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Gender equality and its heterogeneous impact on the incarceration of women in Turkey

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1. Introduction

Gender is amongst the most enduring predictors of criminal behavior as well as sentencing and imprisonment outcomes (Steffensmeier et al., 1993; Schwartz et al., 2015). Despite these stable observations, with varying increases in gender equality around the world, the link between gender and criminal justice responses is not homogenous or consistent over time (Kabeer, 2005). Attempts to understand the link between gender and incarceration have also indicated that this relationship is dependent upon legal and social contexts (Koons-Witt, 2002). Thus, while recent studies from the US reveal a closing gender gap for incarceration rates and other criminal justice responses for certain offenses (Schwartz et al., 2009; Embry and Lyons, 2012; Schwartz, 2013), these findings may mean little for nations with vastly different legal systems and socio-cultural backgrounds. As such, it remains an important empirical endeavor to observe the universality of gender gaps (Steffensmeier and Allan, 1996), and to examine whether societal changes may be connected to closing or expanding gender gaps in incarceration. As the law can be used as a means to reinforce and maintain gender inequality (Schlossman and Wallach, 1978; Smart, 1990), this study explores whether broader societal changes in gender equality present a key factor that may be driving variation in incarceration gender gaps.

Increases in gender equality traditionally have been linked to female offending, most notably in the work of Adler (1975) and Simon (1975/76). Despite the widespread impact of these pieces, this empirical link was dismissed nearly forty years ago when Steffensmeier (1978) suggested that the predicted 'new female offender' was more of a social marvel than an empirical reality. Steffensmeier (1978: 580) further concluded that, "the proposed relationship between the women's movement and crime is, indeed, tenuous and even vacuous." Yet, it is possible that this conclusion was premature. Given that previous analyses aggregated the experiences of all women across a given nation, there may be reason to believe that important variation in gender equality was not captured by the early empirical tests of women's emancipation, masking potential impacts on crime and criminal justice practices. Further, increases in gender equality may interact with traditional gender views, shaping judicial responses (Schlossman and Wallach, 1978; Griffin and Wooldredge, 2006). This renders it unclear whether these extant findings can be generalized from the limited English-speaking contexts in which the studies originally were conducted. Concordantly, it is of central theoretical and social importance to assess whether empirical trends in gender equality within a society are related to criminal justice outcomes. Seeking to explore this potential relationship, this study draws upon data from Turkey between 2000 and 2013 to examine the link between changes in gender equality and the relative incarceration of women.

As a nation with strong ties to both Europe and the Middle East (Özcan, 2006), Turkey provides an ideal context to explore potential variation in the relationship between gender equality and gender gaps in incarceration. Gender equality has been a salient issue within Turkey since it became a nation in 1923, as women's rights were politically central to eschewing the previously theocratic state (Tekeli, 1981). Indeed, Turkey's first president, Mustafa Kemal Atatürk, publicly appealed to women as the group most visibly oppressed by religion through practices such as veiling, seclusion, and polygamy (Tekeli, 1981). While the twentieth and beginning of the twenty-first century saw the global erosion of traditional segregated gender roles (Ingelhart and Norris, 2003), developments toward women's empowerment and gender equality have varied immensely across nations (Kabeer, 2005). This variation is not limited to international comparisons however, and key differences in culture, religion, and social practices within

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Turkey have endured from its history as part of the Ottoman Empire. This is particularly prominent with regard to the treatment of women, with views and practices related to gender equality varying across the different regions in Turkey based upon dominant religious beliefs (Natali, 2005). While Turkey is historically a secularist state and has advocated for gender equality, divergent gender roles promulgated by Islamic traditions remain strong, particularly among those who do not identify with the Turkish Government and its policies in the southeast (Keskin, 1997). As such, this regional variation within Turkey provides an opportunity to observe whether there is meaningful variation within a nation with regard to gender equality, as well as the relative incarceration of women. By examining data from each of the 81 provinces within Turkey, this study investigates whether changes in gender equality may have a potentially variable impact upon the relative incarceration of women within a non-Western and non-English speaking context.

2. Gender equality and incarceration

A growing body of literature focusing on western nations has displayed that there are overall gender differences favoring women within criminal justice systems (Daly and Bordt, 1995; Koons-Witt, 2002; Jeffries et al., 2003; Curry et al., 2004; Schwartz, 2013). Claims that this constitutes ‘special treatment’ have been treated with healthy skepticism (Daly and Chesney-Lind, 1988), and it has been claimed that such differences may reflect warranted leniency toward women and not necessarily gender bias against biological men (Steffensmeier et al., 1993). This was traditionally attributed to patriarchal chivalry hypotheses whereby women were perceived to be of greater need of protection from the hardship of incarceration and should thus be treated more leniently (Schlossman and Wallach, 1978; Griffin and Wooldredge, 2006). However, observed gender impacts on sentencing and the decision to incarcerate have often been diminished after controlling for factors such as prior record and the circumstances around the criminal event (Daly and Bordt, 1995). Complicating strict ascribed gender influences, factors such as one’s family status have also been found to impact incarceration decisions for both men and women (Daly, 1987). In addition to these individual-level influences, broader social and structural forces may impact the interaction between judicial attitudes toward gender and incarceration. Koons-Witt (2002) found that prior to the introduction of US sentencing guidelines aimed at reducing unwanted sentencing disparities, women with dependent children, rather than women in general, were less likely to be incarcerated. As this impact was not evident in the years immediately following the guidelines’ introduction (Koons-Witt, 2002), there is empirical evidence suggesting that the impact of gender on judicial decisions may vary even within a single judicial context. Consequently, gender disparities in the application of criminal justice are part of a dynamic process that is affected by both micro and macro influences (Sealock and Simpson, 1998).

