Women’s Murders and the Economy in Turkey: A Subnational Analysis

Kerim Can Kavakli∗†

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Abstract

This paper conducts the first systematic analysis on why women’s murders (femicide) are more common in some localities than in others across Turkey, a country with a high and increasing number of women’s murders. I use province-level data from 2010-2017 and explore the importance of several socio-economic, cultural, and political factors. I find that a province’s ethnic composition, divorce rate, gender equality in education, and level of economic development are significant predictors of women’s murders. My main finding is that whether economic development reduces femicide depends on other factors: in poorer provinces there is a strong positive correlation between women’s murders and equality in education and divorce rates, but in richer provinces these associations are significantly weaker. These results are consistent with the idea that economic development may not reduce women’s murders by itself, but it can mitigate the effects of male backlash against women who challenge the status quo. The policy implication of this study is that pro-development policies may save more lives if they target those poorer provinces that also carry these additional risk factors.

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Violence against women is unfortunately a common problem around the world. Although comparable cross-national studies are rare, one survey covering 10 countries found that the percentage of women who reported suffering physical or sexual violence by an intimate partner ranged between 15-70% across countries (Garcia-Moreno et al., 2005). The true level of violence is certainly even higher considering the possibility of underreporting by respondents and the fact that perpetrators of violence are not limited to intimate partners. The most extreme form of violence against women is women’s murders. According to the United Nations Office on Drugs and Crime (UNODC), “gender-related killings of women and girls remain a grave problem across regions, in countries rich and poor”, where “gender-related killings” (also called femicide) means the murder of women committed “because of the gender roles assigned to women.” (UNODC 2018, 3, 24).

Violence against women is common in Turkey as well. According to a 2015 survey conducted in Turkey, 38% of women who were married reported experiencing physical or sexual violence from their partner at least once (Yüksel-Kaptanoğlu, Çavlin and Ergöçmen, 2015). Again, considering that the survey relies on self-reports and asks only about violence by intimate partners, we can infer that the true level of violence against women in Turkey is higher. Turning to women’s murders, although reliable statistics are difficult to find, both government officials and civil society organizations agree that hundreds of gender-related killings are committed in Turkey every year and this number has been increasing.¹ Understanding the factors that contribute to this problem and why more women are murdered in some places than others can help us combat the problem effectively.

In this paper I conduct the first systematic analysis on why more women are killed in some provinces of Turkey than in others. Although there are many studies on violence against women in Turkey, systematic studies on its most extreme form, murder, are rare. This is an important omission, because there are good reasons to suspect that the determinants of murder and other forms of violence are different. For this reason, this paper aims to explain subnational variation in women’s murders in Turkey. In my statistical analysis I investigate the associations between various socio-economic, cultural and political factors and the frequency of women’s murders. My data on women’s murders come from the Male Violence Tally (Erkek Şiddeti Çетеlesi) compiled by

¹
My analysis shows that a province’s ethnic composition, level of economic development, divorce rate, and gender equality in education have statistically significant associations with the number of women’s murders. Starting with cultural factors, the percentage of people of Kurdish ethnicity is positively related to the number of women’s murders. However, after controlling for other factors, I do not find a strong relationship between women’s murders and religiosity or past exposure to civil war.

My main finding is that economic development can mitigate the negative effect of other risk factors. In poorer provinces, a higher divorce rate or greater gender equality in education is associated with a greater number of women’s murders. However, in richer provinces these factors do not seem to have an effect. In other words, all else equal, the greatest number of women are murdered in poorer provinces with a high divorce rate or greater gender equality in education.

The paper proceeds as follows. The next section provides a brief overview of the related literature and highlights this paper’s contribution to the literature on violence against women, and more specifically, women’s murders. In section 3 I present my theoretical framework and hypotheses. Section 4 describes my data and research design. In section 5 I present the results of my main statistical analysis and robustness checks. The final section concludes with a discussion of the limitations and implications of my paper.

Related Literature

This paper is most closely related to the literature on violence against women, and more specifically, women’s murders. Most systematic studies on violence against women are survey-based, both globally (e.g. Heise 1993, Bachman and Saltzman 1995, Watts and Zimmerman 2002, Devries et al. 2013), and in the Turkish context (e.g. Altinay and Arat 2009, Jansen, Üner and Kardam 2009, Yüksel-Kaptanoglu, Çavlin and Ergöçmen 2015). Previous studies have provided valuable insights on the prevalence of violence against women and the attitudes that people hold about violence. More recently, researchers have used survey data to investigate which individual-level factors have a causal effect on violence against women (Erten and Keskin Forthcoming 2018, Gulesci 2017).

This paper’s first contribution to this literature is to study variation across geographical space.
For policymakers, understanding the local characteristics that make women more vulnerable to violence is important. Geographically disaggregated analyses can help policy-makers better select which programs to implement in an area given its characteristics. Moreover, a baseline model of femicide can help in evaluating the effectiveness of new policy interventions. In other words, it is important to complement studies on individual predictors of violence with studies on its local determinants.\(^3\)

A second contribution of this paper is to focus specifically on the most extreme form of physical violence: murder. Certainly, all forms of violence are destructive and should be addressed. However, murder and other forms of violence are qualitatively different studies focusing on specifically the correlates of women’s murders are needed. Most previous works on femicide describe trends in its frequency over time or the shared characteristics of victims (e.g. Frye et al., 2005; Abrahams et al., 2013; Stöckl et al., 2013). Studies on the risk factors associated with femicide compare femicide victims to victims of domestic violence who were not murdered (e.g. Dobash et al., 2007; Campbell, Webster and Glass, 2009). This research design is not feasible in Turkey, because data on victims of domestic violence that researchers can link to murder victims is not available. In addition, as argued above, it will be valuable to complement individual-level studies with research designs that focus on geographical variation and contextual factors.

Currently, to my knowledge, there are no studies on why more women are murdered in some parts of Turkey than in others. Until recently researchers were hindered by the lack of systematic data on women’s murders. However, recent efforts by civil society organizations to compile lists of women’s murders from the news media (discussed below) have overcome this limitation.

