 foreigners were legally employed as domestic helpers or caretakers, accounting for 2.1 percentage points of the labor force in Taiwan. Moreover, 99.3% of these workers were female.

To bring influence to bear on government policies, citizens in a democratic

economy may consider pursuing their objectives through elections. Migrant female domestic workers provide native women with the opportunity to participate in the labor market and to devote their spare time to the public sphere. Since the time is constrained and leisure is normally good, it is therefore reasonable to predict that women have preferred positions in regard to public affairs, and consequently make choices based on these preferences. Lewis and Bierly (1990) demonstrate that female voters have different voting rules from males, in that they are more likely to exhibit pro-female sentiment in evaluating female candidates. One possible reason is that they understand women as a group and represent the interests of women.

Other scholars argue that many voters have a predisposition to support female as opposed to male candidates, or vice versa. This baseline gender preference can be explained by the voter's gender and by gender stereotypes about traits, beliefs, and issue competency, which can affect the vote decision (Inglehart & Norris, 2000; Sanbonmatsu, 2002). For example, voters perceive male candidates to be better at handling economic and foreign affairs and female candidates to be better at helping disadvantaged minorities and protecting women's rights, and there is empirical evidence of a gender gap in policy preferences among politicians (e.g., Beaman, Duflo, Pande, & Topalova, 2012; Bhalotra & Clots-Figueras, 2014; Brollo & Troiano, 2016; Chen, 2013; Clots-Figueras, 2012; Pande, 2003).

There has been extensive research into the rise in female labor market participation, and similar extensive research into the rise in women's share of the vote, but there has been relatively little study of the interplay between the two phenomena. Given the evidence that female politicians represent the interests of women to a greater extent than male politicians, and that there may be gender preferences in voting decisions, this paper attempts to investigate the effect of female labor force participation on the share of the vote of female candidates. In addition, in order to address the problem of endogeneity, the number of foreign domestic workers is regarded in this study as playing an instrumental role in the female labor force participation rate, because immigration policies are seldom discussed during elections in Taiwan and hence are unlikely to have a direct effect on the female candidates' share of the vote. The results show that the number of votes for female candidates is a response to the female labor supply, which is likely to reflect voters' demands for public policies to expand the importation of foreign domestic workers.

Background

The situation whereby women are the persons in charge of taking care of the family remains the same even as non-marriage has become a trend and the social status of women has made great progress in recent decades. According to the Survey on Social Development Trend in 2014 conducted by National Statistics in Taiwan, women spend twice the amount of time each day on domestic affairs than do men, especially in the cases of married and cohabiting women. In addition, longer working hours are required if there is a need for family care. Even if men's share of the housework has increased, most of the burden has continued to fall on the women.

Nevertheless, stagnating monthly salaries accompanied by rising price levels since the mid-1990s have also served to encourage more women to go out and work in Taiwan. The 2013 Women's Marriage, Fertility, and Employment Survey conducted by the Directorate-General of Budget, Accounting, and Statistics (DGBAS) showed that 55.9% of married women in the labor force are currently employed. This ratio is 8.07 percentage points higher than that in 1990. Participation in the labor market has turned out to be an inevitable tendency for women as they compare the costs and benefits of being a full-time housewife. However, who will fill the traditional role of women in the family?

Cortés and Tessada (2011) build a model describing the relationship between labor force participation and the provision of household services. The model asserts that a larger burden of household services decreases not only leisure and/or labor supply, but also lowers the marginal productivity of time devoted to household work since the cost of time increases as women spend more time doing household work. Therefore, women might start to purchase services when there is a sufficiently large amount of household work. One possible way for them to outsource a significant portion of their domestic responsibility to the market is thus to join the labor market to cover part of the cost of the additional market services.

Even if there is an increasing demand for domestic helpers and caretakers, who are known as domestic workers, hiring a native person is expensive in Taiwan since the salary is around 1,600–2,000 USD (or 50,000–60,000 NTD) per month for 12 working hours per day. However, employing a foreigner as a domestic worker only costs 566 USD (or 17,000 NTD) per month for 15 working hours per day. The relatively low cost of foreign domestic workers

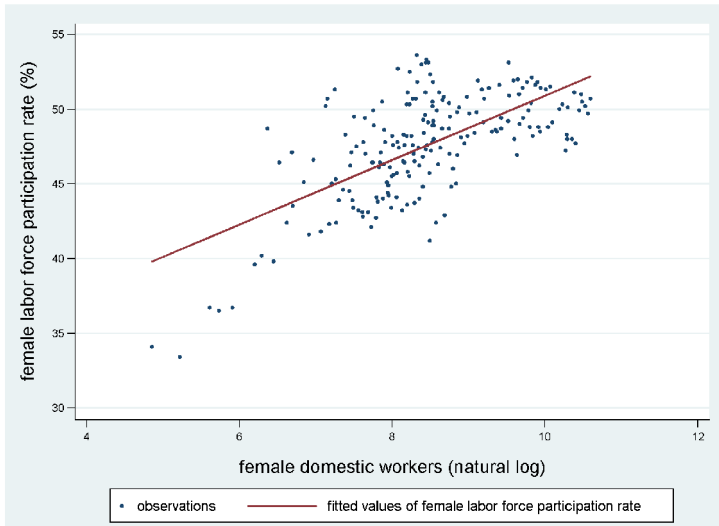


Figure 1. The correlation between foreign domestic workers and female labor supply.