The gender gap in crime has been thought to be universal, whereby ‘women are always and everywhere less likely than men to commit criminal acts’ (Harris, 1977; Steffensmeier and Allan, 1996: 459). Independent of unique conditions applicable to women or men, numerous empirical studies have also suggested that female crime rates respond to the same legal and social forces as male crime rates (Steffensmeier, 1980; Boritch and Hagan, 1990; Steffensmeier and Streifel, 1992). Despite these findings, Steffensmeier and Allan (1996) have critiqued the gender equality and crime literature on the basis that many theoretical ideas take for granted that women generally have experienced greater social equality over time, and that the gender gap decreased within the specified groups and times. Particularly in analyses that have aggregated the experiences of all women across a given nation, the average experiences presented by these studies may obscure important trends. Specifically, nation-wide aggregations may obfuscate experiences of socially and religiously marginalized women, and many of the previous analyses have not attempted to measure heterogeneity at the sub-national level. As such, this study aims to evaluate whether it is plausible that some previous findings (or lack thereof) were an artifact of nation-aggregated data that masked important heterogeneity within subnational gender equality trends.

These ideas build upon previous themes and goals within the feminist literature. Early on, feminist scholars recognized the failures of essentialism—assuming that the lives of white middle-class women represented all women’s experiences (Kandiyoti and Kandiyoti, 1987). Although the presence of certain gender gaps may be universal (Steffensmeier and Allan, 1996), the size of any gender equality gap and its consequences to society vary immensely between nations (Kabeer, 2005) and within nations (Kandiyoti and Kandiyoti, 1987). Given that gender equality is among the most central ‘cultural fault line[s] between the West and Islam’ (Norris and Inglehart, 2002: 235), exploring the impacts of variation in gender equality in a nation with Islamic heritage such as Turkey provides an ideal setting to test the universality of gender equality claims.

2.1. Gender equality and criminal justice

Notwithstanding the ability to incarcerate individuals against their will, the law is a powerful and pervasive form of discourse that lays claims to hold truth within society (Smart, 1990). It can silence and disenfranchise women who come into contact with it as well as those who seek to challenge it from within and without (Schlossman and Wallach, 1978; Smart, 1990). Identifying and addressing sources of inequality within criminal justice systems has been a major stream of empirical research (see Zatz, 1987; Spohn, 2015). MacKinnon (1991: 1285) however laments that structural legal changes have too often been in response to attempts by ‘women [who] have long demanded legal change as one vehicle for social change,’ rather than being driven by politics, legal practice, and scholarship. Thus, while advances have been made addressing unwanted sources of disparity within criminal justice systems, it is evident that criminal justice responses to individual actions vary over time and may be influenced by variations in the relative level of gender equality within a society.

A growing body of quantitative analyses have demonstrated that changes in the criminal justice gender gaps are attributable to official reactions to female behavior rather than changes in female behavior. In examining official and self-report data from the US between 1980 and 2003, Schwartz et al. (2009) present that rather than being a product of increased female violence, changes in the management of violence are instead responsible for the observed reduction in criminal justice gender gaps. Examining both

emancipation hypotheses and chivalry hypotheses across three English-speaking and three non-English-speaking European countries, Schwartz (2013: 814–815) also concludes that changes to the gender gap in criminal justice responses have also been driven by ‘net-widening’ social control policies that disproportionately affected females, and presents ‘strong evidence’ against any impacts driven by emancipation or behavior change. Importantly for the present study, Schwartz (2013) additionally provides evidence that meaningful national level differences exist in the treatment of women within different criminal justice systems. While more research is warranted in this domain, these findings when taken together suggest that the impact of macro-level gender equality may extend to gendered incarceration patterns that vary across and within nations.

2.2. Turkey

Turkey is and historically has been a bridge between Europe, Asia, the Middle East, and the Caucasus (Tepperman, 2013). With an ongoing bid to join the Eurozone, and a Kurdish-based separatist movement occurring in the southeast of the nation, Turkey has strong ties to both Europe and the Middle East (Özcan, 2006). The predominantly Islamic Kurdish people comprise approximately 20% of Turkey's total population and inhabit nearly a third of the country's geographical area. Although culturally marginalized for much of Turkey's history, the support of the Kurdish people was vital to the political and initial viability of a Turkish state (Natali, 2005). Grievances between the Kurdish people and the Turkish government began at this nascent point and were exacerbated through policy-enforced cultural changes incorporated at all levels of Turkish society during this period of ‘Turkification,’ which prioritized secularism within the emergent Turkish culture. The new government took several actions that resulted in the cultural marginalization of the Kurdish people, from the appearance of Pan-Turkish symbols on money, stamps, and university paraphernalia, to the outright prohibition of the word “Kurd” (Dokupil, 2002).

As the Kurdish people primarily inhabit the more mountainous and economically marginalized southeast of Turkey (Natali, 2005), their geographic isolation provides an ideal context to evaluate whether there is meaningful sub-national variation with regard to gender equality and female incarceration. Out of the 81 Turkish Provinces, 21 have majority Kurdish populations and compose the southeastern region outlined below in Fig. 1.

While this ‘Turkification’ process and the Turkish Government's embrace of Western values led to religiously based conflict in a number of domains, the level of impact upon traditional views of women within this new national identity varied immensely across Turkey (Kandiyoti and Kandiyoti, 1987). Gains in equality, with respect to women's access to education, marriage, fertility, and health, were not experienced uniformly across Turkey, especially in the rural areas that were more weakly integrated into the national economy such as those in the southeast. These differences continue to demarcate Turkish society to the present era.