In short, this paper makes an empirical contribution to the literatures on violence against women and women’s murders by conducting the first systematic analysis on why more women are murdered in some parts of Turkey than in others.

**Theoretical Framework**

In this section I present my theoretical framework and draw testable hypotheses on the socio-economic, cultural, and political factors that may affect the number of women’s murders.

*The Role of Socio-Economic Factors*
Economic factors certainly have a strong but complicated effect on violence against women. Theoretically, an increase in a woman’s economic opportunities can reduce violence: a woman who earns more has greater ability to leave an abusive relationship, which, in turn, should lower her abuser’s willingness to use violence (Tauchen, Witte and Long, 1991; Farmer and Tiefenthaler, 1997). However, women with higher earnings may experience a backlash and more violence. A husband or boyfriend who feels that his masculine identity is threatened by his partner’s employment may resort to violence to reclaim this status and feel better (Macmillan and Gartner, 1999). More importantly, even after leaving an abusive relationship a woman may be targeted by former partners or family members who seek to punish her for breaking social norms. There are several examples of such revenge or honor killings of divorced women in Turkey (Sev’er and Yurdakul, 2001). In other words, women who challenge the status quo risk violent male backlash. Better economic opportunities for women may result in more murders if women who dare to assert their independence do not have the means to escape their abusers completely.

These arguments suggest the following relationship between economic development and the frequency of women’s murders. I expect fewer murders under two conditions: (1) women do not challenge the status quo and there is nothing for men to lash back at, and (2) women do challenge the status quo, but economic development is high and allows women to escape male backlash. In contrast, I expect a higher number of women’s murders when women challenge the status quo, but economic development and women’s means of escape are low.

What are the indicators of women challenging the status quo? Unfortunately, there does not exist a direct measure of how many women are threatened by men. For this reason, I turn to proxy variables. One indicator is a high divorce rate. Holding constant the percentage of woman-initiated divorces, a higher divorce rate means a higher number of disgruntled former spouses. If divorced women are unable to escape their abusers due to a lack of economic means, then we may observe a higher number of women’s murders.

Another correlate of women challenging the status quo is equality in job opportunities proxied by gender equality in education. Places where the average level of education is similar between men and women may offer women more job opportunities. Across Turkey women are less educated than men, but in some provinces this gender gap is small and in others it is high. For instance, in 2017 the difference between men and women in terms of finishing high school or university
varied between 4% and 17%. Moreover, equality in education is not strongly correlated with either (logged) GDP per capita or the percentage of women who finished high school or university. In other words, there is considerable variation in gender equality in education, which may serve as a useful proxy for women’s job opportunities and the risk of male backlash.

Based on these arguments I will explore whether there are interactive effects between the strength of local economy, the effects of divorce rates and gender equality of education.

*The Role of Cultural Norms*

Culture, and more specifically, norms about gender relations, is another important determinant of how women are treated in a society. Norms that assign men primary power over women in the society and normalize the use of violence for norm enforcement will legitimize violence against women. Under such norms murder will occur more frequently as well. For example, honor killings are often committed by a woman’s relatives to punish her for an alleged sexual impropriety (Sev’er and Yurdakul 2001, 965). Women’s status and attitudes toward violence against women vary across groups. In the Turkish context, several studies have found that attitudes toward and levels of violence against women vary dramatically across the country (e.g. Altınay and Arat 2009).

Ideally we would measure attitudes toward women and violence directly using survey data, but such data does not exist at the province level in Turkey. In its absence, I use indicators of the level of religiosity in a province and its ethnic composition. Consistent with this approach, Sarigil and Sarigil (2020) report that in Turkey, Kurdish people and more religious people hold more strongly patriarchal attitudes, which means that these indicators are correlated with the relevant attitudes.⁵

Based on these ideas I will explore whether the number of women’s murders varies with the ethnic composition and the level of religiosity in a province.

*The Role of Political Violence*

The final factor I consider is the legacy of political violence. The civil war in Southeastern Turkey has caused thousands of casualties, internally displaced people, and economic destruction. Scholars have found increased levels of mental health problems and domestic violence in post-civil conflict countries (e.g. Ostby, Leiby and Nordas 2019). Moreover, the widespread availability of small arms in conflict and post-conflict environments can contribute to violent crime and interpersonal violence.
Although I expect a positive relationship between civil war exposure and women’s murders, in the period under study there was a temporary ceasefire (2013-2015) between the Turkish state and the PKK. I expect the effect of past exposure to the civil war to be weaker in this period of relative peace.

**Data and Methods**

To analyze why some localities in Turkey experience more women’s murders than others, I construct a dataset where the unit of analysis is a province-year. My dependent variable is the number of women’s murders. The data come from the Male Violence Tally (Erkek Şiddeti Çetelesi) compiled by the online publication Bianet from online and print news media. Bianet’s tally has important advantages over alternative data sources in terms of scope and coverage. Firstly, consistent with related literature, it strives to include only those murders that are gender-related killings and exclude other types of female deaths. For instance, it does not include women murdered by people with mental illness or in an incident where they were not the primary target. Likewise, the tally does not include deaths where it is not clear that the murder is gender-related, because the perpetrator is not caught or the death happened under suspicious but unclear circumstances. In contrast, the tally kept by the We Will Stop Femicide Platform is more inclusive and includes the latter types of women’s deaths. In this study I choose to err on the side of caution and use Bianet’s tally, which is strictly a database of gender-related killings. Secondly, Bianet’s tally covers a longer time period than its alternatives. Its monthly coverage begins in June 2009, which means that we have complete yearly data starting in 2010. In contrast, the list compiled by the We Will Stop Femicide Platform does not provide province-level data for the years before 2013 and the recent list published by Taştan and Yıldız (2019) covers only the years 2016-2019. Given its advantages in terms of scope and coverage, in this study I use Bianet’s tally of women’s murders.

