Targeting Women’s Employment: Do Employment Subsidies Work? Evidence from Turkey

Yasemin Dildar

Abstract
This paper examines the effect of the 2008 employment package on the gender employment gap in Turkey. The package introduced subsidies for the employment of women in all 81 provinces. However, positive discrimination was only effective in the provinces that did not benefit from social security contribution cuts under a previous subsidy scheme. Using a difference-in-differences analysis, I find that those provinces saw a 5.1 percent higher increase in the female share of employment in comparison with provinces where positive discrimination was not in force. Moreover, the effectiveness of the package is not lower in more conservative provinces, where conservatism is measured by the percentage of early marriages, gender inequality, and gender empowerment indices. The study concludes that the 2008 employment package was successful in closing the gender gap, even in more conservative provinces. By showing that a demand-side intervention can overcome the cultural constraints, it offers valuable insights to policy-makers interested in pursuing policies related to disadvantaged groups, particularly women.

JEL Classification: C31, J08, J21, Z10

Keywords
Difference-in-differences, employment subsidies, female share of employment, Turkey

1. Introduction
The Turkish economy has experienced poor employment performance over the past two decades. Despite rapid growth during the 2000s, the economy could not create a sufficient number of jobs, resulting in high unemployment and low labor force participation rates. Moreover, the Turkish labor market is highly gender segregated. There is a significant gender gap in employment as well as in labor force participation rates. In 2016, the employment rate for women was 28 percent while it was 65.1 percent for men, as displayed in Table 1. The gender gap in labor market
Outcomes is usually explained by a combination of social, economic and cultural factors. First, structural transformation and rural-to-urban migration contribute to the high and persistent labor force participation gap. Women who worked as unpaid family workers in rural areas withdrew from the labor force once they migrated to the city. Second, women’s reservation wage\(^1\) remains high in cities given the lack of subsidized childcare and preschool education. The expected market value of wages is usually lower than the reservation wage, especially for women who do not have a university degree. Finally, the Turkish labor market has a significant informal sector in which women are disproportionately concentrated (Table 1). This sector often does not offer decent pay or working conditions (Debeirmenci and Ilkkaracan 2013).

As an alternative to supply-side explanations based on either education or cultural values (Gündüz-Hosgör and Smits 2008; Göksel 2013; Güner and Uysal 2014; Dildar 2015), some researchers argue that lack of demand constrains job opportunities for Turkish women (Toksöz 2011; Ilkkaracan 2012). There has been little empirical research on this question, to date. Limited demand and low wages relative to their fallback position might explain withdrawal from the labor market in the urban areas by discouraging women from searching for jobs. Disguised unemployment, which accounts for people ready to work but not actively searching for jobs, including discouraged workers, is very high among women. In 2013, the total unemployment rate (open + disguised unemployment) was 22.6 percent for women while it was 12.7 percent for

Table 1. Main Labor Market Outcomes by Gender in the Turkish Economy.

<table>
<thead>
<tr>
<th></th>
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<tbody>
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<td><strong>Labor force participation rate (%)</strong></td>
<td></td>
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<tr>
<td>Total</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
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<td>41.7</td>
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<td>21.6</td>
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<tr>
<td>Total</td>
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<td>11</td>
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<td>10.9</td>
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<td>Male</td>
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<td>6.6</td>
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<td>8.7</td>
<td>9.6</td>
</tr>
<tr>
<td>Female</td>
<td>8.5</td>
<td>6.3</td>
<td>11.6</td>
<td>11.9</td>
<td>13.7</td>
</tr>
<tr>
<td><strong>Total unemployment rate (%)</strong>(^a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>10.4</td>
<td>11.1</td>
<td>17.4</td>
<td>15.9</td>
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<td>Male</td>
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<td>14.8</td>
<td>12.7</td>
<td></td>
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<tr>
<td>Female</td>
<td>12.3</td>
<td>12.6</td>
<td>23.9</td>
<td>22.6</td>
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<tr>
<td><strong>Informal employment rate (%)</strong>(^b)</td>
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<td></td>
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<tr>
<td>Total</td>
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<td>38.1</td>
<td>30.2</td>
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<tr>
<td>Female</td>
<td>n/a</td>
<td>69.8</td>
<td>58.4</td>
<td>52</td>
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</tr>
</tbody>
</table>

Source: TURKSTAT Household Labor Force Surveys.
Notes: \(^a\)Total unemployment = open + disguised unemployment. Disguised unemployment accounts for persons not looking for a job, yet ready to work if offered one: (i) Seeking employment and ready to work within 15 days, and yet did not use any of the job-search channels in the last 3 months; plus (ii) discouraged workers.
\(^b\)Informal employment ratio gives the number of not-registered workers as a percentage of total employment.

\(^1\)Reservation wage is defined as the lowest wage at which an individual would be willing to work. Reservation wage is generally higher for women with children, particularly preschool-age children because employment decisions would only make sense for them if their wages at least cover private childcare costs.
men (Table 1). In other words, higher labor demand in urban areas could raise women’s labor force participation and employment.

To improve labor market outcomes for women, in 2008 the Turkish government initiated an employment subsidy scheme targeting women. Employment subsidies are used to address unemployment in many advanced and developing countries. Subsidies specifically aimed at disadvantaged groups are common since they are believed to be more effective. Turkey has used various subsidy schemes to encourage job creation, the 2008 employment package being the only targeted one. The package included an arrangement that exempted employers from paying the social security contributions for newly hired women (aged over 18 years) and young men (aged between 18 and 29) for the first year, with the amount of exemptions gradually decreasing over the following five years.

In this paper, I analyze the impact of subsidies given for women and youth employment as part of the 2008 employment package. As an example of positive discrimination, the package provides a fruitful ground to research the importance of demand-related factors in determining women’s employment in Turkey. If there is a significant increase in women’s employment, especially in culturally conservative regions, as a result of increasing demand for female labor, the gender gap in employment cannot be attributed only to supply-side factors or patriarchal culture.2

My empirical analysis relies on a difference-in-differences estimation strategy using province-level monthly data from the Social Security Institution of Turkey. Other studies analyzing the impact of the 2008 employment package used household labor survey data, which do not have province-level employment information (Ayhan 2013; Uysal 2013; Cilasun, Acar, and Gunalp 2015; Balkan, Baskaya, and Tumen 2016). The 2008 employment package introduced cost reductions in the employment of women in all 81 provinces. However, positive discrimination was only effective in the provinces that did not already benefit from social security contribution cuts under a previous subsidy scheme.3 I investigate whether the package succeeded in closing the gender gap in employment in the provinces where the positive discrimination was effective. I find that those provinces saw a 5.1 percent increase in the female share of employment in comparison with provinces where positive discrimination was not effective. Moreover, the effectiveness of the package is found to be higher in the conservative provinces (although not statistically significant). I conclude that the 2008 employment package was successful in closing the gender gap, even in more conservative provinces.