may therefore be preferred and explains the positive correlation between female labor supply and the number of foreign domestic workers in Taiwan, as shown in Figure 1.

In Taiwan, the trend toward an increasingly elderly population has accelerated. Even though there are increasing demands for the Taiwanese government to relax the limits on hiring domestic workers to care for those aged 80 and above, it has remained relatively passive when it comes to raising the import quotas for foreign domestic workers out of concern that this may jeopardize the employment opportunities of Taiwan's citizens. In fact, it is argued that varying political institutions, divergent national histories of settlement and colonialism, and the different effects of a changing international context have resulted in systematic differences in immigrant policies among countries (Bauer, Lofstrom, & Zimmermann, 2001; Freeman, 1995; Scheve & Slaughter, 2001). The character of immigration politics may also change over time within a country in the context of partisan electoral competition. Nevertheless, immigration policies are seldom discussed during elections in Taiwan, even by interest groups that have advocated legal reforms. Cheng Chang, the founder of Brilliant Time: Southeast Asia-Themed Bookstore, has claimed in the BBC's report "Silent Millions: Immigration Policy in Taiwan's General Election"

that immigration policy is an essential but not urgent issue, compared to others like economic affairs and cross-strait relations, and thus it is not usually assigned a high level of priority.² Specifically, such market demands have only found their way to the campaign platform of the Taiwan National Congress (TNC), a small political party inclined to the right, in the 2012 legislative elections. However, the TNC did not win any seats in parliament in the end. This may reflect the fact that the electorate usually only pays attention to major political issues or candidates' personal morals during the campaign, instead of considering policies such as bringing in foreign domestic workers, especially when native workers' wages are not impacted by immigrants under the strict importation policy.³ Thus, it has been suggested that such policies are not determined by the electorate *ex ante*, but are formulated after the election takes place.

Ideally, for more women to enter the labor market, it may be necessary to first solve the demand-side problem regarding housework services, and acquiring public support through elections seems to be a good way of resolving this issue in a democratic economy. Therefore, it would be interesting to examine whether an increase in female labor supply influences vote choice by taking the importation of foreign domestic workers into account.

Method

Empirical Strategy

To describe the vote choice, this paper models the female candidates' vote share as a function of the female labor force participation rate and a county's conditions as the following:

$$Voteshare_{it} = a + \delta_i + \pi_t + \beta_1 FLP_{it} + \beta_2 County_{it} + \varepsilon_{it} \quad (1)$$

where i denotes the county and t denotes the time indices. $Voteshare_{it}$ is the

² Cheng Chang is also the chief editor of "4-Way Voice," the only newspaper in the country that focuses on foreign immigrants in Taiwan. See the report "Silent Millions: Immigration Policy in Taiwan's General Election" by the BBC on January 13, 2016. (http://www.bbc.com/zhongwen/trad/china/2016/01/160113_taiwan_election_immigration).

³ Scheve and Slaughter (2001) find that the effect of immigration on wages determines individual preferences in relation to immigration policy in the United States.

total vote share of female candidates for a specific election in county i in year t . FLP_{it} refers to the female labor force participation rate in county i in year t . *County* is a set of control variables that capture a county's characteristics, including demographic and economic factors. The demographic factor refers to the proportion of population under 15 and above 65 years old, which reflects women's family responsibilities and consequently affects their time allocation. The economic factor refers to disposable income per capita since there is likely to be an income effect in relation to gender equality. Regression analysis also controls for the attainment rate of women above a secondary education and the type of election. The former variable is used to capture the effect of the transition in women's social status and the latter to address the influence of the competitive extent and the related involvement of voters in electoral outcomes. The vote share of the Democratic Progressive Party (DPP) is also controlled for because it is viewed as a party that promotes minority rights and encourages the participation of women in politics.⁴ Finally, year fixed effects are included to account for systematic variation across years, and the trend is under control for the exogenous increase in the dependent variable which is not explained by other variables.⁵ In addition, ε is assumed to be a random error term. The spatial correlation among the error terms is accounted for by clustering results at the county level.

The estimation of equation (1) gives a general picture of the relationship between the female candidates' vote share and female labor supply. However, there is an endogeneity problem since when more women participate in the public sphere, they may encourage more women to enter the labor market as well.

