Queens*

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Abstract

A large scholarship claims that states led by women are less conflictual than states led by men. However, it is theoretically unclear why female leaders would favor more conciliatory war policies. And, it is empirically challenging to identify the effect of female rule, since women may gain power disproportionately during periods of peace. We surmount this challenge by exploiting features of hereditary succession in European polities over the 15th-20th centuries. In this context, women were more likely to acquire power if the previous monarch lacked a male first-born child, or had a sister who could follow as successor. Using these factors as instruments for female rule, we find that queenly reigns participated more in inter-state conflicts, without experiencing more internal conflict. Moreover, the tendency of queens to participate as conflict aggressors varied based on marital status. Among unmarried monarchs, queens were more likely to be attacked than kings. Among married monarchs, queens were more likely than kings to participate as attackers and fight with allies. These results are consistent with an account in which marriages strengthened queenly reigns, both because of alliances, and because queens utilized their spouses to help them rule. Kings, in contrast, were less inclined to utilize a similar division of labor. This asymmetry in how queens utilized male spouses and kings utilized female spouses increased the relative capacity of queenly reigns, enabling them to pursue more aggressive war policies.

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1 Introduction

A large body of scholarship contends that women are less violent than men, and consequently, states led by women are less conflict prone than states led by men. In recent work, Stephen Pinker (2011) writes "Over the long sweep of history, women have been and will be a pacifying force (p. 527)." He also claims "...males...take more foolish risks in aggressive attacks...and plan and carry out almost all the wars and genocides (p. 684)." Similarly, Francis Fukuyama (1998) states "A truly matriarchal world would be less prone to conflict and more conciliatory and cooperative than the one we inhabit now (p. 33)." Fukuyama also posits that the growing feminization of political leadership has contributed to the recent democratic peace among the developed nations.

These claims regarding female leaders and their state's conflict behavior are common — but there are reasons to interpret them with caution. First, theoretically, even if women are less violent than men, women leaders may be unwilling to enact conciliatory war policies. After all, doing so would put their states in a relatively weak position, particularly if they are operating in a world of primarily male leaders. This observation has led some to suggest that female leaders such as Indira Gandhi or Margaret Thatcher, who readily used military force, may have done so as a form of "male posturing" (Ehrenreich and Pollitt 1999). Second, it is empirically challenging to isolate the effect of female leadership on conflict. Women may be more likely to gain power during periods of peace — under both electoral systems (Lawless 2014) and hereditary systems (Pinker 2011). This form of endogenous succession could generate bias in estimating the effect of female rule.

In this paper, we determine how female rule affected war participation in Europe historically, exploiting features of hereditary succession to surmount this identification challenge. We focus on the late 15th to early 20th centuries, and analyze polities that had at least one female ruler over this period. Within these polities, older male children of reigning monarchs had priority in succession (Monter 2012, p. 36-37). As a result, queens were less likely to come to power if the previous monarchs had a first born child who was male. They were also more likely to come

to power if the previous monarchs had a sister who could follow as successor. We therefore use the presence of a male first born child and presence of a sister as instruments for queenly rule. Our analysis determines whether polities led by women differed in their war participation than states led by men. This is conceptually distinct from examining whether women are less violent than men.

To implement our Instrumental Variables approach, we construct an original panel dataset which tracks the genealogy and conflict participation of each polity, over 1480-1913. Our sample covers 184 reigns in 17 polities — with queens ruling in nearly one-fifth of these reigns. Our empirical strategy also includes decade fixed effects and polity fixed effects, so we exploit variation over time in the ruler's gender within each polity. Using this approach, we find that polities ruled by queens were 27% *more* likely to participate in inter-state conflicts, compared to polities ruled by kings. At the same time, queenly reigns were no more likely to experience internal conflicts or other types of instability.

We explore two theories of why female rule may have increased war participation over this period. The first theory suggests that women may have been perceived as easy targets of attack. Female rule was sometimes virulently opposed on exactly the grounds that women made for weak leaders, who were incapable of leading their armies to war. This perception—accurate or not—could have led queens to participate more in wars as a consequence of getting attacked by others.

The second theory builds on the importance of state capacity. As Tilly (1992) argued, "states made war, and war made states". Wars demanded financing, and this spurred states to develop a broader fiscal reach (Besley and Persson 2009; Karaman and Pamuk 2013; Gennaioli and Voth forthcoming). As a result, states undertaking wars required greater capacity as a whole. If queens relied on their spouses to help manage state affairs in a way kings did not, then greater division of labor under queenly reigns could have enabled queens to pursue more aggressive war policies. As a consequence, queens may have participated more in wars in which their polity was the aggressor.

To test these ideas, we disaggregate war participation based on which side was the aggressor,

and examine heterogeneous effects based on the monarch's marital status. We find among unmarried monarchs, queens were more likely to be attacked than kings. Among married monarchs, queens were more likely to participate as aggressors than kings.

These results provide some support for the idea that queens were targeted for attack. Unmarried queens, specifically, may have been perceived as weak and attacked by others. But the same did not hold true for married queens, who, instead participated as aggressors. The results also support the reign capacity account, suggesting that the willingness of queens to enlist their spouses in managing affairs may in fact have enabled queens to pursue wars more aggressively. As such, the asymmetry in how queens utilized male spouses, and how kings utilized female spouses, may have strengthened the relative capacity of queenly reigns, facilitating their greater participation in warfare.

In addition, present evidence against several alternative accounts. One such account suggests that queens may have fought more wars to signal they were strong, regardless of their actual capacity. If this is true, we should observe a larger effects early in the reign, when it would be most valuable to send this signal. However, we observe no such differential effect. Another account suggests that it is not the queen — but a foreign minister or other persuasive male — who set the war policy. If this is true, then the estimated effect should be larger among monarchs who acceded at a younger age, who were more likely to be influenced by others. But we again observe no such differential effect, which casts doubt on the idea that war participation was driven by the influence of another official.

Finally, we conduct a number of checks to validate our instruments. We control for the total number of siblings among previous monarchs, which may be correlated with the presence of a sister and affect wars over succession in the previous reign. We show that the lack of a first born male doesn't itself affect war in the contemporaneous reign, or in a sample of polities that never had queens. And, we verify the robustness of the results to excluding succession wars from the sample.

To the best of our knowledge, our work is the first to quantify how female rule historically influenced conflict engagement. A number of important studies have examined this relationship

in the modern era, and found mixed results. For example, female executives have been shown to increase state military spending and international conflict engagement (Koch and Fulton 2011), while a higher fraction of female legislators have been found to reduce both outcomes (Koch and Fulton 2011; Caprioli 2000; Caprioli and Boyer 2001; Regen and Paskaviciute 2003). The second set of results are aligned with findings that women are less likely to support the use of force internationally (Conover and Shapiro 1993; Shapiro and Mahajan 1986; Jelen et al. 1994; Wilcox et al. 1996; Eichenberg 2003). In addition, female leadership and gender equality have both been shown to lower internal conflict (Caprioli 2000; Melander 2005; Fearon 2010). We build on this literature by explicitly accounting for endogeneity bias, and using an exogenous determinant of female rule.

Our paper is part of a broader literature that asks whether leaders matter (Jones and Olken 2005; Pande 2003), and whether female leaders, in particular, shape public policies. Several studies have demonstrated how female leaders affect modern day development outcomes at the sub-national level, including: public goods provision (Duflo and Chattopadhay 2004); education (Clots-Figueras 2005; Beaman et al. 2012); and corruption (Brollo and Trojano 2014).[1] Breuning (2001) also demonstrates an impact of female leadership on the provision of development assistance. We also examine effects on a national-level policy outcome, but in a historical context.

Another related literature examines how female socialization affects male behavior. These studies have documented how mothers influence their sons' labor market outcomes (Fernandez et al. 2004[2]); and how having a daughter affects male legislative voting (Washington 2008), party identity (Healy and Malhotra 2013), and judicial decision-making (Glynn and Sen 2013). Others have also explored the combined effect of ethnicity and female socialization. For example, Iyigun (2013) finds that Ottomans of European matrilineal lineage tended to fight fewer wars

[1] Recent work has also examined how female leadership on firm boards influence their performance (Matsa and Miller 2013; Bertrand et al. 2015).

[2] Fernandez et al. (2004) use variation in World War II as a shock to women's labor force participation to demonstrate that wives of men whose mothers worked are also more likely to work. Abramitzky et al. (2011) also use variation stemming from World War I mortality to demonstrate how the scarcity of men can improve their position in the marriage market. This paper highlights the influence of past war on marriage-related outcomes, while our findings suggest the role of marriage in influencing war-related outcomes.

against European kingdoms. We examine the direct effect of female decision-making, rather than the effect of female socialization on male decision-making.

Our paper also relates to a number of recent works that have carefully examined the nature of European monarchies. These analyses have demonstrated that reigns became longer with the spread of feudalism and parliamentarianism (Blaydes and Chaney 2013); that hereditary succession promoted economic growth when executive constraints were weak (Besley and Reynal-Querol 2015)[3]; and succession through primogeniture increased monarch survival over 1000-1800 (Kokkonen and Sundell 2014) — a period when regicides also declined (Eisner 2011). Consequently, we examine related outcomes such as reign length and regicide in our analysis.