This paper makes two important contributions. First, it explores the causal relationship between the 2008 employment package and the narrowing of the gender gap in employment. Second, it evaluates the effectiveness of the package, taking into account the influence of culture.

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2Patriarchy, however, does not affect women’s labor market outcomes simply by limiting their choice to enter the labor force. Patriarchal norms also determine the quality of jobs that women take and their relative pay. The government’s employment strategy for women in Turkey relies on increasing their participation without neglecting their care responsibilities at home. Therefore, flexible forms of employment are promoted for women (Toksöz 2012). This strategy, defined as “neoliberal-conservative patriarchy,” also becomes visible in government insistence on “at least three children” demand to reverse the decreasing trends in fertility (Çoşar and Yeğenoğlu 2011; Toksöz 2016). Women are seen primarily as mothers and part-time work is encouraged for them. On the other hand, the capital accumulation process requires the inclusion of women into the labor force for growing export-oriented and labor-intensive industries in competition with China, India, and Vietnam (Yaman Öztürk 2013). Women are seen as an ideal labor source because they are assumed to be less organized, obedient and submissive. Most importantly, they are cheaper. Subsidies targeting women’s employment should be understood in this context where the government has a tension between two goals: maintaining “strong families” by keeping women at home responsible for child and elderly care, and increasing competitiveness by using women as a cheap and exploitable labor force. These additional dimensions of government’s employment strategy for women need to be analyzed, but are beyond the scope of this paper.

3See section 3 for the timeline and beneficiaries of different subsidy schemes.
By showing that a demand-side intervention can overcome the cultural constraints, it offers valuable insights to policy-makers interested in pursuing policies related to disadvantaged groups, particularly women.

2. Employment Subsidies

Employment subsidies\(^4\) aim to lower labor costs. The basic idea behind the subsidies is to stimulate demand for a targeted group of workers, and to raise their employment and earnings by lowering the cost of employment. Employment subsidies can be implemented as direct wage refunds, or as credits to labor taxes such as social security contributions of employers.

As a response to high unemployment rates, many OECD countries have implemented employment subsidies to promote job creation. There is a rich body of empirical literature with mixed evidence on the efficiency of subsidies in creating employment (Betcherman, Daysal, and Pagés 2010; Heckman, Lalonde, and Smith 1999; Kluve 2010; Marx 2001; Huttunen, Pirtilla, and Uusitalo 2013). The literature on the impact of employment subsidies in the form of social security tax cuts for employers is particularly relevant for this study (Kramarz and Phillippon 2001; Goos and Koonings 2007; Bennmarker, Mellander, and Ockert 2008; Egebark and Kaunitz 2014; Huttunen, Pirttila, and Uusitalo 2013). Goos and Konings (2007) find that employment subsidies known as “Maribel subsidies” had a positive impact on manual employment in Belgium, the impact being larger for low-wage export industries. Kramarz and Philippon (2001), on the other hand, do not find any net jobs growth as a result of cuts in employers’ social security contributions of minimum-wage workers in France. Similarly, Bennmarker, Mellander, and Ockert (2008) find no employment effect after a reduction in payroll taxes introduced in 2002 in Sweden. Analyzing the impact of a Finnish low-wage subsidy scheme, Huttunen, Pirttila, and Uusitalo (2013) find that subsidies were not effective in increasing the employment of eligible workers, although they might have increased the working hours of the currently employed.

Subsidies targeting a specific group of workers seem to be more effective. For example, Katz (1998) finds that the Targeted Jobs Tax Credit program in the United States had a net employment effect of 7.7 percent on disadvantaged young workers. Galasso, Ravallion, and Salvia (2004) analyze the impact of a subsidy scheme targeting temporarily employed workers in Argentina and find that the employment effects were significant for women and youth. Di Liberto et al. (2013) find that employment subsidies targeting disadvantaged workers in the depressed Italian region of Sardinia increased the probability of finding a job for the participants, especially for women.

As a country with persistently high unemployment, Turkey has implemented several employment subsidy schemes in the form of social security cuts to employers. The first set of cuts came as part of broader incentive schemes that targeted specific provinces rather than a specific group of workers. To increase investment and employment opportunities in low-income provinces, the Turkish Government legislated three regional incentive schemes through Law 4325 (1998), Law 5084 (2004), and Law 5350 (2005). These policies had four components: reductions in employers’ social security contributions; credits on income taxes on wages; subsidies on electricity consumption; and land subsidies. Betcherman, Daysal, and Pagés (2010) find that these subsidy programs led to significant increases in formal jobs in the eligible provinces. Depending on the model specifications, they find that employment gains ranged from 5–13 percent for the subsidy scheme under the 2004 law, and from 11–15 percent for the subsidy scheme under the 2005 law.

The 2008 employment package targeted disadvantaged groups, women, and youth, and it applied to all provinces. It is important to evaluate not only the job-creation impact of this scheme but also the effects of this first demand-side positive discriminatory intervention in the labor

\(^4\)I use the term employment subsidies to refer to employer-side wage subsidies.
market. However, the existence of regional subsidies prior to the 2008 employment package complicates the analysis. In the provinces subsidized before 2008 with one of the regional schemes, the cost of formal employment was lowered for new hires, independent of gender. In other words, the positive discrimination in new hires introduced in 2008 was not effective in these provinces. The analysis below separates the provinces into two groups. The 32 provinces where positive discrimination for women was effective, since they did not benefit from any regional incentive schemes prior to 2008, form the treatment group, while the remaining 49 provinces form the control group.

There are several papers analyzing the impact of the 2008 employment package on women’s employment using microdata. Based on a descriptive analysis of monthly household labor force survey data, Uysal (2013) finds that employment subsidies positively affected the employment of women aged 30–44. The positive impact is especially visible among married women who have less than a high school degree. Using a descriptive “pre-post” methodology, Uysal relies on descriptive statistics, and her analysis does not attempt to establish causality, nor does it distinguish the 32 provinces that did not receive a subsidy prior to 2008 from the rest.

Using quarterly data for the period between 2006 and 2010 from the household labor force surveys, Ayhan (2013) analyzes the effect of the employment package through a difference-in-differences estimation strategy, and uses triple differences to eliminate the impact of the 2008 economic crisis. Although the average policy effect over the period is not statistically significant, she finds a significant effect in the quarters shortly after the policy announcement. Specifically, she finds that the probability of being hired for women aged 30–34 compared to men of the same age increased by 1.4 percent in the third quarters of 2008 and 2009, and by 1.6 percent in the fourth quarter of 2009. Due to the lack of provincial information in the household labor force surveys, however, she also studies the impact of the package across the country without focusing on those 32 provinces that experienced the positive discriminatory effect.