Although the dataset includes the precise date of murders and the districts in which they were committed, I have to conduct the analysis at a more aggregate (province-year) level, because sufficiently disaggregated data on the explanatory variables is not available. The dependent variable takes values between 0 and 46. My findings are robust to including only those murders committed by an intimate partner (including former partners) or a family member (including in-laws).
Figure 1: Number of Women’s Murders per 100,000 (2010-2017)

This graph shows the total number of women’s murders (adjusted for province population) across Turkey between 2010-2017.

Summary statistics for this variable and the independent variables are in Table A.1 in the appendix.

Figures 1 and 2 present the geographical and temporal distributions of women’s murders in my sample. Figure 1 shows the (population-adjusted) number of women’s murders across Turkey. Although the highest numbers of murders are committed in the most populous provinces, once we adjust for population, provinces that fall in the top quartile are spread across Turkey. Figure 2 shows the total number of women’s murders for each year. It confirms the upward trend in women’s murders although there was a drop in 2012.

One concern with this list of women’s murders collected from the news media is murderers may attempt to cover up their crime as an accident or suicide. Although it is impossible to compile a perfectly complete list of women’s murders, there are reasons to believe that underreporting does not bias our results. Firstly, to the extent that the determinants of frequency of reported and unreported murders are similar, this is a problem of random missing data and will not bias the results. Secondly, I have studied data from the Turkish Statistical Institute (TSI) to see if there is a suspicious increase in female suicides over the years coinciding with increased public awareness, but there does not seem to be such an upward trend. In fact, according to official records, in Turkey the number of women committing suicide has fallen in recent years. Unfortunately, data on accidental deaths of women is not publicly available. However, for the reasons given above I do
not believe that underreporting biases the results significantly.

My independent variables are measured as follows. To measure the strength of the economy I use the (logged) GDP per capita (in inflation-adjusted Turkish Liras) in a province. The data come from the TSI. As robustness checks, I include the percentage change in GDP per capita and unemployment rate in my models. These variables are not significant and, according to Akaike Information Criteria values, their inclusion does not improve the model significantly.

To measure gender equality in education attainment I subtract the percentage of men who finished high school or university from the percentage of women who finished high school or university. This variable, named *Gender Equality in Education*, takes higher values in provinces where women’s educational attainment is closer to men. Data on education is obtained from the TSI.

Data on divorce rates also comes from the TSI. For every observation I calculate the average divorce rate (i.e. number of divorces per 1000 people) in the last five years. The reason for looking at the previous five years is to account for the accumulation of divorced partners.

To capture cultural differences I use data on ethnicity and religiosity. To measure the former, I obtain data from the 2008 Demographic and Health Survey ([Hacettepe University Institute of Population Studies, 2009](#)) on the percentage of people whose mother tongue is Turkish, Kurdish, Arabic or other. I combine the latter two categories, which are very small (on average 1%). Leaving
this combined “other” as the baseline category, I include the percentage of Turkish and Kurdish
speakers in the models as measures of ethnic composition at province level.

My measure of religiosity is the number of mosques (per 1000 people) in a province.\textsuperscript{11} Data on
mosques come from the Directorate of Religious Affairs (\textit{Diyanet İşleri}) website.\textsuperscript{12}

I measure a province’s exposure to the civil war using the (logged) number of war-related killings
that occurred in a province between 1984 and 2010. The data come from the Turkish-Kurdish
Conflict Event Dataset collected by \textcite{Kibris2020}. One limitation of this \textit{Civil War Exposure}
variable is it does not take into account people who were exposed to war and then moved elsewhere.
In particular, researchers have found that domestic violence is common among internally displaced
groups and military veterans who experienced trauma \textcite{Gulesci2017,MiscaForgey2017}. In
the absence of province-level data on internal displacement and military veterans, my \textit{Civil War
Exposure} measure is appropriate for testing differences between provinces that experienced the
conflict directly and those that were exposed to it indirectly. I create a \textit{Ceasefire} indicator that
takes the value of 1 in years 2013 and 2014, and 0 otherwise. I interact this variable with \textit{Civil
War Exposure}. Note that the constituent term \textit{Ceasefire} does not appear in the regression tables,
because the year dummies subsume its effect.

Lastly, in all models I include year dummies. These dummies control for factors that affect
the whole country simultaneously. For instance, over the years awareness about gender-related
violence has increased across Turkey. According to the DHS, whereas in 2003 45\% of women from
the Central East Anatolia region listed at least one situation that justifies a husband beating his
wife \textcite{HacettepeUniversityInstituteofPopulationStudies2004,195}, by 2013 this number fell to
22\% \textcite{HacettepeUniversityInstituteofPopulationStudies2014,185}. Less tolerance for domestic
violence may have reduced the number of women’s murders relative to the counterfactual. Although
I cannot measure this factor directly, including year dummies reduces the threat of omitted variable
bias.

Another factor captured by year dummies is government policy. For instance, in 2011 Turkey
signed the Istanbul Convention, which went into effect in 2014. Although the effects of this con-
vention are not the focus of my paper, it is important to control for any changes in state policies
after it was signed. By including year dummies my models control for policy changes that apply
to the whole country.
My preferred estimator is the Negative-Binomial, because the dependent variable is a count of events and overdispersed. Since I expect larger provinces to experience more events, I use province population as my “exposure” variable. In all analyses I cluster robust standard errors at the province level.

Results

Table 1 presents the regression estimates. Model 1 includes only the constituent terms. Model 2 includes the interaction terms and is my preferred specification. The lower AIC value of Model 2 (relative to Model 1) suggests that the interaction terms improve model fit and including them is appropriate. When I calculate the predicted number of women’s murders for each observation based on these coefficients, the correlation between the actual and predicted values of the dependent variable 0.93, which again suggests that Model 2 has high explanatory power. Finally, Model 3 uses the same model specification, but a more restricted dependent variable: it includes only those murders committed by an intimate partner or family member of the victim. Many studies on violence against women are focused on violence by intimate partners and family members, which makes it important to show that my findings hold in this subsample. The estimates in Model 2 and Model 3 are similar, which suggests that the findings in Model 2 are not sensitive to the murderer’s identity. In short, Model 2 is robust and has high explanatory power in explaining the data. For these reasons, my discussion of the substantive effects will focus on Model 2.