The avoidance of civil marriage in favor of the religious ceremony, with the related possibility of polygamy, repudiation, and illegitimacy; the marriage of underage girls; the demand for *baslik* (brideprice) in the marriage contract; the denial of girls' rights to education; and the emphasis on women's fertility were continuing signs of the uneven socioeconomic development of the country. There is no doubt, however, that the Kemalist [Ataturk's] reforms have directly benefited women of the urban bourgeoisie (Kandiyoti and Kandiyoti, 1987: 322).

Consequently, within the more Islamic-based southeast, patriarchal dominance was established and maintained through women's diminished access and participation in education, and through culturally accepted inequitable marriage and reproductive practices. This paper seeks to observe explicitly whether patterns of emancipation vary between this region and the rest of the nation and to evaluate whether these two contexts are associated with distinctive impacts on the relative level of female incarceration. As any relationship between gender equality and offending is likely non-linear across ranges of gender equality, Turkey provides an ideal case in which to begin to explore whether the null findings found in the previous literature were perhaps a function of the unique level of emancipation enjoyed by English-speaking Western women in the post-World War II era. As southeastern Turkey was socially insulated from previous advances in gender equality (Kandiyoti and Kandiyoti, 1987), recent increases in gender equality in the



Fig. 1. Majority kurdish provinces in Turkey (grey).

realms of education, marriage, and birth rates, may yield larger impacts on the relative incarceration of women in the southeast of Turkey.

3. Hypotheses

Driven by the above discussion, this paper proposes four hypotheses designed to examine the impact that sub-national and national-level changes in gender equality have upon female incarceration within Turkey. The study firstly seeks to explore the degree of universalism in gender gaps to assess whether there is meaningful variation in gender equality within nations. As such, the first two hypotheses sought to test whether women in the southeast of Turkey did indeed experience lower levels of gender equality and were incarcerated at lower levels compared to the rest of the nation. In line with theories of chivalry within patriarchal societies (Schlossman and Wallach, 1978; Griffin and Wooldredge, 2006; Embry and Lyons, 2012), as patriarchal chivalry is confronted by increases in gender equality it is anticipated that incarceration and the ratio of female to male incarceration also will increase as women are perceived to be in less need of protection from incarceration in the eyes of male-dominated criminal justice organizations. In the southeastern region of Turkey, where Islamic culture and more paternalistic values are more prevalent (Kandiyoti and Kandiyoti, 1987), both lower levels of gender equality and lower levels of female incarceration are expected compared to the rest of Turkey.

H1: The level of gender equality experienced will be lower in the southeast of Turkey compared to the rest of the nation.

H2: The number of female incarcerations will be lower in the southeast of Turkey compared to the rest of the nation.

Seeking to test whether variation in gender equality had any observable impact on criminal justice practices, this next study seeks to test whether increases in gender equality led to increases in the incarceration of women relative to men. Again, in line with above chivalry-inspired hypotheses, hypothesis three suggests that increases in gender equality should increase the ratio of incarcerations of females to males. If the universalism claim is correct (Steffensmeier and Allan, 1996), then this relationship should be evident across all of Turkey and within both analytic regions.

H3: Increases in gender equality will lead to increases in the incarceration of more females relative to males in Turkey as a whole, within the southeast, and the non-southeast section of Turkey.

Finally, as the southeast is expected to exhibit lower levels of gender equality throughout the years 2000–2013, changes in gender equality are expected to have a greater impact on incarceration practices in the southeast, compared to the rest of the nation.

H4: Increases in gender equality will lead to greater increases in the incarceration of females relative to males in the southeast of Turkey compared to the rest of the nation.

3.1. Data

To test the four above hypotheses, data were compiled from the Turkish Statistical Institute and the World Bank in order to measure gender equality and arrests within Turkey between the year 2000 and 2013. These data reflected yearly fluctuations in each of the 81 Turkish provinces, yielding a final sample size of 1134 observations.

3.1.1. Independent variables

Drawing upon Kandiyoti and Kandiyoti's (1987) aforementioned observation that gender inequality in Turkey is primarily seen through access to education, marriage practices, and fertility rates, this study sought to examine how changes in these specific measures of gender inequality impacted the relative incarceration of women. The primary independent variables of concern for this study were sourced from the Turkish Statistical Institute (Türkiye İstatistik Kurumu, 2015). These variables were all gathered at the province-level for each year between 2000 and 2013, and were selected in order to account for fluctuations in proportionate female higher education attainment, proportionate representation in teaching, and variation in marriage and divorce trends. Specifically, these variables entailed the proportion of high school teachers that are female, the proportion of university professors that are female, the proportion of higher education graduates that are female, the proportion of higher education students that are female, the average difference in the age of men and women who were married in each province,¹ and the number of divorces per 10,000 people within each province. Increases in each of the education variables represent increased female participation in both receiving and transmitting education as seen by this study to indicate increased gender equality within Turkey (Subrahmanian, 2005; Kabeer, 2005). Similarly, the exercise of divorce is associated with greater marital equality. Consequently, all educational variables and divorce rates should also be positively related to female incarceration in accordance with chivalry theories. Conversely, the average difference in the age of men and women who were married in each province should be negatively related to all female incarceration outcomes as increases in this variable denote decreased gender equality (Atkinson and Glass, 1985).