Balkan, Soner Baskaya, and Tumen (2016) use annual data from household labor force surveys for the years between 2004 and 2012. With a similar methodology, using the difference-in-differences estimation strategy, they find that the subsidies targeting women and young men did not increase these groups’ employment significantly. However, when they divide the treatment group into several subgroups based on demographics, they find a significant effect on the employment probability of older women. They find a weaker positive effect for the younger women but no effect for young men. Cilasun, Acar, and Gunalp (2015) use a different microdata set, the Income and Living Conditions Survey panel data for 2006 and 2010 and estimate Markov transition probabilities for individuals to move across different labor market states. They find that the subsidies targeting women and youth were effective in promoting employment of these groups. The positive impact was stronger for women; however, the advantage of women and young men in new hires disappeared after the coverage of the subsidies was extended to all workers.

In this study, I use a monthly panel of province-level employment data from the Social Security Administration of Turkey (henceforth SGK). The main advantage of using SGK data is that it makes it possible to analyze the impact of a policy package at the province level, thereby allowing differentiation between the 32 “treated” provinces and the rest. The main disadvantage of the SGK data, however, is the lack of age-bracket information for the employees. Because the social security cuts are given to employers under the 2008 employment package are for newly employed women (aged over 18 years) and young men (aged between 18 and 29), to study the impact on women one would ideally compare changes in employment of women and men above age 29. The impact of the package on women’s employment might be weakened by the substitution effect between women at any age and men in the age bracket 18–29 (or even by the

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5Women aged 30–34 form the treatment group in her analysis while men of the same age group form the control group.
substitution of younger women for older women). Especially in the occupations where gendered preferences are very strong, employers might prefer to employ young males that would limit the increase in female employment (Toksöz 2009). These limitations lead to underestimation of the impact of the package on the female share of employment.

Another issue is the timing of the employment package. It is difficult to assess the impact of legislation on female employment under crisis conditions, since economic crises might affect men and women in the labor market differently. To control the impact of the economic crisis, I use share of industry in GDP in provinces. I also analyze the changes in sectoral composition of female employment to see if some can be attributed to the differential impact of the crisis on manufacturing and services sectors.

3. The 2008 Employment Package and Other Active Labor Market Policies in Turkey

The 2008 employment package (Law No.5763) was introduced in May 2008 to encourage private sector employment, and it took effect in July 2008. The package sought to promote employment of two disadvantaged groups: women and young men. Under the new arrangement, employers were exempt from paying social security contributions for newly employed women (aged over 18 years) and young men (aged between 18 and 29). The exemption was planned to be phased out gradually over a five-year period. The Unemployment Insurance Fund would pay 100 percent of employers’ social security contributions for the first year, 80 percent for the second year, 60 percent for the third year, 40 percent for the fourth year, and 20 percent for the fifth year. Employers could benefit from this subsidy if they hired individuals from the target groups within the period between July 1, 2008, and June 30, 2010. In February 2011, the subsidies were extended until the end of 2015, and the coverage was extended to the employment of men who had occupational training or who were registered as unemployed in the Turkish Employment Agency (ISKUR).

The effect of the 2008 employment package on women’s employment, however, was limited by the presence of two other policies: regional employment subsidies and fiscal stimulus measures, introduced after the 2008 crisis. Table 2 presents the timeline and targeted beneficiaries of different active labor-market policies in Turkey. When the 2008 employment package was introduced, regional employment subsidies had been in effect in 49 low-income provinces. In these provinces the cost of formal employment was lowered for any new employees regardless of gender. The Unemployment Insurance Fund paid 100 percent of the employer’s social security contributions for the workplaces in organized industry zones, and 80 percent of social security contributions for other workplaces in these provinces. Therefore, we expect to see the impact of the 2008 employment package on women’s employment only in 32 provinces that did not benefit from regional incentive schemes. Additional measures were taken in August 2009 in response to the 2008 global economic crisis. Social security contributions of newly hired employees, regardless of gender were paid by the state for six months in all 81 provinces, and in January 2010 the duration of this subsidy was extended until June 2011.

In sum, owing to interactions with other government policies, the employment subsidies introduced by the 2008 employment package should be expected to positively affect women’s employment between July 2008 and August 2009 and after June 2011 until December 2015, and only in the 32 provinces that did not benefit from regional incentive schemes.

4. The Impact of the 2008 Global Economic Crisis

The economic crisis has been argued to be one of the factors that may explain the increase in female share of employment after the 2008 employment package. Toksöz (2009) analyzes the
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changes in the number of male and female workers covered by social security before and after the package. She finds that both male and female employment decreases, but that the decline in male employment is much larger. Therefore, we see an increase in the female share of employment. She argues that one factor that may explain this situation is that women working with social security coverage are concentrated in the services sector which was less affected by the crisis than manufacturing. Table 3 shows the number of persons covered by social security before and after the package. By the end of 2008, both male and female formal employment decreased, with the decline in male employment being larger. Table 4 shows that the female share of employment increased in both manufacturing and services during the six months after the employment package took effect. Moreover, in the second period (after June 2011) we expect the package to affect women’s employment share again. Between June 2011 and December 2015, the increase in female share of employment was larger in the manufacturing industry than services. These data, therefore, suggest that the rise in the female share of employment cannot be completely explained by the differential impact of the crisis across sectors.

Another explanation that has been advanced for the rising share of female employment after the economic crisis is the added-worker effect (World Bank 2013; Ayhan 2014; Değirmenci and İlkkaracan 2013). Using micro data from the Survey on Income and Living Conditions (2007–2010), Ayhan (2014) finds that husbands’ unemployment accounts for 54–64 percent of the observed increase in the probability of their wives’ labor force participation during the crisis. She finds that the added-worker effect emerges one quarter after the husband’s unemployment begins, is the greatest in the second quarter after the job loss, and phases out by the fourth quarter of unemployment. Değirmenci and İlkkaracan (2013) find a smaller added-worker effect using microdata from household labor force surveys for the 2004–2010 period. The husband’s unemployment increases the probability of a female homemaker entering the labor market by 6–8 percent. However, they find that the marginal effects of the unemployment shock are not higher in the crisis years. For example, the increase in the labor force participation probability of an inactive wife as a response to the husband’s unemployment is almost the same in 2007 and 2009.

While there is some evidence for the added-worker effect after the crisis, it should be observed in all provinces. When we look at the share of industry in GDP before and after the crisis, we see

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The added-worker effect refers to an increase in the labor supply of married women when their husbands become unemployed.

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Table 2. Timeline and Targeted Beneficiaries of Employment Subsidies under Different Policies.