According to the median voter theorem, trade policies, including remedying the shortage of domestic workers, are less likely to be included in the agenda in an electoral competition, but are based on decisions reached through lobbying after the election. Therefore, the number of foreign domestic workers is regarded as an instrument for female labor force participation;

⁴ The DPP, the largest political competitor to the Kuomintang (KMT), approved a party policy in 1997 guaranteeing that one-fourth of candidates nominated would be women. This not only forced other political parties to promote the representation of women, but also influenced the legislation (Chen, 2013).

⁵ Year dummy is a variable which equals 1 for a given year and 0 for all other years, while the trend is a variable which is equal to the time index in a given year.

while it is less likely to have a direct effect on the female candidates' vote share, it is very likely to help solve the time allocation problem encountered by native women. Hence, the following empirical specification is considered:

$$FLP_{it} = a + d_i + p_t + b_1 FDW_{it} + b_2 County_{it} + \epsilon_{it} \quad (2)$$

where FDW_{it} refers to the number of foreign domestic workers in county i in year t . In addition to those controls in equation (1), the influence of female income is included in equation (2) because higher earnings than those of foreign domestic workers and the expense of child care may induce more native women to enter the labor market.

Data description

The dataset consists of 14 electoral competitions in 19 Taiwanese counties and cities covering the period 1994–2014. I augment this dataset with information about foreign domestic workers and county characteristics. Data on foreign domestic workers are obtained from the Ministry of Labor,⁶ while county characteristics, including the proportion of population under 15 and above 65 years old, disposable income per capita, female salary, and the attainment rate of women with more than a secondary education, are collected from the *Statistical Yearbook*.

Results

Figures 2 and 3 scatter the relationship between the female labor force participation rate and electoral outcomes for women, with the solid line indicating the fitted values with all of the controls. It provides evidence showing that a higher female labor force participation rate is associated with more votes going to female candidates and a higher female vote share. Since female labor supply is also positively correlated with total votes in Figure 4, the previous findings may reveal the progress of democratization, but not an increasing demand for public policies concerning women. Therefore, a more sophis-

⁶ There is a record at national level of the number of foreign domestic workers since 1991, but county level data are not available until 2001. Please see more information about foreign domestic workers in the appendices.

ticated investigation, which takes the endogeneity problem into account, is required.

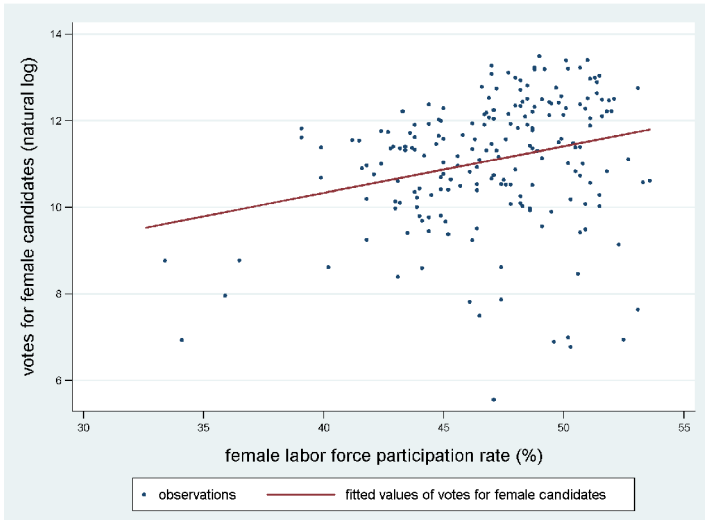


Figure 2. The correlation between female labor supply and votes for female candidates.

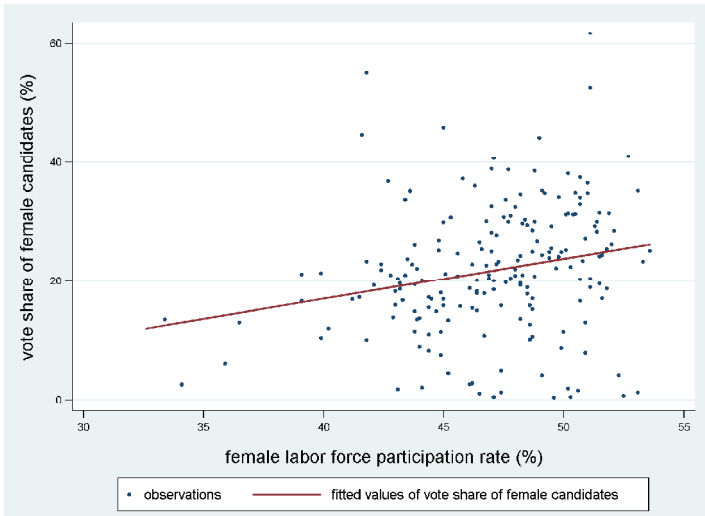


Figure 3. The correlation between female labor supply and the vote share of female candidates.