Finally, a large, rich literature has highlighted the political and economic legacy of warfare. A number of influential works have advanced war as a key factor in promoting the formation of nation-states (Tilly 1992; Besley and Persson 2009; Gennaioli and Voth forthcoming). Within this area, scholars have also documented how modern day political and economic development reflect historical conflict and military competition between states (Dincecco and Prado 2012; Voigtlander and Voth 2013a, 2013b; Acharya and Lee 2015). Our focus is on understanding factors that give rise to war, and whether the gender identity of a state's leader influences this consequential outcome.[4]

In the remainder of the paper, we discuss mechanisms through which female leadership can influence war; describe our data; outline the empirical strategy; present the results; and conclude.

[3] Abramson and Boix (2012) document another channel for European growth, showing that industrialization took place in territories with strong proto-industrial centers, regardless of executive constraints.

[4] Our analysis discerns the effect of queens on conflict. This is distinct from discerning the effect of male heirs, which has been the subject of two recent papers examining economic outcomes. Acharya and Lee (2015) examine how the availability of male heirs over 1000-1500 affect modern-day economic growth. Besley and Reynal-Querol (2015) use first-born males in both the current and previous reigns as an instrument for hereditary succession, to examine effects on economic growth in the post-1848 period. In contrast, only one part of our identifying variation stems from first-born males, which complements the sisters instrument. This reflects the fact that gender of the first-born does not perfectly determine whether a queen comes to power. For example, even if a monarch has a first-born son, a daughter could still inherit the throne if the son dies at young age. Conversely, even if a monarch has a first-born daughter, the throne could still pass to a younger brother. We discuss the sources of variation in our instrument set in greater detail in Section 4.2.

2 Mechanisms

2.1 Gender and Perceived Weakness

One account of how female rule influenced war participation focuses on others' perceptions that women were weak and incapable of leading their countries to war. While male sovereigns were typically also military commanders, this role remained taboo for female rulers (Monter 2012, p. 49). In fact, the legitimacy of female rule was often questioned on these very grounds. For example, when Mary Tudor became queen of England in 1553, many strongly opposed female succession. The Protestant reformer John Knox then declared that women were incapable of effective rule for "nature...doth paint them forth to be weak, frail, impatient, feeble, and foolish...(Jansen 2002)."

These perceptions may have led others to view queens as easy targets, and thus attack polities ruled by queens at higher rates. Take the case of King Frederick II of Prussia, described as a "notorious misogynist" who once exclaimed that "no woman should ever be allowed to govern anything" (Monter, p. 166). A month after Maria Theresa acceded as monarch of Austria in 1745, King Frederick invaded Silesia, the richest of the provinces within her territory (Beales, p. 132). Frederik's perception of women as incapable rulers fuelled the notion that her territory would be easy to seize. Accounts of perceived weakness such as this one suggest that queens may have participated more in wars in which they were attacked.

2.2 Gender and Reign Capacity

A second theory of female rule and war participation focuses instead on the importance of state capacity in conducting warfare. Over the 16th-20th centuries, European wars were frequent and increasingly required extensive financing and military management. Both factors became especially important with the advent of the "Military Revolution" in the 1500s, which introduced new military technologies and spurred larger militaries, making war more expensive. For example, the widespread use of cannons led to the use of stronger, more costly fortifications,

which were required to withstand cannon fire (Gennaioli and Voth forthcoming).[5]

Army sizes also grew with new forms of fortification and gunpowder technology (Hoffman 2011, Roberts 1956, White 1962, Bean 1973).[6] And, during this period, many countries introduced standing armies and permanent navies, with professional soldiers trained on an ongoing basis. For example, the armed forces of England grew 3-fold over 1550-1780, while the armed forces of Austria increased 28-fold over this same time (Karaman and Pamuk 2010). Larger armies with professional soldiers required greater military management, as well as greater financing. As Tilly (1992) argued, the need for war financing to larger more centralized states, with more extensive fiscal infrastructure for collecting revenue (Gennaioli and Voth 2014; Karaman and Pamuk 2013).

Ultimately then, fighting wars effectively required greater managerial capacity, both for collecting revenue and overseeing large armies. They also required resources. These features highlight another way in which female rule may have altered a state's belligerence: female reigns may have had greater resources at their disposal, and thus a greater capacity to carry out war along two dimensions.

First, queenly reigns may have benefited from more alliances. While marriage brought alliances for both male and female monarchs, male spouses were typically more engaged with military matters in their home countries than female spouses, and thus better positioned to forge and cement military alliances. Alliances, in turn, would serve to strengthen the fighting position of a polity, by spreading the burden and costs of fighting over numerous partners.

Second, queenly reigns may have utilized their spouses to a greater degree in helping them rule. Queens often put their male spouses in charge of some state matters, which kings were less inclined to do with their female spouses. This greater division of labor under queenly reigns would then have freed up time and resources to pursue a wider array of policies, including more aggressive war policies. This asymmetry in spousal division of labor emerged in several realms.

[5]For example, engineers devised the *trace italienne* fortification to protect cities but these were very expensive to construct.

[6]This trend continued into the 19th century, with military size spiking after the introduction of railroads in 1859 (Onorato Scheve and Stasavage 2014).

Since women didn't serve as heads of militaries, queens would often appoint their husbands to this role, though kings of course, did not do the same with their wives (Beem and Taylor 2014, p.4). As an example, when Queen Doña Maria II of Portugal married Prince Augustus Francis Anthony in 1836, their marriage contract stated that he would serve as commander in chief of the army (Alves 2014, p.166).

Many male spouses (called king consorts) played a critical roles in military conquests, even if they were not official heads of militaries. For example, Mary of Burgundy relied heavily on her husband Maximilian, heir to the Holy Roman Empire, for leading successful military campaigns against the French (Monter 2012, p. 89). Ferdinand V, who co-ruled the Kingdoms of Leon and Castile with Isabella I over 1474-1504, also played an essential military role. Ferdinand helped Isabella defeat her niece, Joan of Castile, who challenged her succession. He also led the Spanish conquest of Granada, expunging the last Islamic state from Spanish soil, and was instrumental in engineering Spain's conquest of the new world.

In addition, some spouses played important roles in carrying out economic reforms and boosting the state's fiscal capacity, which were needed for financing wars. Francis Stephen essentially single-handedly revitalized the financial system of the Austrian monarchy and raised money for an army during the 1740s when his wife Maria Theresa was its ruler (Beales 2014).

Other spouses helped shape the monarchy's position in foreign affairs and other areas, even if they never planned or carried out wars. For example, Prince Albert was Queen Victoria's most trusted advisor, and shaped her colonial policy and public relations image (Urbach 2014). In fact, Victoria was said to be most active as a ruler during Albert's lifetime.

Though the degree of direct involvement in wars varied from reign to reign, king consorts were typically involved in governing some aspect of state affairs. Spouses may have been particularly important because for playing a supporting role, since they solved an ages old problem in who to trust in ruling. In contrast to spouses, siblings for example, could be potential contenders for the throne, and thus, could not be easily entrusted to aid in ruling. Thus, the greater spousal division of labor, in conjunction with alliances, may have strengthened the overall capacity of queenly reigns, enabling hem to participate in wars more aggressively.

This reign capacity account implies that queens may have participated more in wars in which their polities were the aggressors, particularly if they were married. In addition, it implies that married queens may have participated disproportionately in wars in which they fought in conjunction with an ally.

3 Data and Sample Description

There is no pre-existing dataset which tracks the genealogy of European polities and their participation in wars historically. We construct this dataset for the period spanning 1480-1913, using various data sources. Our sample starts in 1480 since this is the first year for which war data is available. Our sample ends at the onset of World War I, after which time monarchs had relatively limited power in deciding when their polities should go to war.

3.1 Genealogy Data

We use Morby (1989) as the starting point for constructing our polity-year panel. This source provides a list of polities that existed in Europe over this period.[7] Our main sample has 17 polities that had at least one queen during this time. Figure 1 shows these polities.[8] Not every polity existed for every year: on average, each polity existed for 199 years, though this ranges from 9 years to 434 years. Also, periods in which a polity is a republic are not a part of the sample, since we aim to examine the effect of female monarchs relative to male monarchs.

For each polity, Morby provides a chronological listing of rulers, along with the start and end years of their reign. Following this structure, we define a reign as a period in which a given monarch or set of monarchs rule the polity. Our sample includes 185 reigns. In most reigns,

[7] Morby refers to these units as kingdoms. While some of these units — such as the Kingdom of England, the Kingdoms of Leon and Castile, and the Tsardom of Russia — are formally defined as kingdoms, others— such as The Medici and their Successors in Florence or The Principality of Monaco — are more accurately described as independent states. We use the term polity to encompass both kingdoms and states.