<table>
<thead>
<tr>
<th>Policy</th>
<th>Date</th>
<th>Duration</th>
<th>Beneficiaries</th>
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<tr>
<td>The 2008 employment</td>
<td>July 2008 (Law #5763)</td>
<td>until July 2009</td>
<td>Women and young men 81 provinces</td>
</tr>
<tr>
<td>package</td>
<td>February 2009 (Law #5838)</td>
<td>extended until July 2010</td>
<td>Women and young men 81 provinces</td>
</tr>
<tr>
<td></td>
<td>February 2011 (Law #6111)</td>
<td>extended until December 2015</td>
<td>Women and young men (plus registered unemployed) 81 provinces</td>
</tr>
<tr>
<td>Regional incentive</td>
<td>1998 (Law #4325)</td>
<td>still in effect</td>
<td>Entire population 49 underdeveloped provinces</td>
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<td>schemes</td>
<td>2004 (Law #5084)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2005 (Law #5350)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crisis response measures</td>
<td>August 2009 (Law #5921)</td>
<td>until June 2011</td>
<td>Entire population 81 provinces</td>
</tr>
</tbody>
</table>

Source: Uysal (2013) provides a detailed summary of coverage and duration of the different policies.

<table>
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<tr>
<th></th>
<th>Jun-08</th>
<th>Dec-08</th>
<th>Jul-09</th>
<th>Jun-11</th>
<th>Dec-15</th>
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<tr>
<td>Male</td>
<td>7,133,431</td>
<td>6,774,527</td>
<td>6,929,944</td>
<td>8,365,871</td>
<td>10,133,702</td>
<td>9,949,970</td>
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<td>Female</td>
<td>2,054,574</td>
<td>2,028,462</td>
<td>2,083,405</td>
<td>2,680,038</td>
<td>3,865,696</td>
<td>3,825,218</td>
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<tr>
<td>Total</td>
<td>9,188,005</td>
<td>8,802,989</td>
<td>9,013,349</td>
<td>11,045,909</td>
<td>13,999,398</td>
<td>13,775,188</td>
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<td>Female share</td>
<td>22.36</td>
<td>23.04</td>
<td>23.11</td>
<td>24.26</td>
<td>27.61</td>
<td>27.77</td>
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Source: SGK.


<table>
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<tr>
<th></th>
<th>Jun-08</th>
<th>Dec-08</th>
<th>Jul-09</th>
<th>Jun-11</th>
<th>Dec-15</th>
<th>Dec-16</th>
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<td>Agriculture</td>
<td>16.15</td>
<td>16.01</td>
<td>16.92</td>
<td>19.06</td>
<td>27.89</td>
<td>24.48</td>
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<td>Manufacturing</td>
<td>20.12</td>
<td>20.22</td>
<td>19.83</td>
<td>20.59</td>
<td>22.29</td>
<td>22.09</td>
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<tr>
<td>Services</td>
<td>30.59</td>
<td>31.02</td>
<td>30.66</td>
<td>32.51</td>
<td>29.72</td>
<td>30.07</td>
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Source: SGK.


<table>
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<tr>
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<th>Treated Provinces</th>
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<td>2007</td>
<td>32.12</td>
<td>19.82</td>
</tr>
<tr>
<td>2008</td>
<td>31.94</td>
<td>20.59</td>
</tr>
<tr>
<td>2009</td>
<td>29.61</td>
<td>18.34</td>
</tr>
<tr>
<td>2010</td>
<td>30.71</td>
<td>19.12</td>
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<td>2011</td>
<td>33.41</td>
<td>21.01</td>
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<td>2012</td>
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<td>2013</td>
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<tr>
<td>2014</td>
<td>34.71</td>
<td>23.96</td>
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<tr>
<td>2015</td>
<td>34.9</td>
<td>22.93</td>
</tr>
<tr>
<td>2016</td>
<td>35.26</td>
<td>23.03</td>
</tr>
</tbody>
</table>

Source: TURKSTAT, Regional Account

similar rates of decline in treated and control provinces: The share of industry in provincial GDP shrank by 7.8 percent in the treated provinces and by 7.4 percent in the control provinces from 2007 to 2009 (Table 5). To identify the impact of the 2008 employment package, this paper analyzes the difference in the trends of female employment share in two groups of provinces in the aftermath of the economic crisis. Moreover, the second time period (between June 2011 and December 2015) of the analysis corresponds to the recovery period, where we would not expect the added-worker effect.

5. Data and Empirical Strategy

5.1 Data

I use monthly employment data from SGK to analyze the impact of the 2008 employment package on the female share of employment. Figure 1 presents the average share of female employment as a percentage of total formal employment in the 32 treated (where women’s employment
was subsidized with the 2008 employment package) and 49 control provinces (where regional subsidies were given for employment regardless of gender). The shaded areas are the time periods between July 2008 and August 2009 and between June 2011 and December 2015, where we expect to see a positive impact on women’s employment. There is a steady increase in female share of employment in treated provinces starting from July 2008 and continuing after July 2011, while such a trend is not observed for the control provinces.

Figure 2 shows the difference between average male and female employment, seasonality adjusted. In treated provinces, the difference between male and female employment begins to decline around July 2008, and the decline continues until May 2009. Similarly, there is a declining trend in the difference between male and female employment after June 2011. In the control provinces, there is a much smaller decline in the employment gap between July 2008 and April 2009 and the difference in male and female employment starts to decrease later in the second period (around September 2012 instead of June 2011).

One of the main claims of this paper is that a demand-side policy intervention can be effective in increasing women’s employment despite the constraining effects of culture. It is possible to observe a rise in female share of employment even in the conservative provinces after the employment package. For example, when we look at the changes in female share of employment in the most and least conservative provinces among the 32 treated provinces, we see similar growth rates. The increase in female share of employment is actually larger in the most conservative provinces compared with the most progressive ones. The main proxy I use for cultural values in this paper is the percentage of early marriages among women in the provinces. The female share of employment in Yalova (where the percentage of early marriages was only 15.73 in 2007) increased from 20.7 percent in July 2008 to 23.87 percent in December 2015. The female share

7Seasonality in employment might affect men and women differently. In an attempt to remove the seasonal effects, Figure 2 shows the differences in employment for each month in comparison to the previous year. In other words, it shows the series of (Male employment$_t$ – Female employment$_t$) – (Male employment$_{t-1}$ – Female employment$_{t-1}$). Uysal (2013) uses this method to remove seasonal effects with household labor force survey data.
of employment in Kırıkkale, where early marriage is quite common, 38.87 percent in 2007, increased from 10.6 percent to 20.22 percent (Table 6).