Starting with cultural factors, there is a positive and statistically significant correlation between women’s murders and the percentage of people of Kurdish ethnicity in a province. This association between Kurdish ethnicity and women’s murders is consistent with a link between patriarchal norms and women’s murders. Since the Negative-Binomial is a nonlinear estimator I turn to graphical methods to discuss effect sizes. Figure 3 shows the change in the (predicted) number of women’s murders as we vary Percentage of Kurdish Mother-Tongue. Following Hanmer and Ozan Kalkan (2013), I hold other variables at their observed values when calculating effect sizes. According to Figure 3 as the percentage of people of Kurdish ethnicity rises from 0 to 100, the predicted number of women’s murders increases from 3 to 8. However, since there are few provinces where people of Kurdish ethnicity make up a majority, the confidence interval around the estimates become...
Table 1: Determinants of Women’s Murders in Turkey

<table>
<thead>
<tr>
<th></th>
<th>No interaction terms (1)</th>
<th>Includes interaction terms (2)</th>
<th>Killer is int. partner or fam. memb. (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Turkish Mother-Tongue</td>
<td>0.005 (0.004)</td>
<td>0.006 (0.005)</td>
<td>0.005 (0.005)</td>
</tr>
<tr>
<td>Percentage of Kurdish Mother-Tongue</td>
<td>0.006* (0.004)</td>
<td>0.011** (0.005)</td>
<td>0.011** (0.005)</td>
</tr>
<tr>
<td>Mosques Per 1000 People</td>
<td>-0.000 (0.071)</td>
<td>0.029 (0.059)</td>
<td>0.035 (0.060)</td>
</tr>
<tr>
<td>Civil War Exposure</td>
<td>-0.013 (0.030)</td>
<td>0.026 (0.034)</td>
<td>0.027 (0.037)</td>
</tr>
<tr>
<td>Civil War Exposure × Ceasefire</td>
<td></td>
<td></td>
<td>0.061** (0.029)</td>
</tr>
<tr>
<td>GDP Per Capita</td>
<td>-0.402 (0.272)</td>
<td>-0.892** (0.445)</td>
<td>-0.834* (0.493)</td>
</tr>
<tr>
<td>Divorce Rate in Past 5 Years</td>
<td>0.413** (0.129)</td>
<td>2.473** (0.802)</td>
<td>2.568** (0.841)</td>
</tr>
<tr>
<td>GDP Per Capita × Divorce Rate</td>
<td></td>
<td></td>
<td>-0.444** (0.175)</td>
</tr>
<tr>
<td>Gender Equality in Education</td>
<td>2.781 (2.243)</td>
<td>73.661** (20.916)</td>
<td>72.455** (22.846)</td>
</tr>
<tr>
<td>Constant</td>
<td>-11.688** (1.106)</td>
<td>-9.775** (1.912)</td>
<td>-10.068** (2.094)</td>
</tr>
</tbody>
</table>

Year dummies: Yes  Yes  Yes
N: 648 648 648
AIC: 2211.1 2176.1 2153.7

Province-clustered s.e. are in parentheses. * p < 0.1, ** p < 0.05.

**Estimator**: Negative-Binomial.

*Total Population* is the *exposure variable*.

very large beyond 50%. In other words, although Kurdish ethnicity and women’s murders are statistically related, the effect size is uncertain.

The other two indicators of culture in my model (*Percentage of Turkish Mother-Tongue* and *Mosques Per 1000 People*) both have positive coefficients, but neither approaches statistical significance. For this reason we cannot say with confidence that there is an association between these
This graph shows the estimated number of women’s killings (with 95% CI) as we vary \textit{Percentage of Kurdish Mother-Tongue}. Other variables are set at their observed values. Estimates are based on Model 2 in Table 1.

Next, I turn to the relationship between civil war exposure and women’s murders. In Model 2, \textit{Civil War Exposure} and \textit{Civil War Exposure} \times \textit{Ceasefire} are both positive, but only the latter is statistically significant. This means that during war years (when there is no ceasefire) we predict similar levels of femicide in provinces with low and high exposure to war. However, during ceasefire years, the predicted number of women’s murders in a province with high past exposure (e.g. Bitlis) is twice as large relative to a province with very little exposure.\footnote{One possible explanation for this pattern is misreporting: perhaps, while the war is ongoing, women’s murders are reported less in provinces that experienced the civil war more heavily. This explanation predicts a rise in women’s suicides in war-afflicted provinces after the war reignites in 2015. I explore this possibility using province-year data on suicides (obtained from the TSI), but find no evidence for it. I leave this puzzle as an area of future research. To ensure that data problems do not bias my other findings}
in this paper, in the appendix I report analyses that exclude provinces that were in the region of state of emergency (known as *OHAL* in Turkish) between 1987-2002.

What is the effect of the economy on women’s murders? In Model 2, both *GDP Per Capita* and its interactions with *Gender Equality in Education* and *Divorce Rate in Past 5 Years* are statistically significant. This implies that the effect of the economy depends on these two factors. To understand these relationships better, I turn to Figures 4 and 5 where I plot the predicted number of women’s murders in provinces with low and high GDP per capita for different values of *Gender Equality in Education* (Figure 4) and *Divorce Rate in Past 5 Years* (Figure 5).

In both figures provinces with low and high GDP per capita differ significantly from each other. According to Figure 4, in poor provinces the expected number of murders increases as the gender gap in education closes. For a poor province with a low level of equality in education (e.g. Sırnak in 2015, gender equality level -0.14) the expected number of murders is two, whereas for another poor province with a smaller gender gap in education (e.g. Hatay in 2015, -0.06) the expected number of murders is six. In contrast, in rich provinces, there is only a slight change in the expected number of murders as we vary gender equality in education. In short, all else equal, we expect the highest number of murders in poor provinces where the gender equality in education is high.