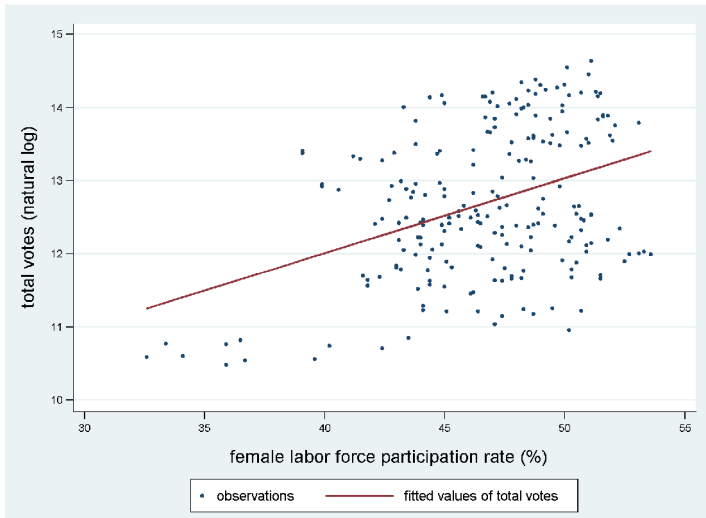


Figure 4. The correlation between female labor supply and total votes.

Given that foreign domestic workers provide women with an opportunity to replace their traditional role in the family at a lower cost, and their availability is less likely to be determined by the electorate *ex ante*, they appear to serve as a good candidate for an instrument for female labor supply. The estimation of equation (2), which examines the validity of foreign domestic workers, is reported in Table 1. The results from regressions in columns (1), (4), and (7) show that foreign domestic workers are positively correlated to female labor force participation. Moreover, there seems to be an income effect for women in relation to the choice of entering the labor market.⁷ Nevertheless, the income effect vanishes when other controls are included in columns (2), (5), and (8), while the relationship between foreign domestic workers and female labor force participation remains.

The estimation of equation (2) with year dummies is given in columns (3), (6), and (9).⁸ Generally, foreign domestic workers significantly explain female

⁷ The monthly wage rate is around 742–882 USD (or, 22,265–26,460 NTD) and 1,511 USD (or, 45,333 NTD) for foreign domestic workers and native female labor, respectively, in 2017.

⁸ Given that the data on female wages are only available at national level, the female wage rate is highly correlated with year dummies. Therefore, columns (3), (6), and (9) provide results with the control for year dummies, and exclude female wages.

labor supply in that a one percentage point increase in the number of foreign domestic workers leads to a 1.539–1.556 percentage point rise in the female labor force participation rate, depending on whether year dummies are controlled for. The effect is larger in local elections, as shown in column (9), which may reflect the fact that local governments address soft policies related to individuals with a more pragmatic attitude than does the central government. Even though it is argued that women are likely to leave their jobs temporarily to take care of young children, they are also likely to go back to the job market when living costs are high and there is support for their household chores. This argument appears to be reasonable since an increase in the population under 15 years old is positively correlated with the female labor force participation rate.⁹

The estimation of equation (1), using foreign domestic workers as an instrument for female labor supply, is reported in Table 2. This study considers three different measures to represent electoral outcomes: the female vote share, votes for female candidates, and total votes. The results show that a higher female labor force participation rate is relevant for female candidates' votes and total votes when both types of elections are considered, which are shown in columns (2) and (3), respectively. Moreover, the effect on votes for female candidates is larger than that on total votes, which may indicate the female electorate's higher demand for women-related policies. Nevertheless, the scale of the increase in the votes for female candidates is not large enough to make a statistically significant increase in the female candidates' share of the vote. This may partly reflect the current political situation in Taiwan whereby political parties continue to play a crucial role in determining the electoral outcomes by nominating certain types of candidates with the purpose of maximizing seat share. Even though female candidates are also considered during the nomination process, a relatively small number of female candidates are shown on the ballot.¹⁰ Therefore, there appears to be an upper limit for the share of female candidates' votes even if they have already accounted for more than 25% of the seats in the local councils and national legislature.

⁹ The effect is robust when the control over demographic factors changes to population under the age of 5 and over the age of 80, which are the criteria applying to employing foreign domestic workers in Taiwan. Results are available upon request.

¹⁰ Around one third of the candidates in the election for the Legislative Yuan in 2016 were female, and only a quarter of the candidates in the local council elections in 2014 were female.