5.2 Estimation Methodology

As Figure 2 shows, the gender gap in employment narrows in the 32 treatment provinces. To investigate whether the employment package causes the improvement in women’s labor market position, I use a difference-in-differences estimation strategy. Specifically, I estimate the following model:

\[
\text{Female employment share}_{it} = \alpha + \beta_1 (\text{Treat}_i) + \beta_2 (\text{Post}_t) + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \beta_4 (\text{Province Demographics}_{it}) + \epsilon_{it}
\]

where \(i\) indexes the 81 provinces, and \(t\) indexes time. For employment share, I use monthly observations between 2007 and 2016. Demographic control variables for provinces are only available yearly between 2007 and 2016. These include the urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in GDP, and a cultural values proxy. I use the share of industry in GDP as control for the impact of the economic crisis. For the measure of culture used to distinguish conservative from progressive provinces, I use the percentage of early marriages (age 16–19) among women. Definitions of the variables and data sources can be found in Table A1 in the Appendix. \(\text{Treat}_i\) is a dummy variable taking on a value of 1 for the provinces that were not subsidized before the 2008 employment package (that is, provinces where we expect to see the impact of positive discrimination), and 0 otherwise. \(\text{Post}_t\) is equal to 1 for the months between July 2008 and August 2009 and the months between June 2011 and December 2015, and 0 otherwise. The coefficient on the interaction term \(\beta_3\) thus provides an estimate of the impact of the employment package on the female share of employment in 32 provinces between July 2008 and August 2009 and between June 2011 and December 2015.
To analyze the impact of culture, in a second set of regressions, I focus on the interaction of the treatment with the culture variable, using a dummy variable for conservatism. In addition to the percentage of early marriages, I use two other measures to classify provinces as conservative or progressive; a gender inequality index and a gender empowerment measure calculated by The Economic Policy Research Foundation of Turkey (TEPAV). Gender inequality index (GII) is created using province-level data for secondary and higher school graduation rates among women, female formal employment rate, women’s representation rate in municipal councils, share of teenage pregnancies among all pregnancies, and maternal mortality. The provinces with a higher GII index than the average among the treated are considered conservative. Gender empowerment measure (GEM) is created using the proportion of seats held by women in the parliament, percentage of women in economic decision-making positions (including administrative, managerial and professional occupations) and female share of income (earned incomes of women relative to men). The provinces with a lower GEM than average among the treated are considered conservative. Table 7 presents the averages of conservatism measures in treated versus control provinces.

To analyze the impact of culture, in a second set of regressions, I focus on the interaction of the treatment with the culture variable, using a dummy variable for conservatism. In addition to the percentage of early marriages, I use two other measures to classify provinces as conservative or progressive; a gender inequality index and a gender empowerment measure calculated by The Economic Policy Research Foundation of Turkey (TEPAV). Gender inequality index (GII) is created using province-level data for secondary and higher school graduation rates among women, female formal employment rate, women’s representation rate in municipal councils, share of teenage pregnancies among all pregnancies, and maternal mortality. The provinces with a higher GII index than the average among the treated are considered conservative. Gender empowerment measure (GEM) is created using the proportion of seats held by women in the parliament, percentage of women in economic decision-making positions (including administrative, managerial and professional occupations) and female share of income (earned incomes of women relative to men). The provinces with a lower GEM than average among the treated are considered conservative. Table 7 presents the averages of conservatism measures in treated versus control provinces.

The conservatism dummy is equal to 1 if the percentage of early marriages is greater than 19.74, GII is greater than 0.46, and GEM is smaller than 3. Thirteen provinces among the treated are classified as conservative. Using a triple interaction variable for treatment and culture, I estimate the impact of policy in relatively more conservative provinces in comparison with others among the treated ones. If the size of the impact in conservative provinces is not significantly lower than progressive ones, I can conclude that policy was successful despite the cultural constraint. I estimate the following model:

\[
Female \text{ employment share}_{it} = \alpha + \beta_1 (Treat_t) + \beta_2 (Post_t) + \beta_3 (Conservatism_t) + \\
\beta_4 (Treat_t \ast Post_t) + \beta_5 (Treat_t \ast Conservatism_t) + \\
\beta_6 (Post_t \ast Conservatism_t) + \beta_7 (Treat_t \ast Post_t \ast Conservatism_t) + \\
\beta_8 (Province \text{ Demographics}_{it}) + \epsilon_{it} \tag{2}
\]

Table 6. Change in Female Share of Employment in the Treated Provinces.

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Culture (2007)</th>
<th>Female employment share July 2008</th>
<th>Female employment share December 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progressive provinces (average)a</td>
<td>20.66</td>
<td>20.92</td>
<td>27.91</td>
</tr>
<tr>
<td>Conservative provinces (average)b</td>
<td>29.62</td>
<td>18.08</td>
<td>25.55</td>
</tr>
<tr>
<td>The five most progressive provinces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yalova</td>
<td>15.73</td>
<td>20.7</td>
<td>23.87</td>
</tr>
<tr>
<td>Eskisehir</td>
<td>17.14</td>
<td>20.96</td>
<td>29.5</td>
</tr>
<tr>
<td>Istanbul</td>
<td>17.63</td>
<td>26.09</td>
<td>31.04</td>
</tr>
<tr>
<td>Izmir</td>
<td>18.18</td>
<td>26.76</td>
<td>31.31</td>
</tr>
<tr>
<td>Bursa</td>
<td>19.57</td>
<td>24.89</td>
<td>29.94</td>
</tr>
<tr>
<td>The five most conservative provinces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kirikkale</td>
<td>38.87</td>
<td>10.65</td>
<td>20.22</td>
</tr>
<tr>
<td>Kayseri</td>
<td>34.73</td>
<td>13.31</td>
<td>20.3</td>
</tr>
<tr>
<td>Burdur</td>
<td>32.48</td>
<td>16.15</td>
<td>26.66</td>
</tr>
<tr>
<td>Konya</td>
<td>32.39</td>
<td>11.25</td>
<td>18.68</td>
</tr>
<tr>
<td>Hatay</td>
<td>31.29</td>
<td>13.78</td>
<td>21.13</td>
</tr>
</tbody>
</table>

Source: SGK data for female employment share and Household Labor Force Survey data for culture

a18 treated provinces where percentage of early marriages is lower than the national average (24.46)
b14 treated provinces where percentage of early marriages is higher than the national average (24.46)
The coefficient of the triple interaction term, $\beta_7$, gives us the impact of policy in conservative provinces relative to progressive ones.

A potential problem with this estimation strategy is that the identifying common trend assumption of the difference-in-differences logic may not hold, meaning that control and treatment provinces may have different pre-treatment trends for the outcome variable. To address this problem, I construct an alternative control group that consists of untreated provinces that have similar pre-treatment trends to the treated ones in the female share of employment. I estimate the following specification to choose these provinces:

$$\text{Female employment share}_{it} = \alpha + \beta_1 (\text{Treat}_i) + \beta_2 (\text{Month}_t) + \beta_3 (\text{Treat}_i \ast \text{Month}_t) + \epsilon_{it}$$

(3)

where $\text{Treat}_i$ is a dummy variable, taking 1 for treated provinces, $\text{Month}_t$ is month dummies, and $\epsilon_{it}$ is the error term. This specification analyzes changes in female share of employment during the pre-treatment period (January 2007–July 2008) relative to the control group. The untreated provinces for which an F-test that the interaction terms are jointly zero cannot be rejected at a 10 percent significance level form the alternative control group. The alternative control group consists of 34 provinces, while the natural control group has 49 provinces. The estimations are carried out using both control groups as a check on the robustness of the results.