Likewise, according to Figure 5 in poor provinces divorce rates are strongly correlated with women’s murders. In rich provinces, however, the relationship is weaker. The highest number of murders are expected in poor provinces with a high divorce rate. The expected number of murders in a a poor province with a low divorce rate (e.g. Erzurum in 2015, divorce rate 0.6) is two whereas this number reaches six for a province with a smaller GDP per capita but a high divorce rate (e.g. Balıkesir in 2015, 1.96).

So far I have discussed marginal effects at the province level. Figure 6 uses a different strategy to interpret effect sizes. It shows the predicted total number of women’s murders in Turkey if the whole country was one province. Here the value of each variable is set to its national average in 2017. Figure 6 shows how the predicted total number varies as I vary one or two variables at-a-time. The vertical dashed line marks 285, which was the actual number of women’s murders in my sample in 2017.
This graph shows the estimated number of women’s killings (with 95% CI) as we vary *Gender Equality in Education* and *Province GDP Per Capita*. Other variables are set at their observed values. Estimates are based on Model 2 in Table 1.

The top bar shows that, when all variables are at their national mean, the predicted number of women’s murders is 291, which is very close to the actual total. The second bar (from the top) shows that if we raise the national GDP per capita to the level of a relatively rich province, then the number of murders rises to 311. In other words, promoting development by itself may not prevent women’s murders.

The third and fourth bars display the mollifying effect of development. In both scenarios gender equality in education increases, but in one scenario GDP per capita drops, whereas in the other it rises. I predict 285 murders if equality in education and GDP per capita simultaneously improve, but 358 murders if gender equality improves while GDP per capita falls. In other words, development can mollify the effects of other factors and reduce women’s murders by about 20%.20

The last two bars show a similar story, but here development has a smaller effect. Again, higher GDP per capita can mitigate the effect of a higher divorce rate, but the effect size is about 10%.21
This graph shows the estimated number of women’s killings (with 95% CI) as we vary Divorce Rate in Past 5 Years and Province GDP Per Capita. Other variables are set at their observed values. Estimates are based on Model 2 in Table 1.

To summarize, Figure 6 shows that development is unlikely to solve the problem of women’s murders by itself. However, it can play a significant role by mitigating the negative effects of other phenomena and save the lives of tens of women every year if addressed effectively.

Robustness Checks

In this section I report four sets of analyses that evaluate the robustness of my findings. Firstly, I include rural population ratio and crime rates as additional control variables in the model. Next, I test the sensitivity of my results to the exclusion of particular observations. Thirdly, I replace GDP per capita with alternative economic measures. Lastly, I add party vote shares as controls. The regression tables are in the appendix.

My models do not include every factor that could affect women’s murders in Turkey, which is impossible. Fortunately, statistics theory tells us that in order to get an unbiased estimate for an
This graph shows the estimated number of women’s killings if Turkey was a single province with average values for 2017. The dashed vertical line marks 285, the number of women’s murders in my sample for 2017. Footnote [19] describes the different values of GDP per capita, equality in education, and divorce rate. Other variables are held at their mean. Estimates are based on Model 2 in Table [1].

For independent variable we have to control for only those variables that are correlated with both the dependent variable and the independent variable in question. I identified two such variables: a province’s rural population ratio and crime rate. Both variables are based on data from the TSI.22 When I include these controls, only crime rate has a positive and statistically significant association with women’s murders. Importantly, my main findings do not change.

Next, I check if my results are driven by particular observations. I first exclude from the sample İstanbul, İzmir and Ankara, because these provinces are outliers in terms of economic and population size. Next, I exclude from the sample the 13 provinces that were in the region of state of emergency (OHAL) between 1987-2002.23 Lastly, I exclude from the sample the three provinces that experienced the highest number of women’s murders per capita.24 My findings are mostly...
robust to these changes to the sample. Most importantly, the interactions involving GDP Per Capita are robust in all models.

Thirdly, I explore if using alternative economic measures can produce additional insights. I re-run my models replacing GDP Per Capita first with Change in GDP Per Capita, and then, Unemployment. Data for both measures come from the TSI. I include these variables by themselves and then interact them with other variables. These economic measures do not have significant estimates in any of the models and when I include them together with GDP Per Capita, my main findings remain very similar.

My last robustness check is to add main political party vote shares in the model. I conduct this test as a robustness check, because party vote shares are endogenous to deeper factors such as religiosity, ethnicity, and economic development. I include the vote shares of AKP, CHP and MHP in the 2007 general election, which the last general election before the time period covered in this study. None of the party vote shares are statistically significant and my main results remain similar.

Conclusion

This paper presents the first systematic study on why more women are murdered in some places than others in the Turkish context. It contributes to the literatures on femicide, and more broadly, violence against women. To summarize my findings, I find statistically significant correlations between the number of women’s murders in a province and its ethnic composition, level of economic development, gender equality in education, and divorce rate. After controlling for these factors, I do not find significant effects for religiosity or past exposure to civil war. Importantly, the effects of divorce rate and equality in education are conditional on economic development. In poor provinces, greater equality in education and higher divorce rates are associated with more women’s murders, but these effects are largely ameliorated by higher GDP per capita. These results are consistent with the idea that economic development may not reduce women’s murders by itself, but it can mitigate the effects of male backlash against women who challenge the status quo.

This paper’s main policy implication is that effective interventions against femicide need to consider multiple factors simultaneously. Policies that address poverty can save more lives if they are implemented in places that carry additional risk factors such as a high divorce rate. In other
words, although nationwide economic development is desirable, all poor provinces are not equally
dangerous for women. We can design pro-development policies that have a bigger impact on the
problem of femicide.

This study opens several avenues for future research. One, future studies can test the effec-
tiveness of state policies or civil society campaigns designed to prevent violence against women
and women’s murders. For instance, Turkey accepted the law number 6284 in 2012, which aims
to prevent violence against women. Among other things, this law requires the establishment of
Violence Prevention and Monitoring Centers around the country to implement preventive and pro-
tective measures. Future work can investigate whether these centers reduce the number of women’s
murders in their locality building on this paper and its research design. Two, several civil society
organizations conduct campaigns in Turkey to prevent violence against women and women’s mur-
ders. Analyzing the effectiveness of these campaigns systematically can accelerate progress on this
urgent issue.