Table 1
The Relationship between the Female Labor Force Participation Rate and Foreign Domestic Workers

	All observations			National elections			Local elections		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FDW	1.914 ^{***} (0.639)	1.539 ^{**} (0.615)	1.556 ^{**} (0.572)	1.823 ^{**} (0.634)	1.362 ^{**} (0.634)	1.375 ^{**} (0.634)	1.980 ^{***} (0.653)	1.656 ^{**} (0.613)	1.668 ^{***} (0.614)
Female salary	23.245 ^{***} (4.367)	-14.911 (11.593)		24.566 ^{***} (5.045)	73.210 [*] (39.304)		22.907 ^{***} (3.977)	-21.950 (16.704)	
Population under 15		0.783 ^{***} (0.228)	0.785 ^{***} (0.238)		0.816 ^{***} (0.239)	0.809 ^{***} (0.244)		0.758 ^{***} (0.241)	0.765 ^{***} (0.247)
Population over 65		-0.139 (0.153)	-0.175 (0.162)		-0.193 (0.177)	-0.215 (0.180)		-0.141 (0.160)	-0.158 (0.160)
Income		2.720 (4.083)	4.016 (4.808)		5.076 (5.071)	5.712 (5.355)		2.492 (4.583)	2.814 (4.772)
Female education		-0.073 (0.094)	-0.115 (0.112)		-0.119 (0.105)	-0.141 (0.116)		-0.080 (0.119)	-0.097 (0.122)
Election type		0.227 (0.155)	0.558 [*] (0.286)						
Trend		0.977 ^{***} (0.262)	0.842 ^{***} (0.161)		0.048 (0.441)	0.900 ^{***} (0.181)		1.036 ^{***} (0.320)	0.822 ^{***} (0.168)
R-squared	0.5169	0.6567	0.6670	0.5161	0.6678	0.6694	0.5161	0.6585	0.6670
Observations	200	200	200	80	80	80	120	120	120

Note. Standard errors are in parentheses. One, two, and three * denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors are corrected for clustering at the country level. Columns (3), (6), and (9) include dummies to control for years. FDW refers to foreign domestic workers.

Table 2
The Relationship between the Electoral Outcomes of Female Candidates and the Female Labor Force Participation Rate

	All observations			National elections			Local elections		
	Female vote share	Female votes	Total votes	Female vote share	Female votes	Total votes	Female vote share	Female votes	Total votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FILP	0.706 (1.867)	0.796** (0.390)	0.573** (0.231)	0.616 (3.696)	1.230* (0.746)	0.636** (0.269)	1.106 (0.810)	0.565*** (0.210)	0.507** (0.196)
DPP	0.213 (0.163)	0.011 (0.029)	0.007 (0.015)	0.314 (0.330)	0.032 (0.079)	0.009 (0.025)	0.132 (0.118)	0.016 (0.016)	0.012 (0.016)
Population under 15	-0.085 (1.777)	-0.731** (0.308)	-0.559*** (0.165)	0.494 (3.417)	-1.021* (0.572)	-0.652*** (0.195)	-0.985 (0.976)	-0.489*** (0.164)	-0.446*** (0.147)
Population over 65	0.607 (0.845)	0.086 (0.83)	0.054 (0.104)	0.597 (1.427)	0.190 (0.346)	0.057 (0.136)	0.770 (0.667)	0.085 (0.088)	0.051 (0.076)
Income	-19.700 (15.326)	-8.342 (5.917)	-5.153 (3.721)	-23.557 (27.055)	-14.711 (10.882)	-6.005 (4.567)	-19.333* (11.038)	-5.141 (3.204)	-4.068 (2.968)
Female education	0.635 (0.404)	0.72 (0.16)	0.107 (0.081)	0.703 (0.568)	0.269 (0.195)	0.115 (0.094)	0.726** (0.297)	0.123 (0.080)	0.090 (0.074)
Election type	-12.354*** (3.402)	0.51 (0.842)	0.419 (0.547)						
Trend	-0.719 (1.634)	-0.852** (0.341)	-0.608*** (0.195)	-0.493 (3.054)	-1.282** (0.626)	-0.682*** (0.239)	-1.187 (0.765)	-0.536*** (0.155)	-0.483*** (0.140)
F-statistic (1 st stage)	6.33 [0.066]	6.33 [0.066]	6.64 [0.062]	4.45 [0.061]	4.45 [0.061]	5.54 [0.040]	7.30 [0.027]	7.30 [0.027]	7.30 [0.027]
Conditional p-value [†]	0.487	0.000	0.000	0.7934	0.000	0.000	0.040	0.000	0.000
Observations	146	146	159	65	65	78	81	81	81

Note. Standard errors are in parentheses. One, two, and three * denote significance at the 10%, 5%, and 1% levels, respectively. *p* values are in brackets. All the regressions include dummies to control for years. Standard errors are corrected for clustering at the country level. FLP refers to the female labor force participation rate, FDW refers to foreign domestic workers, and DPP refers to the Democratic Progressive Party. “+” refers to the conditional p-value for the estimate of FLP estimated by Limited Information Maximum Likelihood (LIML).