[8] This figure was created by overlaying six Georeferenced Historical Vector maps from Euratlas (http://www.euratlas.com/) at the turn of each century between 1500-2000. Since the boundaries are from different time periods, they do not necessarily match present day borders or show the maximum geographical area covered by each polity historically. Rather the figure aims to visually show the polities appearing in our sample.

there is a single monarch. However, in 16 reigns, multiple monarchs rule simultaneously. Most of these cases reflect actual co-rule, from (1) a husband and wife ruling jointly, as in the case of Isabel I and Ferdinand V, who ruled the Kingdoms of Leon and Castile or (2) father and son ruling together, such as Ivan III the Great and Ivan the Younger who ruled the Tsardom of Russia as co-regents over 1471-1489.[9] Given co-rule, a monarch may govern across multiple reigns.[10]

Queens ruled in 33 of the reigns, constituting 18% of the sample. They ruled on their own as "Solo queens" in 23 reigns, and co-ruled with husbands in almost all remaining reigns.[11] Joint rule with husbands typically arose when queens succeeded to the throne, and their husbands were officially declared co-rulers with the title of king. This was not always feasible under the laws of the land. Sometimes women who succeeded were actually designated "kings" – and in that regard they are better described as "female kings" rather than queens (Monter 2012).

A total of 186 monarchs, including 28 queens, governed across the reigns within our main sample. We code genealogy information for these monarchs using the Catalog of Royal Family Lineages (Tompsett 1994), which follows the same polity listing as Morby. For each ruler, we code marriage year, marriage dissolution year, and spouse birth and death years. This allows us to track who they are married to, and whether their spouses are living during their reign. In addition, we record the birth and death year of the children and their siblings. This allows us to establish whether the monarch had any siblings, and to discern the birth order of the children. Tompsett (1994) is highly comprehensive, and records those who died as infants. For example, even children with the same birth year and death year are included in the catalog.

The gender of a ruler's children and siblings are typically not stated separately. However, we use their listed names to establish gender. For most instances, this is obvious based on name. When it is not, we used additional data sources to determine if the individual was male

[9] In seven additional cases, there is multiple rule because one ruler governed the polity for less than a year before being deposed. For example, Edward V ruled the Kingdom of England for a part of 1483 before he was deposed and his brother Richard III took over as the monarch.

[10] For example, Queen Suzanne ruled the Duchy of Bourbonnais on her own over 1503-1504. She ruled together with her husband Charles III over 1505-1521. Upon her death, Charles III ruled on his own, from 1522-1527.

[11] The one exception occurred when two females — Mary I and Lady Jane Grey ruled the kingdom of England in the same year (1553).

or female. In a few cases, Tompsett (1994) lists the gender but not the name, and for these we simply record gender as listed.

We use this data to generate indicators of whether the monarch(s) in the previous reign had a legitimate first born child who was male, and whether they had a sibling who was female. In the instances where neither name nor gender are provided, we create indicators that the gender of the first born and or siblings are missing. We also create a measure of the total number of siblings among previous monarchs. Additionally, we record the ruler's age at accession.[12]

Our empirical approach requires us to examine the impact of siblings and first-born children among the previous monarchs, since these individuals tend to correspond to the previous generation. So in most cases, the previous monarchs are simply those who ruled in the previous reign. However, in 16 cases, co-rule and one monarch ruling across multiple reigns break the correspondence of generations to reigns. In these cases, our definition of previous monarchs differ from monarchs in the last reign. For example, in the case of Suzanne and Charles of Bourbonnais, when Suzanne rules by herself, and Suzanne and Charles rule together, and Charles rules by himself, we take all three reigns, and we designate the previous monarchs to be Suzanne's father Peter II and his brother Charles II, who ruled together in a year prior to Suzanne's succession.[13]

3.2 War Data

We code war information provided by Wright (1942) and match it to our genealogy panel to track when each polity is at war. Wight provides a comprehensive listing of wars starting in 1480. This includes "all hostilities involving members of the family of nations, whether international, civil, colonial, imperial, which were recognized as states of war in the legal sense or which involved over 50,000 troops" (Wright 1942, p.636). It also includes "hostilities of

[12]We favor Morby over Tompsett if they differ in reporting the ruler's accession year or the relationship with the ruler(s) of the previous reign.

[13]Since Charles is from a different family than Suzanne, instrumenting his reign with Suzanne's parents will weaken the relationship between the endogenous variable and the instrument. On the other hand, agnostically coding previous rulers, irrespective of whether they are from a different family as the endogenous monarchs, is important for preserving the validity of the instrument.

considerable but lesser magnitude, not recognized at the time as legal states of war, that led to important legal results" (Wright 1942, p.636). Importantly, this data source records when each participant enters and exits each war, which allows us to track war participation with precision. It also distinguishes between different types of wars, formally defined as:

1. Balance of Power War - war among state members of the modern family of nations

2. Defensive War - war to defend modern civilization against an alien culture

3. Imperial War - war to expand modern civilization at the expense of an alien culture

4. Civil Wars - war within a state member of the modern family of nations

Balance of Power wars took place among European polities; defensive wars almost exclusively involved Ottoman invasions; and imperial wars were colonial conflicts. We aggregate these three war types together to create a measure of external conflict participation. External conflicts, by definition, involve two or more units at the start of the war (and these units are comprised of two or more European polities in the case of Balance of Power wars). Civil wars, in contrast, are internal to one unit, and by definition, involve one polity at the start of the war. Typically, we analyze external wars separately from civil wars. However, since civil wars can result in the creation of new units (for example, if part of the original unit secedes), we also analyze an aggregate measure of war participation in the appendix. Most wars are external wars, and most external wars are Balance of Power wars. Specifically, our main sample includes 69 balance of power wars, 28 imperial wars, 6 defensive wars, and 37 civil wars.

Wright also demarcates which side is the aggressor — i.e., which side initiated each war.[14] This is of course a subjective measure, as is the case for aggressor coding in any war setting. We rely on Wright's coding, rather than on our own, to minimize potential bias in this measurement. The concept of the aggressor is also clearest and most precisely measured for Balance of Power wars, so we analyze aggressive war participation for this type of war.[15] Besides war

[14]Wright also discusses that he demarcates the aggressor by looking for the side that he considers to be the "primary belligerent."

[15]The colonizing power is always assumed to have initiated imperial wars; rebels are always assumed to have initiated civil wars; and no participant is defined as an aggressor in defensive wars (Wright 1942, p.637).

participation, we also use data on regicide — the killing of monarchs — as coded by Eisner (2011).

3.3 Sample

Our main sample spans 1480-1913, and includes 17 polities that ever had a queen. Table A.1 lists these polities. The case of Austria warrants discussion. Austria was ruled by Queen Maria Theresa over 1740-1780. However, it does not appear in our main sample because of how it is defined relative to the Holy Roman Empire. The territories of the Austrian monarchy and the Holy Roman Empire overlapped substantially during the empire's existence.[16] And, in every year except Maria Theresa's rule, the monarch of Austria and the emperor were the same individual (Beales 2014, p. 126). Given these overlaps, Morby codes Austria as a separate unit starting in 1804, around the time when the Holy Roman Empire drew to an end. Since this is after Maria Theresa' reign, and Austria had no other female monarchs, in our main specification we follow Morby's timeline, which would not count Austria as a polity with a queen. However, we conduct an additional check in the appendix where we backdate the Austrian monarchy to before Maria Theresa's rule,[17] which allows us to include her reign in the analysis.

We also code genealogy and war participation for an auxiliary sample of polities that never had queens, which we use to conduct falsification tests. This sample is comprised of 151 reigns across 19 polities for which we were able to match the units in the war data to units in the genealogy data. For example, this was not possible for the German kingdoms, which typically had multiple houses co-ruling different sub-regions within their polities — but Wright's war data does not discern which specific sub-regions participated in each war. These 19 polities are also shown in Figure 1.

[16] However, there are notable exceptions such as the German kingdoms, which were a part of the empire, but not the monarchy.

[17] We backdate to 1658, well before Maria Theresa's reign, when Wright first specifies Austria's participation in a war separately from the Holy Roman Empire's participation.

4 Empirical Strategy

4.1 Succession Laws

How did queens become queens? Whether women were allowed to come to power varied based on laws of succession. Some laws explicitly prevented women from coming to power. Chief among these were salic law, which governed succession in the French monarchy after 1317. As a consequence no queens came to power in France, with the exception of queen consorts (Corcos 2012).

Another system of succession that effectively barred women from coming to power was election. During the period we study, polities did not utilize broad-based elections as in the modern era; rather, the elite voted for a monarch among a pool of selected candidates, who were typically all from royal families (Kokkonen and Sundell 2014). This succession law was used perhaps most famously in the Holy Roman Empire, where seven prince-electors would choose an emperor. This system essentially prevented female rule. In fact, no female was ever *elected* to head a European government until Margaret Thatcher was elected prime minister in 1979 (Monter 2012, p.40).