### 6. Descriptive Statistics

Table 8 presents descriptive statistics for the treatment and control provinces. The average share of female employment as a percentage of total employment is 23.1 percent in the treated provinces, while it is 18.2 percent in control provinces. Recall that the control provinces are the low-income provinces receiving regional employment subsidies besides some other incentives to promote regional development (with Laws # 4325, 5084 and 5350). They are also less developed than the treated provinces in terms of other development indicators, with lower urbanization rates, lower education levels of women, higher fertility rates, and a higher prevalence of early marriage among women. As a result, the female share of employment is lower. For this reason, it is important to include demographic control variables as well as province-specific time trends in the econometric analysis.

<table>
<thead>
<tr>
<th>Percentage of early marriages</th>
<th>GII</th>
<th>GEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated Provinces</td>
<td>19.74</td>
<td>0.46</td>
</tr>
<tr>
<td>Control Provinces</td>
<td>27.55</td>
<td>0.51</td>
</tr>
<tr>
<td>Total</td>
<td>24.46</td>
<td>0.49</td>
</tr>
</tbody>
</table>


---

*Betcherman, Daysal, and Pages (2010) use the same methodology when analyzing the effect of regional subsidy schemes on employment.

*The following 15 provinces did not have the same pre-treatment trends and were excluded when forming the alternative control group: Artvin, Bingöl, Elazığ, Erzurum, Gümüşhane, Kütahya, Kahramanmaraş, Mardin, Siirt, Sivas, Urfa, Van, Bayburt, Batman, and Şırnak.*
Table 8. Descriptive Statistics.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Treated Provinces (32)</th>
<th>Control Provinces (49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female employment share</td>
<td>23.10</td>
<td>5.26</td>
</tr>
<tr>
<td>Total Employment</td>
<td>289432</td>
<td>587778</td>
</tr>
</tbody>
</table>

Demographic Control Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanization rate</td>
<td>79.06</td>
<td>16.99</td>
<td>3840</td>
</tr>
<tr>
<td>Share of industry in GDP</td>
<td>32.99</td>
<td>10.52</td>
<td>3840</td>
</tr>
<tr>
<td>Female high school graduates (%)</td>
<td>20.13</td>
<td>2.81</td>
<td>3840</td>
</tr>
<tr>
<td>General fertility rate</td>
<td>61.16</td>
<td>12.93</td>
<td>3840</td>
</tr>
<tr>
<td>Culture (% of early marriages)</td>
<td>19.74</td>
<td>6.08</td>
<td>3840</td>
</tr>
</tbody>
</table>

Table 9. Summary Statistics for Female Employment Share.

<table>
<thead>
<tr>
<th>Provinces</th>
<th>1st Period</th>
<th>2nd Period</th>
<th>3rd Period</th>
<th>4th Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Provinces</td>
<td>Mean</td>
<td>Std. dev.</td>
<td>Mean</td>
<td>Std. dev.</td>
</tr>
<tr>
<td>Treated Provinces (32)</td>
<td>18.01</td>
<td>5.43</td>
<td>19.03</td>
<td>4.69</td>
</tr>
<tr>
<td>Natural Control Provinces (49)</td>
<td>22.15</td>
<td>4.82</td>
<td>20.05</td>
<td>4.73</td>
</tr>
<tr>
<td>Alternative Control P. (34)</td>
<td>18.72</td>
<td>4.72</td>
<td>21.15</td>
<td>4.49</td>
</tr>
</tbody>
</table>

Table 9 shows the female share of employment during the four time periods. The second and fourth periods are where we expect the employment package to affect women’s employment. The female share of employment steadily increases in the treated provinces throughout all four time periods. In the control provinces, there is also a rise in the female share of employment from first to second period, but after the third period there is a decline. The increase in the female share of employment in both treated and control provinces in the second period (immediately after the 2008 employment package) may be due to the differential effects of the crisis on men’s employment, as explained above. After the third period, in the control provinces male employment starts to recover and the share of female employment begins to decline. In the treated provinces, on the other hand, the rise in the female share of employment continues between the third and fourth period.

7. Estimation Results

Table 10 reports the estimation results with both the natural and alternative control provinces. The first column presents results from a regression of the female share of employment on the policy (treatment) variable together with province and time dummies. The coefficient of 1.454 for the treatment variable (column 1) suggests that female share of employment increased by 7.9 percent more in the 32 provinces affected by the law than in the other 49 provinces, and by 6.5 percent more in comparison to the alternative control provinces (with a coefficient of 1.303).10 If

10The unconditional mean of the female employment share in the natural control provinces when the policy was not effective is 18.36: (1.454/18.36)×100 = 7.92 percent. The unconditional mean of female employment share in the alternative control provinces when the policy was not effective is 20.04: (1.303/20.04)×100 = 6.5%.
we allow treatment and control provinces to follow different trends by adding province-specific time trends to the model (Column 2), the estimated coefficient of the treatment variable decreases to 0.978, but it remains significant at the 99 percent confidence level, suggesting a 5.3 percent increase in the female employment share compared with the control provinces. An F-test of the hypothesis that province time trends are jointly zero is strongly rejected; therefore, I keep the linear trends in the estimations.

Additionally, I include a set of province-level demographic control variables that measure urbanization rate, share of industry in GDP, percentage of female high school graduates, general fertility rate, share of industry in gross value added, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. The 2008 employment package refers to the interaction term specified as Treat*Post.

As a robustness check, the same model is estimated using the female employment/male employment ratio as the dependent variable, instead of the female share of employment. Using a female/male employment rate would address the added-worker effect and potential substitutions between female workers and young male workers. Table A2 in the appendix presents the results which still show a positive, statistically significant effect of the impact of the employment package, similar to the main results in Table 10.

Table 11 presents the results for the second model with the interaction of the culture variable. The estimated impact of the treatment-culture interaction is positive, implying that the policy is actually

---


<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Female employment share</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Natural control provinces (49)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008 Employment Package</td>
<td>1.454***</td>
<td>0.978***</td>
<td>1.278***</td>
<td>0.945***</td>
</tr>
<tr>
<td></td>
<td>(0.264)</td>
<td>(0.167)</td>
<td>(0.223)</td>
<td>(0.154)</td>
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<tr>
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<td>no</td>
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<td>yes</td>
</tr>
<tr>
<td>Province and month dummies</td>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province × time trends</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>N</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
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<tr>
<td>R²</td>
<td>0.896</td>
<td>0.937</td>
<td>0.908</td>
<td>0.938</td>
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<tr>
<td><strong>Alternative control provinces (34)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008 employment package</td>
<td>1.303***</td>
<td>0.834***</td>
<td>1.114***</td>
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</tr>
<tr>
<td></td>
<td>(0.318)</td>
<td>(0.208)</td>
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<td>(0.193)</td>
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<td>Demographic controls</td>
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<td>yes</td>
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<tr>
<td>Province and month dummies</td>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
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<tr>
<td>Province × time trends</td>
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<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>N</td>
<td>7920</td>
<td>7920</td>
<td>7920</td>
<td>7920</td>
</tr>
<tr>
<td>R²</td>
<td>0.885</td>
<td>0.932</td>
<td>0.899</td>
<td>0.933</td>
</tr>
</tbody>
</table>

*Statistically significant at the 0.05 level, **at the 0.01 level, ***at the 0.001 level.