However, the effect of foreign domestic workers may not be strong enough as the instrument for female labor force participation since the first-stage F value is below the often-used threshold of 10. As a result, conventional methods for inference can be misleading as standard estimators can be severely biased. Therefore, this study corrects the size of standard errors using the method proposed by Moreira (2003).¹¹ The conditional p -value shows that more women entering the labor market is very likely to result in more votes being gained by female candidates when the female electorate is concerned about household chore.

Discussion

Is the Instrument Economically Relevant?

The positive correlation between female labor supply and domestic workers may just reflect the same tendency, but not because having more foreign domestic workers allows women to participate in the labor market. If this argument were correct, foreign workers employed in industry would also explain the female labor supply since there is a similar trend with foreign domestic workers under the restricted policies for the importation of labor in Taiwan.

Table 3 reports the estimation of equation (2) with the number of industrial foreign workers as the independent variable. Even though the number of industrial foreign workers is positively correlated with the female labor force participation rate in column (1), it becomes irrelevant when other variables are controlled for. This result strengthens the finding that the female labor supply responds to the number of foreign domestic workers. To be precise, foreign domestic workers act as a substitute for the role of domestic women by serving as caretakers in the family and allow native women to go out and work, while industrial foreign workers are replacing other types of workers in Taiwan.

¹¹ The usual tests and confidence regions do not have the correct size in the weak instrument case. To address this problem, Moreira (2003) develops the conditional likelihood ratio (CLR) approach to correct the size of confidence regions and p -value for the coefficient on the single endogenous variable.

Table 3

The Relationship between the Female Labor Force Participation Rate and Industrial Foreign Workers: All Observations

	(1)	(2)	(3)
Industrial foreign workers	1.031** (0.479)	0.407 (0.432)	0.434 (0.427)
Female salary		-12.644 (10.515)	
Population under 15		0.510** (0.186)	0.508** (0.191)
Population over 65		-0.335 (0.264)	-0.363 (0.267)
Income		1.135 (5.258)	2.399 (6.194)
Female education		0.079 (0.146)	0.039 (0.171)
Election type		0.166 (0.148)	0.492* (0.281)
Trend		0.761** (0.271)	0.644*** (0.213)
R-squared	0.2157	0.5792	0.5792
Observations	200	200	200

Note. Standard errors are in parentheses. One, two, and three * denote significance at the 10%, 5%, and 1% levels, respectively. Standard errors are corrected for clustering at the county level. Column (3) include dummies to control for years.

Do Male Voters Change Their Behavior?

The female candidates' votes are increasingly associated with the female labor supply, which is assumed to be a result of an increased demand for public support in domestic affairs from women. However, part of the male electorate, especially those in dual-earner households, may take family affairs as a whole into consideration and change their voting behavior as living costs become higher. To test this hypothesis, I first investigated whether the male labor supply responds to the number of foreign domestic workers. The results are shown in Table 4.

Table 4

The Relationship between the Vote Shares of Female Candidates and the Labor Force Participation Rate: Does Gender Matter?

	Female votes as dependent variable at the 2 nd stage				
	Female LFPR			Male LFPR	
		1 st stage	2 nd stage	1 st stage	2 nd stage
	(1)	(2)	(3)	(4)	(5)
LFPR			0.796** (0.390)		0.799** (0.409)
FDW	1.649** (0.647)	1.383** (0.550)		1.379** (0.594)	
DPP	0.032 (0.025)	0.011 (0.032)	0.011 (0.029)	0.045** (0.021)	-0.017 (0.030)
Population under 15	0.456 (0.291)	0.781*** (0.222)	-0.731** (0.308)	0.441 (0.274)	-0.461 (0.331)
Population over 65	-0.010 (0.162)	-0.159 (0.147)	0.086 (0.183)	-0.017 (0.129)	-0.027 (0.126)
Income	-4.094 (3.610)	7.186 (4.533)	-8.342 (5.917)	-2.497 (3.307)	-0.624 (3.492)
Female education	-0.184* (0.098)	-0.168 (0.111)	0.172 (0.116)	-0.209** (0.095)	0.205** (0.087)
Election type	0.285 (0.520)	-0.723 (0.970)	0.151 (0.842)	0.185 (0.587)	-0.573 (0.538)
Trend	0.230 (0.196)	0.909*** (0.189)	-0.852** (0.341)	0.288 (0.201)	-0.358* (0.205)
F-statistic			6.33 [0.066]		5.39 [0.081]
Conditional <i>p</i> -value [†]			0.000		0.000
R-squared	0.5585	0.7072		0.5376	
Observations	159	146	146	146	146

Note. Standard errors are in parentheses. One, two, and three * denote significance at the 10%, 5%, and 1% levels, respectively. *p*-values are in brackets. All the regressions include dummies to control for years. Standard errors are corrected for clustering at the county level. FLP refers to the female labor force participation rate, FDW refers to foreign domestic workers, and DPP refers to the Democratic Progressive Party. “†” refers to the conditional *p*-value for the estimate of FLP estimated by Limited Information Maximum Likelihood (LIML).