It is only possible for us to identify effect of queens on conflict among polities that had at least one queen historically — i.e., among polities where female succession was allowed at some point in time. Laws that allowed women to come to power under particular circumstances included primogeniture, which broadly speaking, is the principle of letting the oldest son inherit power. For example, under male preference primogeniture, "[i]f the male line of particular heir fails, then the eldest daughter of the most recent male sovereign may succeed to the throne" (Corcos, p. 1604). This system preferred males but allowed females to succeed. Absolute primogeniture, where the oldest child inherits regardless of gender, was not practiced in any monarchy during our sample period.[18]

While in sweeping terms, we can say that England, Portugal and Russia practiced primogeniture for large parts of their history, in actuality, succession laws changed substantially over

[18]It was first adapted only in 1980, by Sweden.

time. These changes may have arisen endogenously, in response to the conditions such as external wars, or the availability of male heirs. For example, the Austrian monarch Charles VI (who ruled from 1711 to 1740) had no sons or close male relatives. In 1713 he put forward a document called the Pragmatic Sanction, which declared that his daughter Maria Theresa — and, failing her — his younger daughter Maria Anna should succeed him as monarch (Beales, 2014, p. 127). The Kingdom of Sweden also reversed itself on the question of female rule several times. It prohibited female inheritance from 1654 until 1683 and again after 1720 (Monter, p.34).

Note that the endogeneity of these laws make it problematic to exploit them for identifying the effect of female rule. Moreover, no source systematically tracks which polities had which types of law in place in each year covered in our study. Though laws varied tremendously across polities and years, Monter (2012, p. 36-37) succinctly summarizes that:

> Four general principles governed dynastic successions to major states almost everywhere Christian Europe – they were (1) legitimate birth (2) masculine priority (3) direct over collateral descent and (4) primogeniture.

David Chambers, in his 1579 treatise on female rule also wrote, "it is a general rule that women succeed in the absence of males" and "If a decreased king anywhere else [but France] left legitimate daughters but no legitimate sons, the oldest surviving daughter took precedence over more distantly related males." These guiding principles motivate our empirical strategy. Since the oldest son of a monarch had priority in succession, we exploit whether the first born legitimate child of the previous monarch was male as one of our instruments for female rule.

4.2 Gender Variation in Siblings and First-born Children

Several examples suggest that being the sole or oldest daughter of a monarch was one path to becoming a queen. For example, Mary succeeded as queen of Burgundy and the Low Countries in 1477 — she was the only child of the previous monarch, Charles the Rash. Similarly, Marie Adelaide came to rule the Grand Duchy of Luxemburg in 1912 — she was the eldest child of

William IV. In addition, Figure 2 shows that among the 28 queens appearing in our sample, 22 (in grey) are cases where the previous monarchs had no male first born child, including eight in which the monarchs had no children.

Clearly, the death of male heirs played a role in the pathway to becoming a queen. Among six queen cases where the previous monarchs had a male first-born child, all six males had died by the time of accession. Even among nine queen cases where the first-born child was female, in eight cases, the younger male children had also all died by the time of accession.

In addition, many queens were siblings of reigning monarchs. Particularly if the monarch had no brothers or no legitimate children, the throne would often pass to a sister. This motivates us to use the presence of a sister as a second instrument for female rule. For example, when Charles XII was king of Sweden (1697-1718), he never married or had children. All of his brothers had also passed away by the time he died, so the throne passed to his younger sister, Ulrika Eleanora. Queen Isabella I of Castile also came to rule in 1474, upon the death of her brother.

The Tudors of England are yet another example. Mary I was Queen of England (over 1553-1558), and the fourth of the Tudor monarchs. She wanted to prevent her younger half-sister Elizabeth from succeeding her, as she feared Elizabeth would reverse her restoration of Roman Catholicism to England. Mary tried to have children with her spouse, Philip of Spain, but was never able to produce an heir. Upon her death, Elizabeth I did succeed her (and in fact did establish the Protestant Church as one of her first acts in power). Figure 2 also shows that the previous monarch(s) had at least one sister in 22 of the 28 queen cases (as highlighted in aqua).

4.3 Instrumental Variables Approach

We use a Instrumental Variables (IV) strategy to estimate the effect of queens on their polity's conflict participation. We instrument whether a queen ruled with indicators of whether the previous monarchs had a male first born child, and whether they had a sister.

The second stage of the IV estimation is given by:

$$Y_{prd} = \alpha_p + \tau_d + (\widehat{Queen}_{pr})\delta + \mathbf{X}'_{pr}\phi + \varepsilon_{prd} \tag{1}$$

where Y_{prd} are war-related outcomes in a polity p, reign r and decade d; α_p denotes polity fixed effects; τ_d denotes decade fixed effects; and $\mathbf{X}$ is a vector of controls that vary at the reign level (detailed below). $\widehat{Queen}_{pr}$ is the instrumented indicator of whether a queen rules during a given reign.

The first stage is given by:

$$Queen_{pr} = \alpha_p + \tau_d + (\textit{First-Born Male}_{pr-1}) + (\textit{Sister}_{pr-1})\,\theta + \mathbf{X}'_{pr}\rho + \omega_{prd} \tag{2}$$

Here, $\textit{Sister}_{pr-1}$ is an indicator of whether the monarch(s) in the previous reign had a female sibling; and $\textit{First-Born Male}_{pr-1}$ is an indicator of whether the previous monarch(s) had a legitimate first born child who was male. We use Two-Stage Least Squares to estimate equations (1) and (2) together in a one-step procedure. Since a single ruler can span across multiple reigns within a kingdom, we cluster our standard errors at the polity level.

We use gender of the first born since this is an arbitrary outcome determined by nature and thus exogenous to conflict in the polity. In contrast, the presence of a male child or number of male children could be a function of effort by the previous monarchs. For example, rulers could actively continue having children until they have a son. This effort may be correlated with other characteristics such as aggressive behavior, which may, in turn, affect conflict engagement and the legacy of conflict left behind in the polity.[19]

The *First-Born Male* variable is defined to be zero if the previous monarchs had no legitimate children. However, we additionally control for whether they had any legitimate children with two variables — one indicates if they had any children for whom birth years are not missing, and another indicates if they had any children with missing birth years. This disaggregation

[19] We also exploit the gender of the first born, rather than gender of the oldest surviving child at accession, since there may be selection bias in who survives. For example, children who are able to survive harsh conditions may be stronger, and strength may be correlated with a tendency to be aggressive and fight aggressively, including in warfare.

helps account for measurement error since we can most accurately identify who is first born when there are no missing birth years. Note that these "any children" controls also account for plausibly endogenous reasons why the previous monarchs may not have had children, such as war in the past reign that led them to die young, which may also affect war in the current reign.[20]

In all our specifications, we also control for whether the gender of the sibling and gender of the first-born are missing. As discussed above, we identify gender based on name. When the name was missing from Tompsett (1994), we first conducted an exhaustive search to see if we could locate it from other sources. After searching, we were still unable to find the name of five first-born children. We believe these are very likely to be girls — as Jansen (2002) documents in detail, it is common royal genealogies to provide limited information about female children. However, our empirical strategy also controls separately for missing gender first-borns. We additionally control for whether our search filled in missing genealogy information. These controls, with the any children indicators, comprise the "main controls" utilized in all IV specifications. Some specifications also control for the total number of siblings of past monarchs.

Table 1 shows two instruments at the level of the reign. Conditional on the previous monarchs having children, there was a male first born in 53.9% of the sample. The naturally occurring sex ratio at birth is 52% male (Grech et al. 2002). Since missing gender cases are likely to be female, the first born ratio in our sample is within the margin of error around the naturally occurring sex ratio. Table 1 also shows that the previous monarchs had a sister in 71.3% of the cases.

Overall, our instrumental variables strategy is based on the idea that succession was hereditary, and our instruments will only predict queenly reigns if succession generally proceeded within a family lineage. Of course, succession did not always follow this course — sometimes the lineage changed, and on discrete occasions, law changes even facilitated non-hereditary

[20] We also include war in the past reign as auxiliary controls in some specifications.

succession.[21] These discrete cases could potentially weaken the strength of the first-stage, but the first-stage F-statistics (presented in the results) will ultimately dictate if succession was sufficiently hereditary for gender of the siblings and the first born to predict queenly rule.

Some of our polities changed boundaries substantially over this period — some may have come to an end as one unit, and re-emerged as a part of another unit after unification or capture by another kingdom. For example, the Kingdoms of Leon and Castile are present in our sample as a polity from 1480 until the first decade of the 1500s, at which point Spain emerges as another polity which lasts through to 1913. We address this issue in two ways. First, we include polity fixed effects, and look only at changes over time within a given polity. Under this approach, we exploit variation over time within the Kingdoms of Leon and Castile when it is in existence, and over time Kingdom of Spain after it comes into existence. Second, while we are unable to observe high-frequency boundary changes, Morby (1989) records when polities end, and if they end via unification, partition, or transformation into a republic. Thus we are able to observe if queenly reigns predict any of these outcomes. Table 2 provides the descriptive statistics of key variables used in our analysis, at the panel level.

5 Results

This section presents evidence of how queenly reigns affect war participation. We begin by showing the OLS and IV results. We next address instrument validity. We then disaggregate wars by type, and present evidence of our causal account. We close by examining alternative accounts.