In order to control for other macro-level developments in gender equality in Turkey, national-level data were also sourced from

¹ This variable was calculated as the average age of grooms – average age of brides within each province within each year.

the World Bank's World Development Indicators database (World Bank, 2014). The specific independent variables that were included for the following analysis were: the ratio of life expectancy of females to males born in a given year, the percentage of female legislators in the Turkish Parliament, the fertility rate, the ratio of the proportion of females to males surviving to the age of 65 or higher, and the adolescent fertility rate. With the exception of the two fertility-based variables, increases in these independent variables demark increased gender equality, and it is thus expected that a positive relationship will be observed for each of these variables on the incarceration outcomes. For both the general fertility rate and the adolescent fertility rate, it is expected that decreased fertility rates reflect increased participation in society for females (Inglehart and Norris, 2003), and these variables will concordantly be negatively related to the female incarceration outcomes.²

3.1.2. Dependent variables

All of the dependent variables for the following analyses were also sourced from the Turkish Statistical Institute and represent all province-level incarcerations for crimes including: homicide, assault, robbery, theft, and sex offenses. These offences were selected as they cover a number of violent and non-violent offenses that have long been held to be of great societal importance across cultures and over time (Wellford, 1975). These variables reflect the number of women received into prison for committing each particular offense, divided by the number of men received into prison for committing the same offense in each given year respectively. In order to ensure that temporal order was preserved between variation in gender equality and incarcerations, all independent variables were also lagged by one year.³

4. Methods

To test the above hypotheses, models were estimated using fixed effects tobit regressions. Each was modeled using fixed effects regression in order to account for any unobserved time-stable heterogeneity that one would expect to exist between provinces (Allison, 2009). Fixed effects tobit models were used due to the presence of left censoring (Tobin, 1958; Felson and Staff, 2006). For all offenses, there was evidence to suggest that the normality, heteroskedasticity, and proportionality assumptions for these models were met, however sensitivity analyses were conducted for each model using symmetrically censored least squares (SCLS) model and the censored least absolute deviations (CLAD) models (Sullivan et al., 2008). In each case where the key findings varied, the variation in results and observed issues with multicollinearity have been footnoted in the findings section below. Regardless of the estimation procedure used in this study, each of the following models made use of within province variation in order to observe trends in the data. Although these methods do not account for any unspecified dynamic heterogeneity within provinces, given the difficulty of obtaining data from this region, these fixed-effects methods presented a means of rendering most unobserved differences between provinces moot.

5. Results

To investigate the first hypothesis, this study began by looking at the levels and proportions of key indicators of gender equality across Turkey and within the southeast. As it can be seen below in Table 1, within Turkey there is meaningful sub-national variation with regard to all of the observed measures for gender equality in the predicted directions at the province-level. It should be noted that during this period that there were proportionately fewer women in the southeast compared to the rest of Turkey (0.484 vs. 0.499, $p < 0.001$), however even after this was taken into account women were still proportionately less likely at any traditional statistical threshold to be high school teachers, university professors, to graduate from higher education, or to engage in higher education when compared to the rest of Turkey. As predicted, the difference in the average age of grooms minus brides was also greater in the southeast (4.158 vs. 4.047 years, $p < 0.001$), and the average number of divorces per 10,000 people was nearly 3 times higher outside of the southeast (5.175 vs. 14.553, $p < 0.001$). Consequently, these findings indicate continuing low levels of proportionate female involvement in education across Turkey. Consequently, in line with hypothesis 1, these findings support the prediction that disparities in gender equality are greater within the southeast of Turkey.

As it can be seen below in Table 2, women in Turkey committed proportionately fewer crimes than men across all crime types within all analytic regions. Further, in line with strict chivalry hypotheses and once again reinforcing the notion that there is meaningful sub-national variation within Turkey during this period, more women were incarcerated outside of the southeast compared to the southeast for both violent and non-violent crimes. This trend was evident after taking into account population size and after adjusting for variation in the proportion of women in each province. Concordantly, this study finds evidence to support existing gender gaps in incarceration across all analytic regions as well as meaningful subnational variation, providing support for hypotheses 2.

Looking across the 14-year period of this study, thefts were the most common crime for which women were incarcerated in each

² While these represent the best data available regarding these measures in Turkey from a politically neutral source, these variables only capture variation at the nation-level on a yearly basis. As such, any findings specifically related to the relationship between these control variables and the outcome should be treated with great caution, as the standard errors for these estimates will be smaller than they would be if province-level variations were observed. Consequently, with smaller standard errors, significance levels will be exaggerated leading to potential Type I errors. Despite this limitation, it is important that these nation-level characteristics be controlled for as they represent key macro-level indicators of gender equality with regard to health and political representation.

³ While it would have been ideal to investigate other lags, due to the degrees of freedom required by the models being run, statistical convergence was unable to be achieved for some of the models pertaining to the southeast (sex offences and robbery) using more than one year of lag.

Table 1

Descriptive Statistics for Gender Equality Indicators by Region for 2000–2013 (pooled), *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).

Variable	Total (\bar{X} , SD)	Southeast (\bar{X} , SD)	Not Southeast (\bar{X} , SD)	Difference	T-Score	P-Value
Female Proportion High School Teachers	0.287 (0.108)	0.198 (0.085)	0.318 (0.098)	-0.12***	18.727	< 0.001
Female Proportion Professors	0.109 (0.128)	0.038 (0.06)	0.134 (0.136)	-0.096***	11.717	< 0.001
Married Age Difference	4.075 (0.464)	4.158 (0.53)	4.047 (0.435)	0.111***	-3.544	< 0.001
Divorces	12.122 (6.08)	5.175 (3.864)	14.553 (4.677)	-9.378***	30.880	< 0.001
Female Proportion Higher Education Graduates	0.415 (0.089)	0.339 (0.099)	0.441 (0.068)	-0.102***	15.784	< 0.001
Female Proportion Higher Education Students	0.394 (0.076)	0.339 (0.087)	0.413 (0.061)	-0.074***	19.239	< 0.001
Female Life Expectancy	70.805 (19.695)	-	-	-	-	-
Female Proportion Legislators	0.063 (0.035)	-	-	-	-	-
Fertility Rate	2.065 (0.585)	-	-	-	-	-
Survival Until Age 65	68.453 (19.131)	-	-	-	-	-
Adolescent Fertility Rate	36.987 (11.378)	-	-	-	-	-

Table 2

Descriptive Statistics for Incarcerations by Crime and Sex for 2000–2013 (pooled), *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests).