Notes: The dependent variable is female share of employment. Demographic control variables include urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in gross value added, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. The 2008 employment package refers to the interaction term specified as Treat*Post.

---

I thank one of the referees for this suggestion.

<table>
<thead>
<tr>
<th>Female employment share</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural control provinces (49)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Package*Culture</td>
<td>1.107***</td>
<td>0.484</td>
<td>0.968***</td>
<td>0.485</td>
</tr>
<tr>
<td></td>
<td>(0.390)</td>
<td>(0.264)</td>
<td>(0.311)</td>
<td>(0.244)</td>
</tr>
<tr>
<td>Employment package</td>
<td>0.396</td>
<td>0.407*</td>
<td>0.404*</td>
<td>0.386***</td>
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<tr>
<td>Province × time trends</td>
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<td>yes</td>
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<td>9720</td>
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<td>$R^2$</td>
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<tr>
<td>Employment Package*Culture</td>
<td>1.164*</td>
<td>0.591</td>
<td>1.040***</td>
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<td>(0.454)</td>
<td>(0.302)</td>
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<td>(0.284)</td>
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<td>Employment package</td>
<td>0.249</td>
<td>0.266</td>
<td>0.248</td>
<td>0.268*</td>
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<td>(0.206)</td>
<td>(0.134)</td>
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<td>7920</td>
<td>7920</td>
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<td>$R^2$</td>
<td>0.889</td>
<td>0.933</td>
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<td>0.934</td>
</tr>
</tbody>
</table>

*Statistically significant at the 0.05 level, **at the 0.01 level, ***at the 0.001 level.
Notes: The dependent variable is female share of employment. Demographic control variables include urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in gross value added, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. Employment package*culture refers to the triple interaction term Treat*Treat*Conservatism, and employment package is the interaction term specified as Treat*Treat. The other interactions are not shown in the table.

not less effective in conservative provinces. However, the culture interaction is not statistically significant in most of the specifications, including when the alternative control group is used. The coefficient of 0.485 in the full specification with province-specific time trends (Column 4) suggests that the increase in female share of employment as a result of the 2008 employment package in conservative provinces is 2 percent higher than the increase in the female share in progressive provinces, but again, this result is not significant.12 Table A3 in the appendix presents the estimations with female/male employment ratio as dependent variable, which are similar to the main results in Table 11. The evidence thus supports the argument that the 2008 employment package was successful in closing the gender gap in employment even in the more conservative provinces.

Finally, Tables A4 and A5 in the appendix present another set of estimations with an alternative definition of the treatment period. Since the exemption from paying social security contributions for the new hires was planned to phase out in five years, the 2008 employment package is assumed to be effective for the five years between July 2008 and July 2013. The Post dummy would be equal to one for the months between July 2008 and August 2009 and the months between June 2011 and July 2013. The results with this alternative treatment period are not qualitatively different from the results with the original treatment period. However, the size of the positive effect of the employment package on treated provinces is smaller than the estimations in Table 10.

12The unconditional mean of the female employment share in the treated progressive provinces when policy was effective is 24.17: (0.485/24.17) × 100 = 2 percent.
8. Conclusion

In this paper, I evaluate the success of a targeted subsidy scheme, the 2008 employment package, in closing the gender gap in formal employment. Using monthly province-level data from Social Security Institution in Turkey, I estimate the impact of the package on the female share of employment with a difference-in-differences model. The results suggest that the employment package was effective in increasing the female share of formal employment. When we look at the female employment share in the main sectors, the improvement is seen not only in services, relatively protected from the 2008 global economic crisis, but also in manufacturing. Moreover, with a triple-difference technique I show that the effect of the policy is higher in more conservative provinces in comparison with more progressive ones. That is, the policy was effective despite cultural constraints.

By analyzing the effects of a demand-side positive discriminatory policy, this study offers valuable insights for policymakers interested in promoting greater gender equality in developing countries. Previous research focusing on culture’s role in explaining the gender gap in labor-market outcomes acknowledges that weakening the impact of patriarchal culture on women’s labor supply can only be achieved in the long run with education and progressive work-family reconciliation policies. This paper shows that demand-side policies and positive discrimination can increase women’s employment in the short run. Moreover, women’s attitudes toward family and work life are closely related to their personal experiences; employed wives and mothers tend to have a more positive view of paid work. Therefore, facilitating women’s entrance to working life may also gradually change culture.

Appendix

Table A1. Definitions of Variables and Data Sources.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female employment share</td>
<td>(Female formal employment/Total formal employment)×100</td>
<td>SGK monthly statistics</td>
</tr>
<tr>
<td>Urbanization rate</td>
<td>(Population of city and district centers/Total population)×100</td>
<td>TURKSTAT annual statistics</td>
</tr>
<tr>
<td>Share of industry in GDP</td>
<td>(Value of industrial production/GDP)×100</td>
<td>TUKSTAT annual statistics</td>
</tr>
<tr>
<td>General fertility rate</td>
<td>(Number of births/15–49 age women population)×1000</td>
<td>TURKSTAT annual statistics</td>
</tr>
<tr>
<td>Culture proxy</td>
<td>Percentage of early marriages among women: (Marriages at the age of 16–19/Total marriages)×100</td>
<td>TURKSTAT annual statistics</td>
</tr>
<tr>
<td>Female primary school graduates (%)</td>
<td>(Number of primary school graduates/Female population)×100</td>
<td>TURKSTAT annual statistics</td>
</tr>
<tr>
<td>Female secondary school graduates (%)</td>
<td>(Number of secondary school graduates/Female population)×100</td>
<td>TURKSTAT annual statistics</td>
</tr>
<tr>
<td>Female high school graduates (%)</td>
<td>(Number of high school graduates/Female population)×100</td>
<td>TURKSTAT annual statistics</td>
</tr>
<tr>
<td>Female higher education (%)</td>
<td>(Number of higher school graduates/Female population)×100</td>
<td>TURKSTAT annual statistics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female/male employment ratio</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural control provinces (49)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008 Employment package</td>
<td>0.0208***</td>
<td>0.0123***</td>
<td>0.0186***</td>
<td>0.0124***</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.003)</td>
<td>(0.004)</td>
<td>(0.002)</td>
</tr>
<tr>
<td>Demographic controls</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province and month dummies</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province × time trends</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>N</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.760</td>
<td>0.799</td>
<td>0.770</td>
<td>0.800</td>
</tr>
</tbody>
</table>

**Alternative control provinces (34)**

| 2008 Employment package      | 0.0184*** | 0.0107*** | 0.0164*** | 0.0111*** |
|                              | (0.005) | (0.003) | (0.004) | (0.003) |
| Demographic controls         | no    | no   | yes  | yes  |
| Province and month dummies   | yes   | yes  | yes  | yes  |
| Province × time trends        | no    | yes  | no   | yes  |
| N                            | 7920  | 7920  | 7920  | 7920  |
| \( R^2 \)                    | 0.719 | 0.761 | 0.729 | 0.762 |

*Statistically significant at the 0.05 level, **at the 0.01 level, ***at the 0.001 level.