5.1 Queens and War: Main Results

Table 3 examines the OLS relationship between queens and war participation. The first two columns show the effects on external wars, while the latter two columns show the effects on

[21] For example, in 18th century Russia, Peter the Great's succession law of 1722 gave the ruling tsar the right to appoint his or her successor. This opened the door to ambiguity in how succession could occur, leading to a series of successions via coups, depositions, and appointment by the privy council.

internal civil wars. The even numbered controls include our standard controls. These are not needed for the OLS specifications, but we include them for comparability to the IV specifications.

The results show that polities led by queens participated in external wars more relative to polities led by kings. The estimate in column (2) indicates a differential war participation rate of 8.2%. The results also show that there was no greater tendency for queens to participate in civil wars. In other words, female leaders did not face higher rates of internal revolt. With the controls, the effect on civil wars even appears to be negative.

However, these OLS estimates may be biased — for example, the elite may have allowed queens to come to power more during times of stability, or prevented them from coming to power during times of war. In fact, even some reigning queens articulated the view that women should not govern if they had to lead armies into battle. This was the position of Ulrika Eleanora who asked that the Swedish Riksdag that her husband Frederick be made co-regent. When the Riksdag refused, she abdicated in his favor (Persson 2014). Accounts such as this one would imply a downward bias on the OLS estimates.

To account for this potential bias, we present the IV estimates in Table 4. The second-stage results again demonstrate that queens participate in external wars more than kings, but do not participate in internal conflicts to a greater degree. The coefficient in column (1) suggests that the likelihood of external conflict is 27% higher for queens relative to kings. The larger coefficient on the IV estimate relative to the OLS estimate is consistent with endogeneity in leadership exerting downward bias on the OLS estimates.

The bottom of Table 4 shows that the instruments together make for a strong first stage: the Kleibergen-Paap F-statistic is 21.4, exceeding the relevant Stock-Yogo critical value. Individually, each instrument also has a statistically significant effect on the likelihood of a queen coming to power. If the previous monarchs had a first-born male, this reduces the likelihood of a queen coming to power by 16.9%. In contrast, if they had a sister, this increases the likelihood of queen coming to power by 19.6%.

In Appendix Table A.2, we present results using several other variants of the instrument set.

Since the presence of a sister may matter more for queenly accession when the monarchs lack a first-born male, the instrument set in column (1) includes an interaction between the sister and first-born male variables. Also, whether the first child is female may matter less if there is more than one child. (For example, if the second child is male this might reduce chances of the first born female acceding). So, in column (2) we introduce an interaction between the first-born male variable and an indicator for whether the previous monarchs had two or more children. In columns (3), we include just the first-born male instrument. This instrument has the advantage that gender of the first child should be determined by a coin flip and is thus unaffected by the fertility behavior of the parents of previous monarchs (two generations ago), which may influence whether the previous monarchs had a sister. And in column (4), we conversely utilize just the sister instrument.

As shown in these columns, all instrument sets yield second-stage coefficients of approximately the same magnitude. This demonstrates that the results are not highly dependent on any one particular IV approach. However, the strength of the first stage and precision of the second stage estimates vary across specifications. The first-stage F-statistics range from 7 to 18. We use both the first born male and sister instruments since this yields the strongest first stage among various potential instrument sets.

5.2 Instrument Validity

In this section, we address two potential concerns around the validity of our instruments. First, the previous monarchs were more likely to have had a sister if their parents had a larger number of children. This would correspond to a larger number of total siblings. If these siblings were potential contenders for the throne, they may have initiated wars aimed at seizing power. These wars of succession would serve as an alternate channel affecting conflict, violating the exclusion restriction.

In Table 5, we take two steps to address this concern. First, we control for the total number of siblings, which closes off this alternative channel. As an additional robustness check,

we identify and remove wars of succession from the sample.[22] Table 5 shows that the queen variable remains statistically significant and increases in magnitude under both changes. This provides assurance that our estimates are not driven by siblings contending the throne. Going forward, we continue to control for the number of total siblings in all remaining specifications.

A second potential concern lies in the use of the first born male instrument. The lack of a first born make could spur war if it signals uncertainty in succession. Other monarchs may choose to attack the kingdom if they see that the first birth did not yield a male heir. If so, queens would inherit kingdoms that are already participating in more wars. If these wars continue into their reign, this would present an alternative path through which the instrument affects war participation. In Table 6, we examine if these effects hold. In columns (1) and (2) we determine if monarchs who have a first born male end up fighting more in their current reign. We see no evidence of such effects. The coefficients are insignificant, small in magnitude, and display varying signs.

We conduct a second, broader falsification. If the presence of a first born male (or a female sibling) in the last reign affects war through some other channel beyond queenly accession, these variables should also affect war participation in polities which never had queens. To examine this idea, we test whether the presence of a first-born male and sister in the past reign affected conflict in the non-queen polities. We find no evidence of such a relationship in columns (3) and (4). These two falsifications further bolster the validity of our instruments.[23]

[22] These five succession wars are all external wars since they involve more than one European power.

[23] Acharya and Lee (2015) find that over 1000-1500 AD, the number of male heirs in the past reign affects internal conflicts. Three points are useful in understanding our results together. First, our IV strategy uses the presence of a first-born male, not the number of male heirs. And, as discussed earlier, we use the first born male instrument in conjunction with the sister instrument which is a different source of variation. Second, our sample begins when their sample ends — and it is possible that succession may have been more contentious and given rise to more internal conflict during the earlier pre-1500 period, if succession laws were less detailed during that time. Finally, we find second-stage effects of queens on external wars, not internal wars. Thus, from the angle of instrument validity, we are most concerned about alternative ways in which our instruments can affect external wars, not internal wars.

5.3 Robustness Checks

In Table A.3, we present a number of robustness checks by including additional controls and examining additional outcomes. First, we further address concerns regarding instrument validity and the impact of first-born males on conflict in the last reign by controlling for whether there were any external wars or civil wars during the last reign. The results in columns (1)-(2) verify that controlling for conflict legacy do not affect our estimates. Second, we address potential age differences across rulers. Monarchs in queenly reigns, on average, were six years younger at accession than the monarchs in kingly reigns. If younger monarchs are more aggressive, then the effect of queenly reigns on war could reflect youth, rather than gender. However, the results remain unchanged if we control for average age at accession in columns (3)-(4).[24]

Third, the distinction between external wars and civil wars may seem unclear in cases where a civil war results in the creation of a new unit. But column (5) shows that the results remain unaltered if we analyze an aggregate measure of participation in any war — either external or internal. Fourth, greater war participation may not indicate greater belligerence if queens tend to participate in wars of a smaller scope. Although we are unable to observe casualties, we are able to observe the total number of polities participating in each war. We average this number across all external wars in which a polity participates in a given year. Column (6) of Table A.3 shows that queens, on average, do not engage in wars of a smaller scope, based on the number of participants.[25]

In Table A.4, we show the robustness of our results to different samples. In columns (1)-(2), we backdate Austria to incorporate Maria Theresa's rule as an additional queenly reign (see discussion in section 3.3). The results remain unchanged with this sample alteration. Next, we verify that our results are not driven by the concentration of queens in particular polities. Among the 28 queens in the sample, six are from England and four are from Russia. There are also two queens from each of Navarre, Leon and Castile, Portugal and Sweden. (The remaining

[24] This age variable is missing for a sub-sample of our observations, but we control for an indicator of missingness in age in this specification.

[25] Note that this participant variable can only be defined for years in which polities are participating in wars, which is why the number of observations is smaller in this specification.

queens all come from different polities). Columns (3)-(8) demonstrate that dropping each of these six polities with multiple queens leaves our results unchanged. In other words, our effects are not driven solely by English queens, or Spanish queens, or Russian queens.[26] On the flip side, many of the remaining polities are small in size and political power, and it is important to verify that outliers from these areas do not drive the estimates. In column (9), we remove all the remaining queen polities besides the primary six, and find that the estimated effects are if anything larger in magnitude. This suggests that outliers among the minor polities also do not drive our results.

Finally, in Table A.5, we check the robustness of the results to an alternate specification. Our main approach identifies the effect of queens in polities that have ever had a queen. On the one hand, these are the areas where our instruments have predictive power for whether a queen comes to power. Moreover, under this restriction, we compare queens to kings in polities that have, at some point, been ruled by a queen, who arguably constitute a better control group relative to kings in non-queen polities. On the other hand, focusing on the queen polities does have the disadvantage that it omits war incidents occurring among kings in reigning in polities that have never had queens. If this type of war incidence is very high, it is possible that queens may not participate more in wars relative to this other broader, control group. Also, some of the wars analyzed for the queen polities also involve participants from the non-queen polities. To explore whether omitting the non-queen polities impacts our estimates, we look at a pooled sample of queen and non-queen polities. To get predictive power from our IV strategy in this pooled sample, we use the first-born male and sister variables, and their interactions with an indicator of whether the polity ever had a queen, as instruments for queenly reigns. We also interact our control variables with this queen polity indicator. As shown in Table A.5, our results remain unchanged under this alternate approach.