Variable	Total (\bar{X} , SD)	Southeast (\bar{X} , SD)	Not Southeast (\bar{X} , SD)	Difference	T-Score	P-Value
Female Homicides	1.432 (2.221)	0.506 (0.82)	1.757 (2.454)	-1.251***	12.852	< 0.001
Male Homicides	38.455 (66.221)	18.792 (21.986)	45.336 (74.633)	-26.544***	9.227	< 0.001
Female Assaults	2.178 (4.035)	0.421 (0.994)	2.792 (4.492)	-2.371***	14.327	< 0.001
Male Assaults	109.186 (179.08)	39.085 (50.293)	133.722 (200.245)	-94.637***	12.608	< 0.001
Female Thefts	4.981 (13.187)	1.047 (2.274)	6.358 (15.024)	-5.311***	9.925	< 0.001
Male Thefts	91.294 (210.307)	29.938 (37.853)	112.769 (239.679)	-82.831***	9.667	< 0.001
Female Robbery	0.634 (1.827)	0.125 (0.43)	0.813 (2.078)	-0.688***	9.043	< 0.001
Male Robbery	25.791 (79.076)	6.741 (12.343)	32.459 (90.661)	-25.718***	8.012	< 0.001
Female Sex Offenses	0.257 (0.67)	0.064 (0.272)	0.325 (0.75)	-0.261***	8.571	< 0.001
Male Sex Offenses	17.201 (28.313)	4.731 (6.393)	21.566 (31.539)	-16.835***	14.636	< 0.001

given year across all of Turkey. On average, this non-violent crime also had the highest female proportion of incarcerations as well ($\bar{x}=0.051$). As it can be seen below in Fig. 2 however, it is apparent that within Turkey many of these crimes were relatively stable during this time period prior to 2011. This is somewhat surprising given that many of the measures for gender equality observed by this study improved monotonically during this period.⁴ These monotonic increases indicate that this period represents a period in time of marked advances in gender equality within Turkey. Fig. 2 also indicates that even with the large-scale political conflict beginning in 2012 and 2013 (Tekin, 2015), incarcerations for homicide did not increase in line with every other offense that was examined. Indeed, the period of 2000–2013 appears to be marked more by consistency in relative gender incarceration rates rather than the fluctuations that one may expect from the consistent aggregate gender equality gains that were observed. When logit models were used to examine these nationwide trends, increases in the relative incarceration for women were only evident for robbery ($\hat{\beta}=0.03$, $p=0.004$).

When these yearly average trends were broken down into the two analytic regions by this study, a number of clear differences were also evident. For each of the five incarceration crimes that were observed, divergent yearly trends in incarceration practices between the southeast and the rest of the nation were evident for a number of years (Fig. 3). As it can be seen in Fig. 3, while the southeast had lower average female to male incarceration ratios, at least one observation was numerically higher in the southeast than in the rest of Turkey for each crime type. As such, the predominantly flat slopes for the ratio of female to male incarcerations observed in Fig. 3 may be due in part to how rare these events are rather than being indicative of stability. Concordantly, these findings provide some preliminary evidence that failure to account for sub-national variation may potentially obscure important trends within these data.

Before examining whether there were any regional variations regarding the impact of changes gender equality on incarceration, this study firstly examined these impacts for all of Turkey (Table 3). Examining firstly the province-level variables, the female proportion of high school teachers were positively related to the increased relative incarceration of women for all crime types examined with the sole exception of homicide, regardless of model specification. Beyond this factor, statistically significant impacts were not observed for any of the other province-level measures of gender equality with the sole exception of the rate of divorce on the female to male robbery ratio.⁵

⁴ Female life expectancy increased each year from being 73.784 in 2000 to 78.693 in 2013, the proportion of women surviving until the age of 65 similarly increased from 0.817 to 0.884, the female proportion of professors increased monotonically from 0.083 to 0.156, and this trend was also seen for the adolescent and adult fertility rates.

⁵ Although it was evident that female proportion higher education graduates and female proportion high education students were highly correlated ($\rho=0.774$), multicollinearity was not found to be an issue in any of the models that were run. As such, both variables were included in all models in order to be as theoretically inclusive as possible. Similarly, the proportion of high school teachers and the proportion of professors who were female were also highly correlated in this sample ($\rho=0.637$). Even with the exclusion of the proportion of high school teachers who were female from each of the models, the substantive findings remained unchanged.

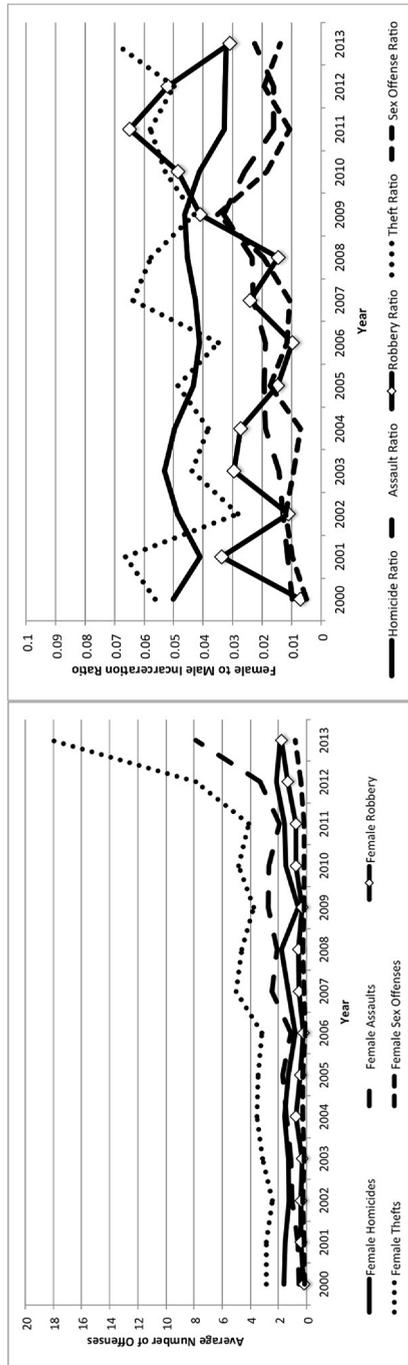


Fig. 2. Average number of female offenses per province 2000-2013.