The number of foreign domestic workers significantly impacts the male labor supply when other factors are controlled for, as shown in column (1). Specifically, a one percentage point increase in the number of foreign domestic workers results in an increase in the male labor force participation rate of 1.649 percentage points. This finding is likely to reveal the cost-side factors that are loaded on the male electorate in that men are also encouraged to go out and work in order to meet the additional expenditures needed for caring.¹²

Nevertheless, will female candidates also gain votes from an increase in the male labor supply? Evidently, an increase in the male labor supply also results in more votes being gained by female candidates when the trend is controlled for, and it is suggested that this effect is mediated by the importation of foreign domestic workers. This outcome is also likely to be in line with the statement in Kanter (1977) that men's behavior is influenced when there is a significant involvement of women in public life, i.e., a critical mass is reached. However, more investigations are required to confirm this point of view.

Is Economic Situation a Channel from the Instrument to the Outcome?

Decisions regarding hiring foreign workers are likely to depend on the general economic situation; the number of foreign domestic workers may be higher at times when the economy is expanding and lower when the economy is contracting. If these arguments are true, the economic situation tends to be an additional channel from the instrument to electoral outcomes since male candidates are relatively preferred in elections due to their perceived better ability in handling economic affairs. This potential additional channel may then explain why the relationship between foreign domestic workers and male labor force participation was found to be strong in the previous subsection.

To address this issue, Figure 5 displays the pattern of the number of foreign domestic workers and industrial foreign workers in the period 1991–2018. According to Figure 5, the number of foreign domestic workers is increasing slowly and exceeded 100,000 persons in the year 2000. By the end of 2018, there were 258,097 foreign domestic workers in Taiwan. In contrast, industrial foreign workers appear to follow the pattern of general economic performance, with slumps marking the economic downturn of early 2000 and the 2008–

¹² According to a report by DGBAS, the average annual income per household before tax was 43,000 USD (or 1.29 million NTD) in 2016. Hiring a foreign domestic worker costs 15.8 percentage points of income.

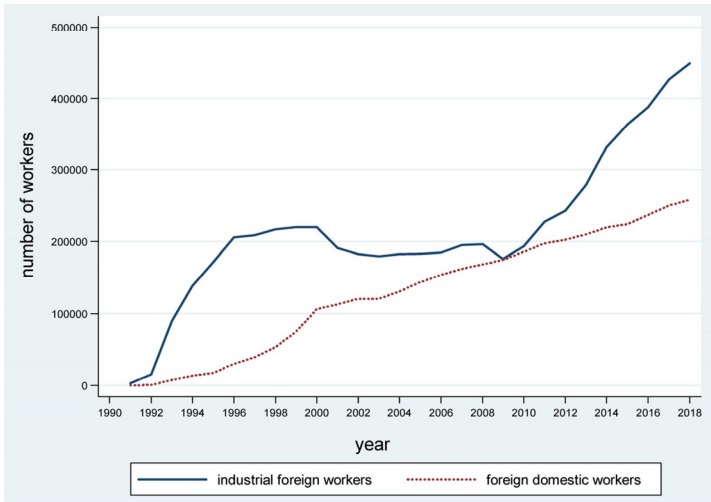


Figure 5. The pattern of foreign labor between 1991 and 2018 in Taiwan.

2010 financial crisis. The different patterns of the two categories of foreign labor may be explained by government policies. While the importation of industrial workers is subject to the extent of labor supply shortages in each industry, the application of foreign domestic workers follows the “point-accumulation rule,” i.e., only qualified families are able to hire foreign domestic workers. Consequently, the number of foreign domestic workers is growing steadily and does not respond to the economic situation as does the number of industrial foreign workers.

Furthermore, the location of foreign domestic workers may not be random if cities differ in their economic situations or in their attitudes toward foreign domestic workers, which may raise concern about the validity of the instrument. According to Table A.2, municipalities are associated with higher average numbers of foreign domestic workers than other types of cities. This is more likely to reflect demographic influences as a municipality is defined as an administrative district with more residents. Whether a household is able to hire foreign domestic workers relies on the age of younger and elder direct relatives, but not income.¹³ In addition, the specification with the control for income variable and the standard errors clustering at the county

¹³ See Table A.1.

level throughout this study are expected to alleviate the concern about income effect.¹⁴

Conclusion

This study attempts to investigate the effect of a rising female labor force participation rate on female candidates' vote share, while taking foreign domestic workers into account since foreign domestic workers are likely to serve as a substitute for the women's traditional role in the family as caretakers or domestic helpers. The results show that more women entering the labor market results in more votes being gained by female candidates, which is likely to be caused by the supply of foreign domestic workers, but not by other types of workers, such as industrial foreign workers. Foreign domestic workers appear to be a valid instrument for female labor force participation because immigration policies are seldom discussed during elections in the context of Taiwan. Moreover, economic performance is not a channel from the instrument to the electoral outcomes for female candidates because the number of foreign domestic workers does not fluctuate with economic performance.