[26]Since the results remain in place when we drop Russia from the sample, this provides assurance that the succession law change in 1722 and its effects on how monarchs came to power (see Section 4.2), do not affect our estimates. In particular, the Russian queens who inherited the throne during the 18th century gained power either when their spouse died, when they overthrew the reigning monarch, or when they were appointed by the privy council. However, as column (4) shows, these queens who came to power outside of hereditary succession, do not drive our estimates.

5.4 Disaggregated War Effects

In this section, we disaggregate the effect of queens on war participation to better understand the mechanism through which these effects arise.

First, we disaggregate external war participation by type of war. As shown in Table 2, balance of power wars are by far the most prevalent form of external conflict. On average, polities were engaged in this type of war during 21% of the polity-year observations. In contrast, they were engaged in imperial and defensive wars 3.4% and 1.1% of the times, respectively. Table 7 shows that when the overall war participation effect (in column 1) is disaggregated into these three types of wars (columns 2-4), the queen effect is largest and most precisely estimated for balance of power wars.

The effect on balance of power wars can be further disaggregated along two dimensions. First, participation can stem from new wars that the reign initiates, or from the continuation of wars that were started previously. Columns (2)-(3) Table 8 show this decomposition. Note that the coefficients on these two outcomes add up to the coefficient in column (1). The magnitudes suggest that reign entry into new wars and reign continuation of old wars contribute almost equally to participation in the Balance of Power wars.

5.5 The Reign Capacity and Perceived Weakness Accounts

What can account for these effects of greater war participation under queenly reigns? To distinguish between the capacity and perceived weakness accounts, we next disaggregate whether queens participate more in wars in which their polity attacked, or in which their polities were attacked. We draw on Wright's coding of who initiated the conflict. Since the aggressor coding is missing for some observations, column (4) shows the queen effect on aggregate war participation in this sub-sample. Columns (5)-(6) show the disaggregated effects. The coefficients indicate that the largest and most precisely estimated effect is for the polity attacked variable. This is important because it establishes that queens, on average, participated more in wars in which their polity was the aggressor, and not in wars in which their polity was attacked. This

result therefore counters the claim that women, in general, adapted conciliatory policies.

Appendix Table A.6 shows that the same pattern of results holds for "solo queens" — i.e., queens who were either single or whose husbands did not hold the title of co-regent. Generally, all the coefficients are more precisely estimated and larger for the solo queen variable, as compared to the queen variable. This provides assurance that our estimates are not driven by cases of co-rule, where effects on aggressive war participation may reflect decisions made by kings.

The results from Tables 8 and A.6 are consistent with the reign capacity account, since queenly reigns participated more as aggressors. However if aggressive war participation reflects support from spouses, these effects should emerge particularly among married monarchs. To examine this idea, Table 9 tests whether a queen's proclivity to attack or be attacked varies based on marital status. We define a monarch as married during the reign if he or she had a (living) spouse during any year of their reign. (In cases of co-rule, we consider if both monarchs had a spouse during the reign).

This marital measure differs from whether he or she ever married, owing to factors such as separation or the spouse's death. For example, 12% of the rulers in our sample never married, but 27% of the reigns are composed of rulers without spouses. This includes 13 queenly reigns without spouses. We interact this married in reign variable with the Queen indicator, the instruments, and the control variables. Since marital status varies by age, and age may influence war aggression, we also control for equivalent age at accession interactions. Finally, to account for missing values, we control for both whether the marriage and accession age information are missing, again including interaction terms with the endogenous variable, instruments and controls.

Columns (1) and (2) of Table 9 show that among married monarchs, queens were more likely to participate as attackers and less likely to be attacked than kings. Yet among unmarried monarchs, queens were more likely to be attacked than kings. [27] These results provide two

[27] The omitted category in these specifications is unmarried kings. So, in column (1) the coefficient of -.376 on "Queen" tells us that unmarried queens were less likely to participate as attackers than unmarried kings. The coefficient of .142 on "Married" tells us that married kings were more likely to participate as attackers than unmarried kings. And, the sum of the coefficients on "Queen", "Married" and "Queen x Married" (.33) tells us the effect size for married queens.

additional insights into the mechanism at play. First, the differential tendency of queens to participate as attackers among married monarchs further supports the view that the spouses of queens enhanced their reign capacity, enabling them to pursue aggressive war policies. Second, the differential tendency of queens getting attacked among unmarried monarchs provides some support for the perceived weakness account — i.e., this suggests that unmarried queens, specifically, may have been perceived as weak and easy to attack. However, clearly, the same effect does not apply to married queens.

Do these results imply that aggressive war participation under queenly reigns simply reflect the dictates of a queen's husband? We present evidence against this in several ways. First, we posit that this scenario is most likely to occur for cases in which queens and their husbands co-ruled together. But when we eliminate all cases of queens co-ruling with another regent in columns (3)-(4), and all cases of co-rule between any two regents in columns (5)-(6), we observe the same pattern of results for the solo queens. This suggests that even married queens who ruled alone were supported to fight aggressively, while unmarried solo queens also tended to be attacked more.

Since the coefficients on the Solo queen x Married interaction terms are even larger than those on the Queen x Married interactions, this raises the possibility that prince consorts who were not official kings may have been the most militaristic and dominated war-making decisions. It is even possible that marriages may have been organized strategically to wed queens to these militaristic spouses. To account for this possibility, we code whether spouses had any military experience prior to the marriage. This variable is coded as one if they had direct experience as either military lieutenants or commanders, or previously presided over a war as an adult monarch of a polity. In column (7)-(10) we include this spousal military experience variable and its interaction with the endogenous queen variable, the instruments and the controls. Again, we find that the same pattern of results continue to hold.[28] This suggests that the differential tendency of married queens to participate as aggressors reflects

[28] In a handful of cases, queen married their husbands after the start of the reign. We create a second version of the military experience variable that only considers military experience prior to the reign, for these cases. The results (available upon request) are the same with the inclusion of this alternate control.

some factor beyond the militaristic tendency of their spouses.

In addition, qualitative accounts indicate that queens who involved their spouses in state matters did not necessarily retract in those matters. Historical records show that ruling husbands and wives often disagreed over major policy issues. For example, when Isabella acceded, Ferdinand tried to assert his rights to become an official co-regent. They clashed over this, and eventually, Isabella prevailed. They embarked on "joint government by two monarchs" but Isabella was the queen regnant and Ferdinand was her king-consort. Importantly, the succession law specified that if she died the throne would pass to their daughter Isabel, not Ferdinand (Jansen 2002, p. 15).

Though Ferdinand played a critical in military confrontations, Isabella also never withdrew from this realm. During the internal conflict against Juana, she rode throughout her territory to garner support for her cause (Jansen 2002, p. 21). Her military role only expanded during the war against Granada:

> An "accomplished strategist," she ultimately moved out from behind the scenes to center stage, taking the field with the Castilian army in Cordoba, Malaga, Baeza, and, at last, in Granada, where she appeared wearing armor and mounted on a warhorse (*ibid*).

In short, though Isabella relied on her husband, her authority and independence were apparent, and few would have described her as Ferdinand's subordinate.

It is also worth noting the signs on the married in reign variable in Table 9. This coefficient captures the effect of being married for kings. This effect is negative in the even numbered columns, indicating that married kings were attacked less than unmarried kings, but this effect is not significant. Conversely, it is positive in the odd numbered columns, indicating that married kings participated more as attackers than unmarried kings. This pattern suggests that even married kings may have benefited from some division of labor based on having a spouse. However, the smaller marital effects estimated for kings is consistent with the idea that female monarchs relied more on their male spouses than male monarchs relied on their female spouses.

Table 10 examines the second way in which married queens may have had greater capacity to carry out war — through more alliances. We were able to track whether each polity fought in the wars alone, or alongside another polity fighting on its side, for 73 percent of our sample.[29] From this coding effort, we generated an indicator of whether the polity fought with at least one ally. This serves as the dependent variable in Table 10, and by construction, is defined only for years in which a polity was participating in a war. The table shows that queens, on average, were no more likely to fight with an ally, conditional on being at war. However, we again see heterogenous effects based on martial status. Married kings were more likely to fight alongside an ally (relative to unmarried kings). Moreover, the tendency to fight with an ally was even greater among married queens (relative to married kings, unmarried kings and unmarried queens). These results suggest that marriage brought alliances for all monarchs, but disproportionately so for queens. One interpretation of this result is that male spouses were better positioned to forge alliances because they were typically more tied to the armed forces of their home polities, compared to female spouses.

Overall, the results from Table 10 and 11 are consistent with the idea that these asymmetries in the division of labor and alliances served to strengthen the relative capacity of queenly reigns, facilitating greater participation in external wars. These marital effects raise the natural question of what is unique about the spouse – for example, if monarchs were unmarried, couldn't other figures in the royal courts play an equally supportive role? We view spouses as occupying a unique position along two dimensions. First, they solve an ages old problem of who to trust in ruling. Since siblings could be contenders for the throne, it would be risky for queens to place their brothers in charge of the military. In contrast, a spouse would be a safer choice, especially since he would typically be ineligible to serve as a monarch in the queen's polity, if he originated from another polity.[30] In addition, precisely because spouses typically originated from other polities, they play a unique role in being able to provide alliances, which others in the court would not be able to do.