Future research should also try to conduct analyses at more disaggregated levels and establish
causal relationships. In this paper the unit of analysis is province-year, even though more precise
data on women’s murders exists. Currently the limitation is that most of the covariates are available
at province-year level. It is difficult to conduct studies that establish causality without access to
more detailed data on the explanatory variables. Overcoming data limitations and, ideally, using
individual-level data will open the door to more innovative and useful research.
References


Notes

1 For instance, the Turkish Minister of Interior declared that the number of women’s murders was 279 in 2018 and 332 in 2019. In contrast, according to the We Will Stop Femicide Platform (Kadın Cinayetlerini Durduracağız Platformu), 440 women were killed in 2018 and 474 in 2019. One explanation for the discrepancy in numbers is differences in definitions. It is not clear whether the Minister was referring to all female murder victims or only victims of gender-related killings. For the Minister’s statement, see https://haberglobal.com.tr/gundem/icisleri-bakani-soylu-bu-yil-332-kadin-cinayeti-yasandi-21335. For the statement by the Platform, see http://kadincinayetlerinidurduracagiz.net/veriler/2889/kadin-cinayetlerini-durduracagiz-platformu-2019-raporu.

2 My analyses correct for province population size.

3 Examples of cross-national studies on geographical variation in gendered violence include Yodanis (2004) and Heise and Kotsadam (2015).

4 Although there are help lines for domestic violence victims, the state does not release information on how many calls are made and from which locations.

5 Of course, ethnic groups are diverse, but to the extent that there are commonly-held views within a group, we can test for statistical relationships between cultural groups and our outcomes of interest.

6 Gurses (2018, 49-70) argues Kurdish women’s participation in the insurgency has raised their status among people who support the insurgency. If this factor overcomes the negative effects of war, then war-stricken places may experience fewer women’s murders.


8 I downloaded the data from the Women’s Murders Project (Kadın Cinayetleri Projesi) website (http://kadincinayetleri.org/), which presents Bianet’s monthly reported data in a combined format.

9 The observation with the highest murders is Istanbul-2014.

10 More precisely, this variable measures Sunni religiosity, who make up a large majority of Muslims in Turkey. A comparable measure for the Alevi would be the number of cem houses, but such data is not available.

11 https://camiler.diyanet.gov.tr/

12 The difference between Turkish and Kurdish ethnicity is significant at the 12% level.

13 I calculate the joint effects of Civil War Exposure and Ceasefire while taking into account the year dummies for 2013 and 2014.

14 “Low GDP per capita” corresponds to about 15,300 TL (in 2017 nominal values), which is the GDP per capita of Bitlis in 2017. “High GDP per capita” corresponds to about 41,500 TL, which is the GDP per capita of Yalova in 2017.

15 These predictions are fairly close to the actual numbers; In 2015 Sırnak experienced zero women’s murders whereas Hatay experienced five.

16 In 2015 the actual number of women murdered was three in Erzurum and six in Balıkesir.

17 I set Ceasefire to zero, the year dummy for 2017 to one, and the rest to zero.

18 “Lower GDP pc” corresponds to 15,300 TL in 2017 nominal values, whereas “higher GDP pc” corresponds to about 41,500 TL. “Higher divorce rate” is 1.9 and “higher equality in education” is -0.08.

19 I calculate (358-285)/358 = 20%.

20 I calculate (426-382)/426=10%.

21 I calculate the non-homicide crime rate to avoid double-counting women’s murders in both the dependent variable and the independent variable.

22 These provinces are Adıyaman, Batman, Bingöl, Bitlis, Diyarbakır, Elazığ, Hakkari, Mardin, Muş, Siirt, Sırnak, Tunceli, Van.

23 These provinces are Adana, Iğdır, Karaman.

24 Data on unemployment is available only at the NUTS-2 (Nomenclature of Territorial Units for Statistics-2) level, which divides Turkey into 26 units.

25 The Kurdish ethnic party HDP did not participate in this election with a party list.

Overview of Appendix

In this appendix I present summary statistics and robustness checks that were mentioned in the main text. More specifically, regarding the results in Table 1 in the main text, I show that:

- The results are robust to controlling for rural population ratio and non-homicide crime rate.
- The results are robust to the exclusion of the richest and most populous three provinces (İstanbul, İzmir and Ankara).
- The results are robust to the exclusion of the provinces in the region of state of emergency (OHAL) between 1987-2002.
- The results are robust to the exclusion of the the three provinces with the highest number of women’s murders per capita between 1987-2002 (Adana, Iğdır, Karaman).
- The results are robust to controlling for the vote shares of the three largest parties in the 2007 election.
Summary Statistics

Table A.1 provides descriptive statistics for the dependent variable and the main explanatory variables.

Control for Rural Population Ratio and Crime Rate

In Table A.2, Models 1 and 2 show the results of controlling for Rural Population Ratio and Non-Homicide Crime Rate (calculated per 1000 people). Importantly, I calculate the non-homicide crime rate to avoid double-counting women’s murders in both the dependent variable and the independent variable. Women’s murders and the homicide rate in a province are positively correlated by definition, which means including homicides as a control will bias the results.

Of these two additional controls, only Non-Homicide Crime Rate has a positive and statistically significant association with women’s murders. The main results do not change.

Exclude the Richest and Most Populous Three Provinces

In Table A.2, Model 3 shows the result of excluding İstanbul, İzmir and Ankara from the sample. These three provinces are the richest and most populous in Turkey, which makes them potential outliers. Their exclusion does not change the main results except for GDP Per Capita, which still has a negative effect, but it is no longer statistically significant. This change is not surprising, because this regression excludes the observations with the highest GDP per capita. Importantly, the main results regarding the interaction of GDP Per Capita, Gender Equality in Education, and Divorce Rate in Past 5 Years remain robust.