The findings in this study shed light on two issues: how the identity of politicians influences policies, and the policy preferences of female politicians. According to the median voter model, political decisions should only reflect the preferences of the median voters if candidates only care about winning the elections and will make whatever promises necessary to do so. However, the identity of politicians, such as gender, matters for policy determination if there is commitment problem. There is evidence that female politicians consider the duty of promoting the interests/views of women to be much more important than their male colleagues do and have more contacts with women's organizations than male members (e.g., Wängnerud, 2005). This explains why the literature shows female politicians as usually giving priority to legislation dealing with women's concerns about the family. As a result, female workers tend to identify with female candidates because they speak the same language.

Even though there are still drawbacks to this study, the results provide a possible explanation of the relationship between female workers and female candidates, a topic which could prove an interesting basis for future research.

¹⁴ The data for per capita gross domestic production is not available at the county level. This study proxies economic situation by disposable income per person, instead.

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Appendix

Taiwan started importing foreign labor in 1989 when there was a shortage of labor in traditional industry as a result of the economic boom. Nevertheless, the government sticks by the ‘supplement’ principle to manage the impact on the domestic labor market. The import of foreign domestic workers has been in progress since 1992, and it has been suggested this improved female labor-force participation by transferring native women’s household duties to foreign domestic workers. Records of the numbers of foreign domestic workers began to be kept in 1992, but county-level data are not available until 2001. According to Figure 5, the number of female domestic workers is increasing slowly and steadily, with the annual number of female domestic workers exceeding 100,000 persons in year 2000, reaching a total of 258,097 persons by the end of 2018. This pattern is likely to respond to government strict regulations described in Table A.1. In addition, an administrative district with more residents is associated with a higher average number of foreign domestic workers, as shown in Table A.2.

Table A.1
The Qualifications for Applying for Foreign Domestic Workers

Basic requirement (satisfy one of the requirements below)	
1. The family has multiple births exceeding triplets under the age of 3.	
2. The number of qualifying points accumulated exceeds 16.	
(1) Have at least one lineal relative below the age of 6.	
(2) Have at least one lineal relative or first-level relatives by affinity above the age of 75, living together.	
The point-accumulation rule	
Point	Age of care recipient
7.5	1. Below the age of 1 2. Above the age of 90.
6.0	1. Above 1 and below 2 2. Above 80 and below 90.
5.0	Above 79 and below 80
4.5	Above 2 and below 3
4.0	Above 78 and below 79
3.0	1. Above 3 and below 4 2. Above 77 and below 78.

2.0	1. Above 4 and below 5 2. Above 76 and below 77.
1.0	1. Above 5 and below 6 2. Above 75 and below 76.

Source: The Ministry of Labor, Republic of China (Taiwan)

Table A.2

Summary Statistics for Numbers of Foreign Domestic Workers between 2001 and 2018

	Level	Mean	Std.	Min	Max
Taipei	Municipality	36065	5040	28565	44020
New Taipei	Municipality	29393	7533	18813	42498
Taoyuan	Municipality	16182	3275	11070	21815
Taichung	Municipality	20662	3932	14838	27352
Tainan	Municipality	10434	3948	4484	16802
Kaohsiung	Municipality	13563	5129	6919	21981
Yilan	County	4399	1545	1782	6848
Hsinchu County	County	4990	1223	2695	6686
Miaoli	County	4983	1697	2432	7795
Changhua	County	8182	2266	4912	12311
Nantou	County	4028	1302	2034	6205
Yulin	County	5421	1865	2424	8537
Chiayi County	County	3896	1523	1436	6400
Pingtung	County	4821	1772	2004	7764
Taitung	County	1354	477	586	1964
Hualien	County	2917	1052	1131	4528
Penghu	County	576	287	129	992
Keelung	City	2921	719	1710	4045
Hsinchu City	City	4615	683	3226	5594
Chiayi City	City	2022	650	1010	3047

Source: The Ministry of Labor, Republic of China (Taiwan).

Note. A "Municipality" is an administrative district with more than 2 million residents; others are called "county." A "city" is contained within a county and is promoted to "city" when its residents number more than 0.5 million and less than 1.25 million.

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