Notes: The dependent variable is female employment/male employment ratio. Demographic control variables include urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in GDP, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. The 2008 employment package refers to the interaction term specified as \( \text{Treati}^\ast\text{Postt} \).


<table>
<thead>
<tr>
<th>Female/male employment ratio</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural control provinces (49)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Package(^\ast)Culture</td>
<td>0.011</td>
<td>0.004</td>
<td>0.009</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.004)</td>
<td>(0.006)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Employment package</td>
<td>0.011*</td>
<td>0.007*</td>
<td>0.012*</td>
<td>0.008**</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.003)</td>
<td>(0.004)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Demographic controls</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province and month dummies</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province × time trends</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>N</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.762</td>
<td>0.800</td>
<td>0.771</td>
<td>0.800</td>
</tr>
</tbody>
</table>

**Alternative control provinces (34)**

| Employment Package\(^\ast\)Culture | 0.015 | 0.005 | 0.016* | 0.004 |
|                              | (0.008) | (0.005) | (0.007) | (0.005) |
| Employment package           | 0.008 | 0.006 | 0.007 | 0.007* |
|                              | (0.005) | (0.003) | (0.004) | (0.003) |
| Demographic controls         | no    | no   | yes  | yes  |
| Province and month dummies   | yes   | yes  | yes  | yes  |
| Province-specific time trends | no    | yes  | no   | yes  |
| N                            | 7920  | 7920  | 7920  | 7920  |
| \( R^2 \)                    | 0.721 | 0.762 | 0.730 | 0.762 |

*Statistically significant at the 0.05 level, **at the 0.01 level, ***at the 0.001 level.

Notes: The dependent variable is female employment/male employment ratio. Demographic control variables include urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in GDP, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. Employment Package\(^\ast\)Culture refers to the triple interaction term \( \text{Treati}^\ast\text{Postt}^\ast\text{Conservatismi} \), and employment package is the interaction term specified as \( \text{Treati}^\ast\text{Postt} \). The other interactions are not shown in the table.

<table>
<thead>
<tr>
<th>Female employment share</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Natural control provinces (49)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008 Employment package</td>
<td>0.276**</td>
<td>0.584***</td>
<td>0.219</td>
<td>0.547***</td>
</tr>
<tr>
<td></td>
<td>(0.102)</td>
<td>(0.118)</td>
<td>(0.115)</td>
<td>(0.123)</td>
</tr>
<tr>
<td>Demographic controls</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province and month dummies</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province × time trends</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>N</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.892</td>
<td>0.936</td>
<td>0.906</td>
<td>0.937</td>
</tr>
</tbody>
</table>

| **Alternative control provinces (34)** |              |              |              |              |
| 2008 Employment package  | 0.192        | 0.486***     | 0.136        | 0.430***     |
|                          | (0.115)      | (0.140)      | (0.139)      | (0.145)      |
| Demographic controls     | no           | no           | yes          | yes          |
| Province and month dummies | yes         | yes          | yes          | yes          |
| Province × time trends   | no           | yes          | no           | yes          |
| N                        | 7920         | 7920         | 7920         | 7920         |
| $R^2$                    | 0.882        | 0.931        | 0.897        | 0.932        |

*Statistically significant at the 0.05 level, **at the 0.01 level, ***at the 0.001 level.

Notes: The dependent variable is female share of employment. Demographic control variables include urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in GDP, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. The 2008 employment package refers to the interaction term specified as Treatᵢ∗Postᵢ. As a robustness check, the treatment period is defined as July 2008–August 2009 and June 2011–July 2013 in this set of regressions.

<table>
<thead>
<tr>
<th>Female employment share</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Natural control provinces (49)</td>
<td>Alternative control provinces (34)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Package*Culture</td>
<td>0.067</td>
<td>0.011</td>
<td>0.035</td>
<td>0.055</td>
</tr>
<tr>
<td></td>
<td>(0.213)</td>
<td>(0.220)</td>
<td>(0.222)</td>
<td>(0.228)</td>
</tr>
<tr>
<td>Employment package</td>
<td>0.264</td>
<td>0.420*</td>
<td>0.214</td>
<td>0.348*</td>
</tr>
<tr>
<td></td>
<td>(0.150)</td>
<td>(0.143)</td>
<td>(0.164)</td>
<td>(0.139)</td>
</tr>
<tr>
<td>Demographic controls</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province and month dummies</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Province × time trends</td>
<td>no</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>N</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
<td>9720</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.894</td>
<td>0.936</td>
<td>0.906</td>
<td>0.937</td>
</tr>
</tbody>
</table>

$^*$Statistically significant at the 0.05 level, **at the 0.01 level, ***at the 0.001 level.

Notes: The dependent variable is female share of employment. Demographic control variables include urbanization rate, percentage of female high school graduates, general fertility rate, share of industry in GDP, and percentage of early marriages among women as a proxy for culture. Ordinary least square estimates are given. Huber–White robust SEs in parentheses allow for arbitrary correlation of residuals within each province. Employment Package*Culture refers to the triple interaction term $\text{Treat}_i\ast\text{Post}_t\ast\text{Conservatism}_i$, and employment package is the interaction term specified as $\text{Treat}_i\ast\text{Post}_t$. The other interactions are not shown in the table. As a robustness check, the treatment period is defined as July 2008–August 2009 and June 2011–July 2013 in this set of regressions.

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ORCID iD
Yasemin Dildar https://orcid.org/0000-0002-3718-8567

References


Author Biography

Yasemin Dildar is an assistant professor of economics at California State University, San Bernardino. She earned her M.A. in Economics from Middle East Technical University in Turkey and she received her Ph.D. in Economics from University of Massachusetts Amherst. Her research focuses on gender and development, macroeconomics and labor economics. She has published in journals such as World Development, Social Science History and Review of Radical Political Economy. Her most recent research projects focus on economic empowerment and intimate partner violence in Turkey, and gendered patterns of industrialization in the MENA region.