Exclude the OHAL Provinces

In Table A.2, Model 4 shows the result of excluding provinces that were included in the region of state of emergency (OHAL) between 1987 and 2002. The rationale for this robustness check is twofold. These provinces are potential outliers, because they have a high percentage of Kurdish
population, low GDP per capita, and high past exposure to the civil war. In addition, the war continued in most of the years covered in my analysis, which raises concerns about the quality of data regarding these provinces. For these reasons it is important to check that the results remain similar if we exclude them from the sample. The only finding that changes here is that \textit{GDP Per Capita} becomes insignificant (but remains negative). This is not surprising, because the excluded regions have very low GDP per capita. Importantly, the main results regarding the interaction of \textit{GDP Per Capita}, \textit{Gender Equality in Education}, and \textit{Divorce Rate in Past 5 Years} remain robust.

**Exclude the Provinces with the Most Women’s Murders Per Capita**

In Table A.2 Model 5 shows the result of excluding the three provinces in my sample that, relative to their population, experienced the highest number of women’s murders. These three provinces are Adana, Iğdır, Karaman. Their relatively high value in the dependent variable makes these provinces potentially influential outliers. All the results remain very similar after excluding these three provinces.

**Use Alternative Economic Measures**

In Table A.3 I re-run the analysis with alternative economic measures. More specifically, I replace \textit{GDP Per Capita} with \textit{Change in GDP Per Capita} (Models 6 and 7) and \textit{Unemployment} (Models 8 and 9). For each economic measure I first run the model with and without the interaction terms. In Model 10 I include all three economic measures simultaneously.

To summarize, I do not find any evidence of a relationship between women’s murders and \textit{Change in GDP Per Capita} or \textit{Unemployment}. These variables and their interactions are not statistically significant (except for \textit{Unemployment} in Model 10). Moreover, according to the AIC values, models including these economic measures have less explanatory power than Model 2 in Table 1. In contrast, in Model 10, including \textit{GDP Per Capita} and its interactions improve the model significantly and their estimates are very similar to the estimates in Model 2 in Table 1. These results suggest that economic development (captured by \textit{GDP Per Capita}) is the appropriate economic measure for explaining subnational variation in women’s murders in Turkey.

[Table A.3 about here]
Control for Political Party Vote Shares

In Table A.4, I include the vote shares of AKP, CHP and MHP in the 2007 general election as control variables. This is the last general election before the time period covered in this study and the Kurdish ethnic party HDP did not participate with a party list. The purpose of running this analysis as a robustness check is the endogeneity of party vote shares to deeper factors such as religiosity, ethnicity, and economic development.

None of the party vote shares are statistically significant. My main results regarding GDP per capita and its interactions do not change.

[Table A.4 about here]
Table A.1: Summary statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of women’s murders</td>
<td>3.031</td>
<td>5.068</td>
<td>0</td>
<td>46</td>
<td>648</td>
</tr>
<tr>
<td>Percentage of Turkish Mother-Tongue</td>
<td>75.425</td>
<td>33.868</td>
<td>0</td>
<td>100</td>
<td>648</td>
</tr>
<tr>
<td>Percentage of Kurdish Mother-Tongue</td>
<td>21.467</td>
<td>32.435</td>
<td>0</td>
<td>100</td>
<td>648</td>
</tr>
<tr>
<td>Mosques Per 1000 People</td>
<td>1.843</td>
<td>1.161</td>
<td>0.226</td>
<td>7.162</td>
<td>648</td>
</tr>
<tr>
<td>Civil War Exposure</td>
<td>2.346</td>
<td>2.624</td>
<td>0</td>
<td>8.324</td>
<td>648</td>
</tr>
<tr>
<td>GDP Per Capita</td>
<td>4.344</td>
<td>0.342</td>
<td>3.464</td>
<td>5.339</td>
<td>648</td>
</tr>
<tr>
<td>Gender Equality in Education</td>
<td>-0.101</td>
<td>0.029</td>
<td>-0.185</td>
<td>-0.044</td>
<td>648</td>
</tr>
<tr>
<td>Divorce Rate in Past 5 Years</td>
<td>1.283</td>
<td>0.617</td>
<td>0.114</td>
<td>2.754</td>
<td>648</td>
</tr>
</tbody>
</table>
Table A.2: Subsamples and additional control variables

<table>
<thead>
<tr>
<th></th>
<th>Additional Controls</th>
<th>Exclude İst/Lzm/Ank</th>
<th>Exclude OHAL</th>
<th>Excl. high WM prov's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Turkish Mother-Tongue</td>
<td>0.006 (0.005)</td>
<td>0.005 (0.005)</td>
<td>0.005* (0.004)</td>
<td>0.005* (0.005)</td>
</tr>
<tr>
<td>Percentage of Kurdish Mother-Tongue</td>
<td>0.011** (0.005)</td>
<td>0.011** (0.005)</td>
<td>0.011** (0.004)</td>
<td>0.011** (0.004)</td>
</tr>
<tr>
<td>Mosques Per 1000 People</td>
<td>0.042 (0.062)</td>
<td>0.022 (0.060)</td>
<td>0.046 (0.054)</td>
<td>0.030 (0.061)</td>
</tr>
<tr>
<td>Civil War Exposure</td>
<td>0.024 (0.033)</td>
<td>0.019 (0.034)</td>
<td>0.032 (0.032)</td>
<td>0.012 (0.033)</td>
</tr>
<tr>
<td>Civil War Exposure × Ceasefire</td>
<td>0.060** (0.029)</td>
<td>0.057* (0.031)</td>
<td>0.047 (0.037)</td>
<td>0.059** (0.029)</td>
</tr>
<tr>
<td>GDP Per Capita</td>
<td>−0.874** (0.446)</td>
<td>−0.605 (0.649)</td>
<td>−0.553 (0.570)</td>
<td>−0.817* (0.446)</td>
</tr>
<tr>
<td>Divorce Rate in Past 5 Years</td>
<td>2.496** (0.810)</td>
<td>2.190** (0.881)</td>
<td>3.148** (1.058)</td>
<td>2.035** (0.826)</td>
</tr>
<tr>
<td>GDP Per Capita × Divorce Rate</td>
<td>−0.449** (0.177)</td>
<td>−0.393** (0.198)</td>
<td>−0.584** (0.227)</td>
<td>−0.349* (0.186)</td>
</tr>
<tr>
<td>Rural Population Ratio</td>
<td>−0.169 (0.256)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Homicide Crime Rate</td>
<td>0.116* (0.067)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>−9.813** (1.913)</td>
<td>−10.157** (1.827)</td>
<td>−10.869** (2.677)</td>
<td>−11.528** (2.525)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>−10.121** (1.902)</td>
</tr>
</tbody>
</table>

Province-clustered robust s.e. are in parentheses. * p < 0.1, ** p < 0.05.