[29] This coding required us to have detailed descriptions of each war, to discern which polities fought on which side. This information is not available from Wright, and had to be constructed from various sources.

[30] We verify that in our sample, the spouses of queens did in fact originate from other states.

5.6 Addressing Alternative Accounts

In this section we consider and present evidence against a number of alternative accounts.

The first alternative account posits that queens may have chosen to display greater aggression in warfare in order to signal their strength, and to counter perceptions that they would be militarily weak. It would be most advantageous to send this signal earlier in the reign, to maximally curb potential attacks. So if queens were signaling, we should observe more aggressive war participation earlier in their reign. In Table 11, we test this idea by introducing an interaction between the queen variable and an indicator of the second half of a monarch's reign. In these specifications, we control for the overall length of reign. For all war-related outcomes, the interaction term is statistically insignificant and also positive in sign (suggesting more war later). In Table A.7, we demonstrate that other measures of timing – including year of reign and an indicator of the first two years of the reign – produce similar effects. These results present evidence against the idea that the queen effects on war arise from signaling.

Another account suggests that aggressive actions undertaken during a queen's reign may reflect the actions a foreign minister, rather than the queen herself. This conjecture is based on two assumptions – first, that foreign ministers are more aggressive than monarchs, and second, that women rulers are more easily influenced by ministers than male rulers.

Scholars throughout history have questioned the second assumption. In 1630, Gregorio Leti, who produced a biography of Elizabeth I, wrote:

> I do not know why men have conceived such a strange and evil opinion of women so as to consider them incapable of conducting important business ... if men see a person of that sex govern a state with prudence and success they will inevitably take the glory away from her and attribute it to her favorites and ministers. (Monter, p. 153).

Although this assumption has been questioned, if female rulers were in fact more easily influenced by male ministers, these effects should be larger if they acceded to the throne at an early age. This is when they were the most impressionable, and may not have developed clear

policy positions of their own. To test this idea, we introduce interactions of age at accession with the queen variable. Table 12 indicates that there are no differential effects of the extent to which queens fought in wars based on the age at which they came to power. This casts doubt against the idea that ministers behind the scenes were making all war-related decisions.

This is also consistent with evidence that queens did not passively receive the advice of ministers. When Frederick invaded Silesia, Maria Theresa's elderly ministers advised her to make concessions— she refuted their advice and fought back as she wanted retain all of her territory (Beales, p. 133).

Finally, we examine the account that queens pursued external war strategically because they faced greater internal instability and sought to unify the polity against an external threat (Ostrom and Job 1986). Table 13 shows that having a queen did not differentially impact the length of a monarch's reign. Moreover, it had no significant impact on the likelihood that a monarch was killed. It also didn't bring about the demise of the kingdom: there were no large-scale shifts in whether a kingdom ended, either through unification or capture with another kingdom, or through its transformation into a republic. This suggests that greater internal instability was unlikely to be a key motivating factor.

6 Conclusion

A large body of work contends that states led by women engage less in conflict than states led by men. Yet, the theoretical reasons behind this conjecture are unclear, and it is empirically difficult to estimate how female rule affects conflict engagement. We examine this question by focusing on European polities over 1480-1913. We exploit gender of the first-born and presence of a sister in the previous reign as exogenous determinants of whether queens come to power. We find that queenly reigns participated *more* in inter-state wars relative to kingly reigns.

Notably, queens engaged in wars in which their polity was the aggressor, though this effect varies based on marital status. Among unmarried monarchs, queens were attacked more than kings. Among married monarchs, queens participated as attackers more than kings, and were

more likely to fight with allies. These results are consistent with an account in which married queens had more greater capacity in their reigns, from more alliances and potentially a greater willingness to enlist their spouses in helping them rule. This asymmetries may ultimately have enabled queens to participate in wars more actively.

The queen effects on war participation are not any larger earlier in the reign, which suggests that queens did not fight to signal their strength. The effects are also not any larger for younger monarchs, which suggests that influential foreign ministers did not dominate war-making decisions. As such, our results demonstrate that female rulers, in their own right, pursued more aggressive war policies.

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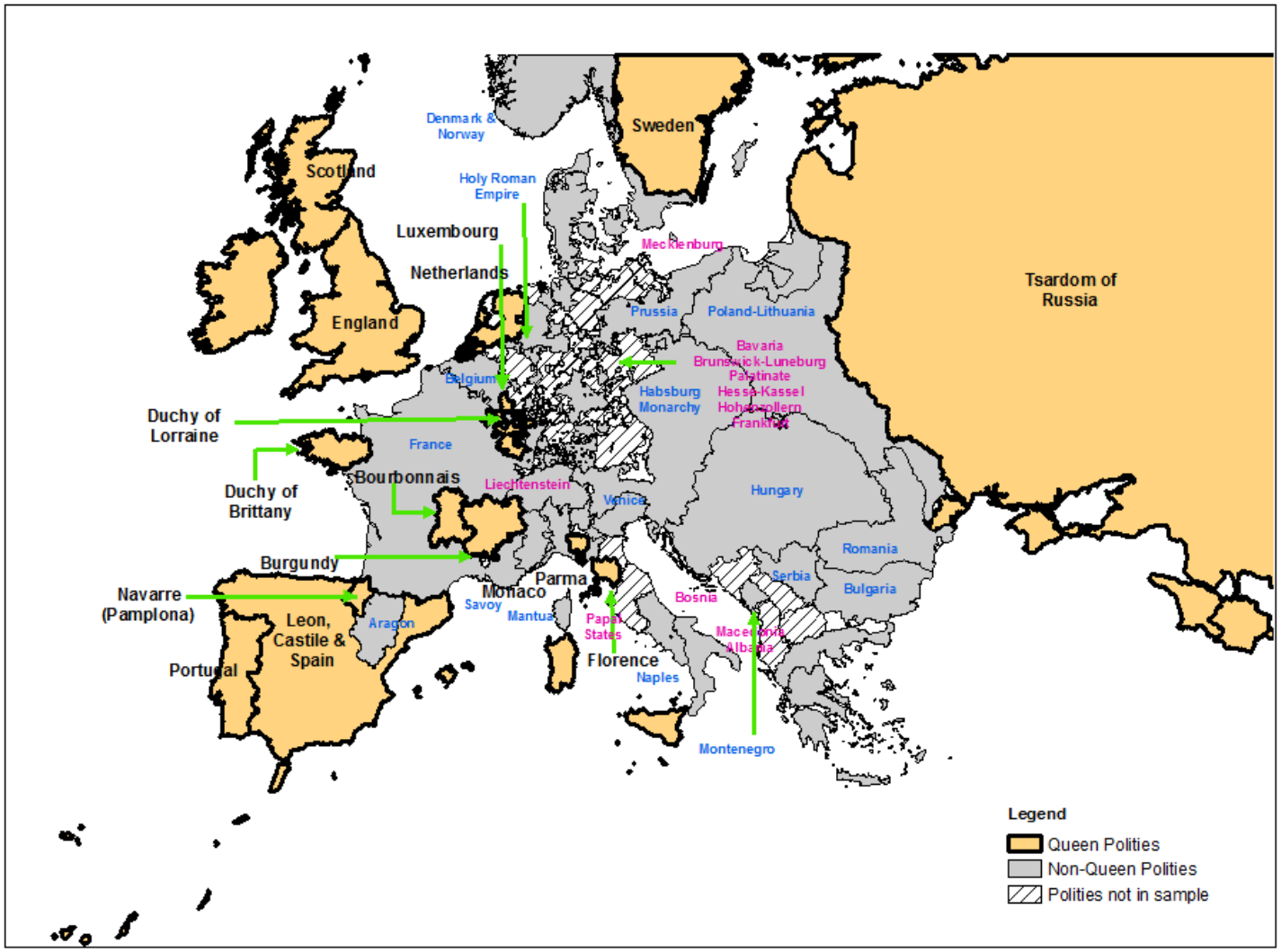
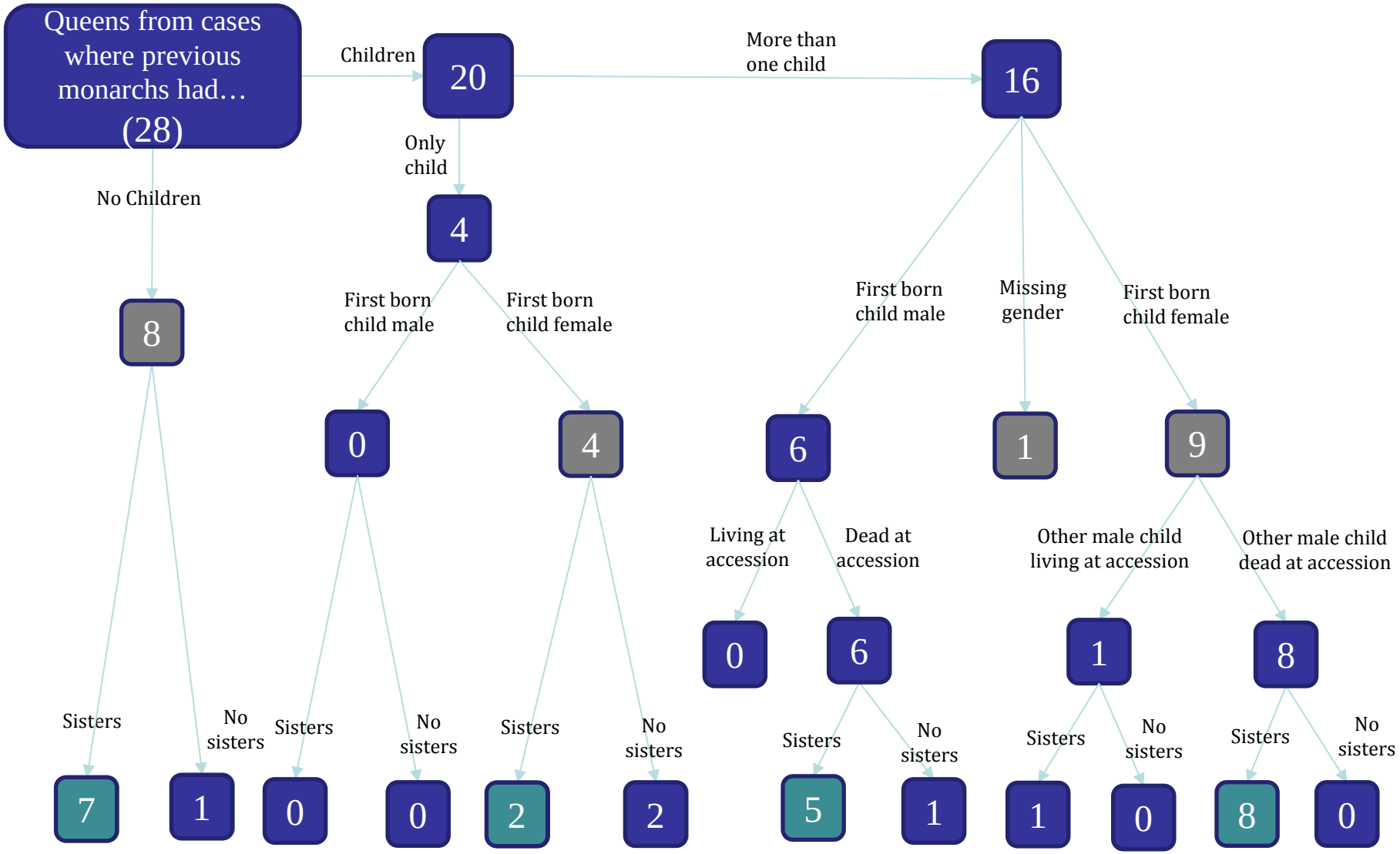
Figure 1
Queen and Non-Queen Polities