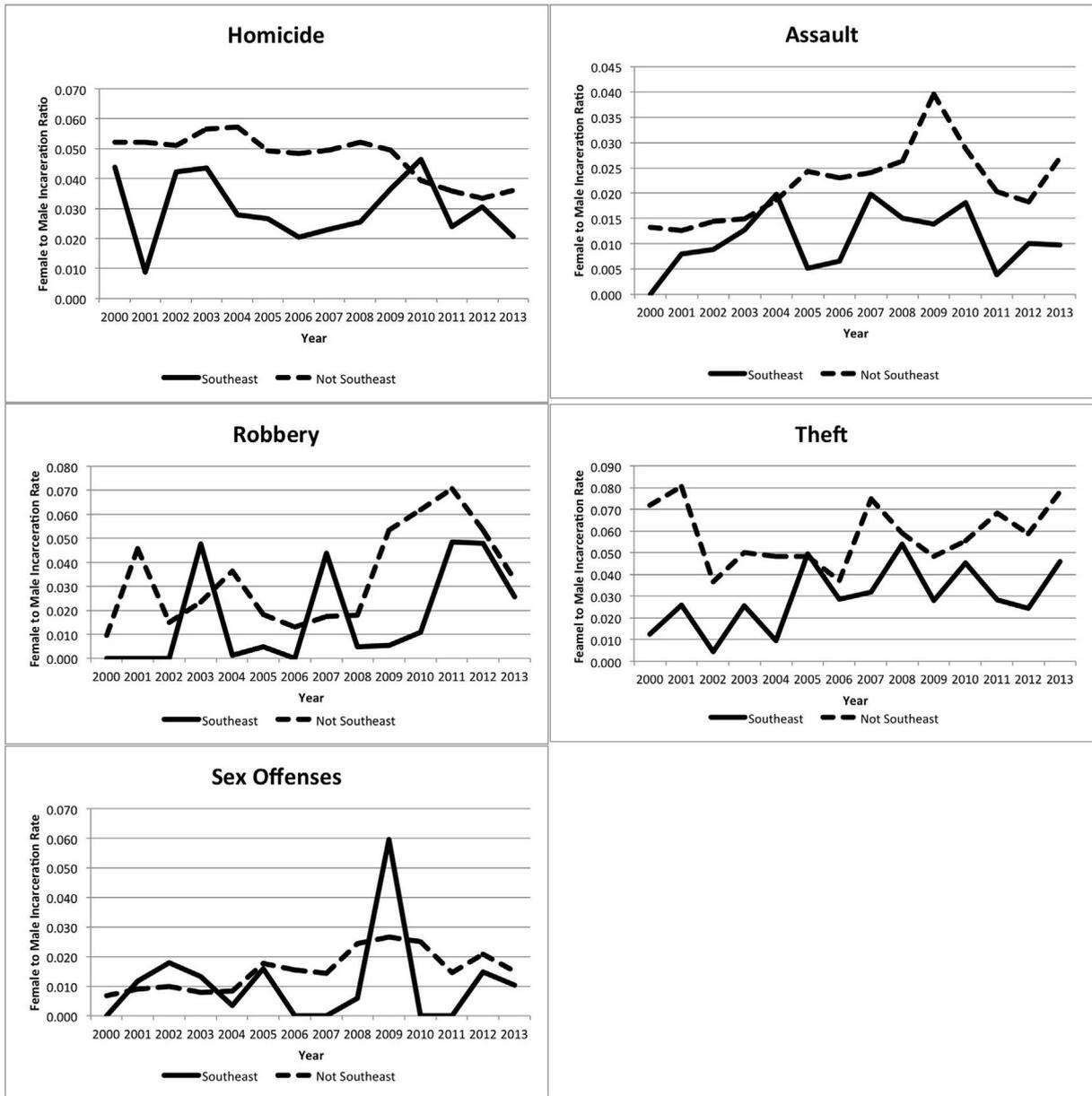


Fig. 3. Ratio of female incarcerations to male incarcerations for southeast Turkey and the not southeast Turkey 2000–2013.

When the sample was divided into the southeast and the rest of Turkey however a divergent picture emerged. The previous robust and fairly consistent finding that the female proportion of high school teachers was positively related to the ratio of female to male incarcerations was not evidenced in southeast Turkey for any of the five crime types examined (Table 4). Only the number of divorces per 10,000 people and the married age difference were related to the ratio of female to male homicide incarcerations within the southeast. Perhaps the starkest finding from these models was the absence of a relationship (in any direction) between national-level variables and female crime in the southeast. As such, these models indicated that province-level increases in gender equality had very little impact on the ratio of female to male incarcerations in the southeast of Turkey. In addition, despite the potential for type-1 errors, only three out of the 60 nation-level independent variables was statistically linked in the hypothesized direction to crime (the ratio of female to male survival until the age of 65 on lagged female assault, robbery, and theft). Although this may have been due to reduced statistical power, these null findings were consistent across other statistical models that required fewer degrees of freedom.⁶

When models were run examining the rest of the nation, it appears that many of the above national trends (Table 3) were driven

⁶ In addition to the Tobit model displayed, CLAD, SCLS, and OLS were run and in all cases for the ratio of incarceration models and yielded substantively identical findings.