Total Population is the exposure variable.

Model 4 excludes Istanbul, Izmir and Ankara from the sample.


Model 6 excludes the three provinces that had the highest number of women’s murders per capita in the sample (Adana, Iğdır, Karaman).

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>648</td>
<td>648</td>
<td>624</td>
<td>544</td>
<td>624</td>
</tr>
<tr>
<td>AIC</td>
<td>2177.420</td>
<td>2174.456</td>
<td>2023.343</td>
<td>1881.802</td>
<td>2062.957</td>
</tr>
</tbody>
</table>
Table A.3: Alternative economic measures

<table>
<thead>
<tr>
<th>Change in GDP pc</th>
<th>Unemployment</th>
<th>All 3 measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>No interac.</td>
<td>w/ interac.</td>
<td>w/ interac.</td>
</tr>
<tr>
<td></td>
<td>(6)</td>
<td>(7)</td>
</tr>
<tr>
<td><strong>Change in GDP Per Capita</strong></td>
<td>−0.075</td>
<td>3.157</td>
</tr>
<tr>
<td>(1.165)</td>
<td>(4.375)</td>
<td>(4.017)</td>
</tr>
<tr>
<td><strong>Change in GDP pc × Equality in Educ.</strong></td>
<td>30.078</td>
<td>(31.303)</td>
</tr>
<tr>
<td></td>
<td>−0.300</td>
<td>(1.291)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>−0.004</td>
<td>0.086</td>
</tr>
<tr>
<td>(0.013)</td>
<td>(0.077)</td>
<td>(0.055)</td>
</tr>
<tr>
<td>Unemployment × Equality in Educ.</td>
<td>0.616</td>
<td>(0.594)</td>
</tr>
<tr>
<td></td>
<td>−0.027</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Unemployment × Divorce Rate</td>
<td>−0.300</td>
<td>−0.388**</td>
</tr>
<tr>
<td></td>
<td>(1.291)</td>
<td>(0.187)</td>
</tr>
<tr>
<td>GDP Per Capita</td>
<td>−1.141**</td>
<td></td>
</tr>
<tr>
<td>GDP pc × Equality in Educ.</td>
<td>−17.395**</td>
<td></td>
</tr>
<tr>
<td>GDP pc × Divorce Rate</td>
<td>−0.388**</td>
<td></td>
</tr>
<tr>
<td>Percentage of Turkish Mother-Tongue</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td>Percentage of Kurdish Mother-Tongue</td>
<td>0.006*</td>
<td>0.006*</td>
</tr>
<tr>
<td>Civil War Exposure</td>
<td>−0.018</td>
<td>−0.018</td>
</tr>
<tr>
<td>Ceasefire × Civil War Exposure</td>
<td>0.056*</td>
<td>0.055**</td>
</tr>
<tr>
<td>Divorce Rate in Past 5 Years</td>
<td>0.332**</td>
<td>0.355**</td>
</tr>
<tr>
<td>Mosques Per 1000 People</td>
<td>0.043</td>
<td>0.044</td>
</tr>
<tr>
<td>Constant</td>
<td>−13.165**</td>
<td>−13.352**</td>
</tr>
</tbody>
</table>

Year dummies Yes Yes Yes Yes Yes
N 648 648 648 648 648
AIC 2217.7 2220.7 2217.6 2218.7 2184.1

Province-clustered robust s.e. are in parentheses. * $p < 0.1$, ** $p < 0.05$.

*Total Population is the exposure variable.*
Table A.4: Control for political party vote shares

\[
\begin{align*}
\text{Percentage of Turkish Mother-Tongue} & \quad 0.007 \\
& \quad (0.005) \\
\text{Percentage of Kurdish Mother-Tongue} & \quad 0.010^* \\
& \quad (0.006) \\
\text{GDP Per Capita} & \quad -1.079^{**} \\
& \quad (0.406) \\
\text{GDP pc × Equality in Educ.} & \quad -16.333^{**} \\
& \quad (4.490) \\
\text{GDP pc × Divorce Rate} & \quad -0.397^{**} \\
& \quad (0.182) \\
\text{Civil War Exposure} & \quad 0.027 \\
& \quad (0.033) \\
\text{Ceasefire × Civil War Exposure} & \quad 0.060^{**} \\
& \quad (0.028) \\
\text{Divorce Rate in Past 5 Years} & \quad 2.260^{**} \\
& \quad (0.826) \\
\text{Mosques per 1000} & \quad 0.015 \\
& \quad (0.065) \\
\text{Gender Equality in Education} & \quad 76.001^{**} \\
& \quad (21.074) \\
\text{AKP Vote Share} & \quad -0.005 \\
& \quad (0.006) \\
\text{CHP Vote Share} & \quad -0.004 \\
& \quad (0.009) \\
\text{MHP Vote Share} & \quad -0.007 \\
& \quad (0.006) \\
\text{Constant} & \quad -8.530^{**} \\
& \quad (1.829) \\
\hline
N & 648 \\
\text{AIC} & 2181.6
\end{align*}
\]

Province-clustered robust s.e. are in parentheses. * \( p < 0.1, ** \( p < 0.05.

Total Population is the \textit{exposure variable}. 

Author Biography: Kerim Can Kavakli is an assistant professor of political science at Bocconi University in Italy. He holds a PhD in political science from the University of Rochester in USA. His latest articles have appeared in International Organization and Journal of Politics. His research focuses on international political economy, and the protection of human rights.