Table 3

Fixed Effects Tobit Results for the Ratio of Female to Male Incarceration (two-tailed, *p < 0.05, **p < 0.01, ***p < 0.001).

	Lagged Homicide Ratio	Lagged Assault Ratio	Lagged Robbery Ratio	Lagged Theft Ratio	Lagged Sex Offences Ratio
Variable	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Female Proportion High School Teachers	0.08 (0.06)	0.092*** (0.024)	0.639** (0.221)	0.127* (0.061)	0.416** (0.137)
Female Proportion Professors	0.02 (0.04)	-0.007 (0.015)	0.058 (0.139)	-0.002 (0.038)	-0.025 (0.091)
Married Age Difference	-0.01 (0.01)	-0.001 (0.004)	-0.018 (0.036)	-0.014 (0.011)	0.008 (0.022)
Divorce Rate	0.001 (0.002)	0.001 (0.001)	0.011* (0.005)	0.001 (0.002)	0.006 (0.003)
Female Proportion Higher Education Graduates	0.029 (0.067)	0.008 (0.028)	-0.298 (0.254)	-0.016 (0.065)	-0.036 (0.166)
Female Proportion High Education Students	0.089 (0.086)	0.027 (0.037)	0.649 (0.337)	0.153 (0.088)	0.137 (0.214)
Female to Male Life Expectancy Ratio	-0.396 (10.786)	4.428 (4.446)	34.461 (38.752)	-11.796 (9.803)	57.339* (24.814)
Female Proportion Legislators	-0.003 (0.012)	-0.006 (0.005)	-0.105* (0.047)	0.03** (0.011)	-0.076* (0.029)
Fertility Rate	-0.044 (0.45)	-0.456 (0.185)	-1.595 (1.585)	0.644 (0.409)	-2.67** (1.038)
Female to Male Survival Until 65 Ratio	0.522 (3.249)	4.436* (1.42)	42.524*** (13.196)	-1.916 (2.966)	11.798 (7.768)
Adolescent Fertility Rate	0 (0.008)	-0.004** (0.003)	-0.115*** (0.031)	0.006 (0.007)	-0.022 (0.019)
Constant	-0.098 (10.406)	-8.759 (4.262)	-78.467 (37.48)	13.235 (9.447)	-69.625 (23.967)

Table 4

Fixed Effects Tobit Results for the Ratio of Female to Male Incarceration in Southeast Turkey 2000–2013 (two-tailed, *p < 0.05, **p < 0.01, ***p < 0.001).

	Lagged Homicide Ratio	Lagged Assault Ratio	Lagged Robbery Ratio	Lagged Theft Ratio	Lagged Sex Offences Ratio
Variable	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Female Proportion High School Teachers	0.053 (0.202)	0.025 (0.022)	0.27 (0.796)	0.273 (0.196)	0.505 (1.265)
Female Proportion Professors	0.218 (0.243)	-0.222 (0.154)	0.69 (0.919)	0.298 (0.219)	1.043 (1.172)
Married Age Difference	0.059* (0.027)	0.009 (0.016)	-0.074 (0.123)	-0.015 (0.031)	0.023 (0.175)
Divorce Rate	0.162* (0.066)	0.068 (0.042)	0.161 (0.277)	0.073 (0.077)	0.482 (0.367)
Female Proportion Higher Education Graduates	0.049 (0.165)	0.061 (0.094)	-0.862 (0.651)	-0.01 (0.139)	-0.147 (1.061)
Female Proportion High Education Students	-0.036 (0.198)	-0.122 (0.122)	0.985 (0.816)	0.006 (0.18)	0.047 (1.26)
Female to Male Life Expectancy Ratio	-1.735 (36.039)	29.82 (20.952)	-117.695 (180.168)	-10.279 (27.883)	504.99 (282.489)
Female Proportion Legislators	-0.037 (0.043)	-0.031 (0.024)	0.022 (0.191)	0.041 (0.033)	-0.632 (0.324)
Fertility Rate	-0.053 (1.485)	-1.672 (0.885)	-4.34 (5.896)	-0.188 (1.152)	-20.622 (12.439)
Female to Male Survival Until 65 Ratio	20.584 (11.432)	5.485 (6.42)	187.698 (104.705)	6.025 (8.703)	-2.943 (59.798)
Adolescent Fertility Rate	-0.054* (0.027)	-0.001 (0.015)	-0.288 (0.185)	0.008 (0.021)	0.003 (0.184)
Constant	-19.604 (34.785)	-35.279 (20.05)	-66.538 (140.997)	4.026 (26.723)	-502.759 (271.881)

Table 5

Fixed Effects Tobit Results for the Ratio of Female to Male Incarceration in Not Southeast Turkey 2000–2013 (two-tailed, *p < 0.05, **p < 0.01, ***p < 0.001).

	Lagged Homicide Ratio	Lagged Assault Ratio	Lagged Robbery Ratio	Lagged Theft Ratio	Lagged Sex Offences Ratio
Variable	β (SE)	β (SE)	β (SE)	β (SE)	β (SE)
Female Proportion High School Teachers	0.013 (0.059)	0.379*** (0.114)	0.563* (0.239)	0.026 (0.062)	0.317* (0.117)
Female Proportion Professors	0.012 (0.034)	-0.001 (0.013)	0.016 (0.135)	-0.005 (0.036)	-0.084 (0.075)
Married Age Difference	-0.024* (0.01)	-0.006 (0.004)	0.006 (0.04)	-0.008 (0.011)	0.019 (0.019)
Divorce Rate	0 (0.001)	-0.041 (0.562)	0.01* (0.005)	0.001 (0.001)	0.004* (0.002)
Female Proportion Higher Education Graduates	-0.056 (0.079)	-0.041 (0.032)	-0.18 (0.329)	-0.074 (0.08)	-0.193 (0.165)
Female Proportion High Education Students	0.041 (0.098)	0.042 (0.039)	0.399 (0.411)	0.14 (0.104)	0.177 (0.205)
Female to Male Life Expectancy Ratio	1.553 (10.907)	3.904 (4.273)	35.663 (40.25)	-11.151 (10.496)	31.107 (20.659)
Female Proportion Legislators	0.001 (0.012)	-0.005 (0.005)	-0.111* (0.049)	0.028* (0.012)	-0.041 (0.024)
Fertility Rate	-0.094 (0.457)	-0.395* (0.178)	-1.152 (1.658)	0.789 (0.439)	-1.684* (0.862)
Female to Male Survival Until 65 Ratio	-2.988 (3.258)	4.008** (1.354)	36.913** (13.27)	-3.844 (3.159)	11.098 (6.606)
Adolescent Fertility Rate	0.009 (0.008)	-0.005 (0.003)	-0.115*** (0.032)	0.006 (0.007)	-0.019 (0.016)
Constant	1.669 (10.523)	-7.758 (4.102)	-74.249 (39.079)	14.499 (10.129)	-42.472 (19.892)

by the non-southeast of Turkey (Table 5). Echoing these earlier observations, the female proportion of high school teachers was positively related to all violent crime incarceration types with the exception of homicide, regardless of model specification. Beyond this robust finding however, only the divorce rate on the ratio of female to male incarcerations for robbery and sex offences and the married age difference on the homicide ratio indicated statistically significant relationships.

6. Discussion

Throughout the above analyses, it is clear that meaningful progress toward gender equality in the realms of education, health, and fertility occurred in Turkey since the beginning of the twenty-first century. Despite the often-monotonic aggregate advances in gender equality that were evident when looking at the entire nation, in support of hypothesis 1, this study finds evidence for meaningful subnational variation in these trends that warrants further exploration in this and other contexts. Given the consistent support found for the hypotheses that the relative level of gender equality experienced and incarceration across all crime types were lower in the southeast of Turkey compared to the rest of the nation, also supporting hypothesis 2, this study suggests that by looking at an entire nation, important patterns regarding fluctuations in gender equality and their impacts may be missed, especially for regionally marginalized populations. For the entire 14-year period observed by this study, it is evident that both incarceration patterns and gender equality advances occur in statistically distinguishable trends, adding credence to the notion that while gender gaps in crime and criminal justice responses may be 'universal,' the size of any gender equality gap and its consequences to society vary significantly within nations (Kandiyoti and Kandiyoti, 1987; Zinn and Dill, 1996; Steffensmeier and Allan, 1996).

This study also provides evidence that the impact of variation in gender equality on the incarceration gender gap was not limited to specific crime types. After accounting for time stable province-level variation and a host of other factors, increases in the female proportion of high school teachers were associated with increases in the relative incarceration of women for all offenses examined within Turkey in the following year, with the sole exception of homicide. Further demonstrating meaningful subnational variation, the positive relationship between the female proportion of teachers and the ratio of female to male violent offense incarcerations (excluding homicide) was only found to exist outside of the southeastern region of Turkey. Contrary to the predictions of hypothesis 4 that suggested that the impact of increases in gender equality would be larger within the southeast, the findings from this study suggest that the impact of increases in gender equality on the relative incarceration of women may be limited to areas that had already witnessed widespread advances in gender equality. Further, although Kandiyoti and Kandiyoti (1987) highlight the importance of education, marriage, and fertility as key domains for gender equality, this study failed to detect meaningful impacts of many of these measures, particularly within the southeast. Concordantly, this study highlights the need to examine the impact of other forms of gender equality upon incarceration in Turkey and other contexts.

Although this study presents a major advance in investigating how fluctuations in gender equality may impact female incarceration trends beyond English-speaking nations, it is important to note a number of key limitations in the above findings. Notably, any time-variant heterogeneity within the 81 Turkish provinces that is excluded from the model could be endogenous to female education and thus be influencing these results. This includes a range of changes to the Turkish Penal Code (see Ilkkaracan, 2007), and examining the impact of these legal changes marks an important next step in examining the variable impact of changes in gender equality upon the incarceration of women in Turkey. Further, while data regarding this region of the world are difficult to obtain, the Turkish Government collected much of the data used in the previous analysis. Thus, although attempts were made wherever possible to minimize sources of bias and to validate observations using impartial sources, it is still plausible that biases in data collection procedures may have some influence on these results. As such, in addition to testing this study's hypotheses in other contexts in order to assess the generalizability of the above findings, it is also strongly encouraged that parallel attempts be made to replicate these findings within Turkey using independently collected data. The findings produced by this study also suggest that changes in gender equality may impact incarceration practices differently across religious contexts. Although these factors were confounded in the present analysis due to data availability regarding province-level religious variation, this presents an opportunity for future research to explore the relationship between religious attitudes, existing gender equality, and criminal justice responses.

7. Conclusion

Although the twenty-first century globally saw an erosion of traditional segregated gender roles and advances in gender equality (Ingelhart and Norris, 2003), it is clear that meaningful variations in these patterns both across nations and within nations are apparent (Kabeer, 2005). Aiming to explore the impact of elements of increased gender equality on incarceration, this study presents evidence suggesting that advances in gender equality in the more westernized and secularized parts of Turkey may lead to increases in the ratio of female to male incarcerations for a variety of crimes. While further exploration is required to better understand the unique and variable social location and experiences of women on the border between Europe and the Middle East; the complex interplay of religion, entrenched patriarchal power systems, and a deeply socially heterogeneous nation make Turkey an ideal nation in which to test the generalizability of chivalry, emancipation, and other western feminist hypotheses.

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