Notes. This figure shows the queen polities, non-queen polities and polities not included in our sample. It was created by overlaying six Georeferenced Historical Vector maps from Euratlas (http://www.euratlas.com/) at the turn of each century between 1500-2000. Each polity was identified and chosen from one of these six maps to minimize displayed territorial overlap among polities. The territorial boundaries for different polities are from different time periods, and do not necessarily match present day borders or show the maximum geographical area covered by each polity historically.

Figure 2
Circumstances under which Queens Came to Power



Notes. This figure shows the circumstances of the previous monarchs for each of the 28 queens who came to power in our sample. For example, the previous monarchs had children in 20 of 28 queen cases and lacked children in 8 cases. Among these latter 8 cases, the previous monarchs had sisters in 7 cases and had no sister in 1 case. Aqua cells show all the cases in which there was at least one sister among previous monarchs. Grey cells show all the cases in which there was no male first born child among previous monarchs.

Table 1
The Instruments

Male First Born (previous monarchs)			Sister (previous monarchs)		
Yes	83	53.9%	Yes	137	71.3%
No	71	46.1%	No	55	28.7%

Table 2
Summary Statistics of Key Variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Dependent Variables:					
In Civil War	3586	0.070	0.255	0	1
In External War	3586	0.248	0.432	0	1
In Imperial War	3586	0.034	0.181	0	1
In Defensive War	3574	0.013	0.114	0	1
In Balance of Power War	3577	0.214	0.410	0	1
In Balance of Power War - Kingdom Attacked	3563	0.086	0.281	0	1
In Balance of Power War - Kingdom was Attacked	3563	0.124	0.330	0	1
In Balance of Power War - Reign Entered	3577	0.164	0.370	0	1
In Balance of Power War - Reign Continued	3577	0.050	0.219	0	1
Reign Length	3586	30.830	15.612	1	66
Monarch Killed	3058	0.145	0.352	0	1
Polity Ends in this Reign	3586	0.085	0.279	0	1
Polity Unites with Another	3559	0.051	0.219	0	1
Polity is Partitioned / Captured	3559	0.017	0.128	0	1
Polity becomes a Republic	3559	0.001	0.029	0	1
Independent Variables:					
Queen	3586	0.160	0.366	0	1
Solo Queen	3586	0.131	0.337	0	1
Married in reign	3333	0.825	0.380	0	1
First-born male (of previous monarchs)	3586	0.502	0.500	0	1
Sister (of previous monarchs)	3586	0.740	0.438	0	1
Total Siblings (of previous monarchs)	3586	4.302	4.145	0	22
First-born missing gender (of previous monarchs)	3586	0.019	0.137	0	1
Missing gender sibling (of previous monarchs)	3586	0.064	0.245	0	1
At least one child with missing birth year (of previous monarchs)	3586	0.118	0.323	0	1
At least one child without missing birth year (of previous monarchs)	3586	0.821	0.383	0	1

Table 3
Queens and War: OLS Results

VARIABLES	(1) In External War	(2) In External War	(3) In Civil War	(4) In Civil War
Queen	0.078***	0.082**	-0.024	-0.027*
	[0.029]	[0.039]	[0.017]	[0.015]
Observations	3,377	3,377	3,377	3,377
R-squared	0.220	0.223	0.153	0.173
Number of polities	17	17	17	17
Specification	OLS	OLS	OLS	OLS
Standard Controls		Y		Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 4
Queens and War: IV Results

VARIABLES	(1) In External War	(2) In Civil War
Queen	0.272**	0.030
	[0.120]	[0.091]
Observations	3,377	3,377
R-squared	0.200	0.168
Number of polities	17	17
Instruments	FBM_{r-1} & $Sister_{r-1}$	FBM_{r-1} & $Sister_{r-1}$
Standard Controls	Y	Y

FIRST STAGE:

	Queen
FBM_{r-1}	-.169*
	[.081]
$Sister_{r-1}$	0.198**
	[.056]
Observations	3,377
R-squared	0.259
Number of polities	17
Standard Controls	Y
Kleibergen-Paap F-statistic	21.4

Notes. Variables not shown include polity and decade fixed effects. FBM denotes First-Born Male. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 5
Siblings and Wars of Succession

VARIABLES	(1) In External War	(2) In Civil War	(3) In External War	(4) In External War
Queen	0.338**	0.041	0.376***	0.435*
	[0.168]	[0.086]	[0.144]	[0.227]
Observations	3,377	3,377	3,377	3,377
R-squared	0.184	0.165	0.151	0.129
Number of polities	17	17	17	17
Specification	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y
Total Siblings	Y	Y		Y
Sample	All Wars	All Wars	No Succession Wars	No Succession Wars

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 6
Falsification Tests

VARIABLES	(1) In External War	(2) In Civil War	(3) In External War	(4) In Civil War
First-Born Male$_r$	-0.038	-0.003		
	[0.043]	[0.025]		
Sister$_r$	0.054	-0.032		
	[0.047]	[0.027]		
First-Born Male$_{r-1}$			-0.047	-0.007
			[0.068]	[0.026]
Sister$_{r-1}$			-0.021	0.014
			[0.065]	[0.018]
Observations	3,110	3,110	3,112	3,112
R-squared	0.245	0.171	0.202	0.081
Number of polities	17	17	19	19
Standard Controls	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y
Sample	Queen polities	Queen polities	Non-Queen polities	Non-Queen polities

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 7
Disaggregation by Type of External War

VARIABLES	(1) In External War	(2) In Defensive War	(3) In Imperial War	(4) In Balance of Power War
Queen	0.338**	-0.023	0.114	0.369***
	[0.168]	[0.045]	[0.124]	[0.141]
Observations	3,377	3,365	3,377	3,368
R-squared	0.184	0.148	0.046	0.215
Number of polities	17	17	17	17
Specification	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 8
War Entry and War Aggression

VARIABLES	(1) In Balance of Power War	(2) Reign Entered	(3) Reign Continued	(4) In Balance of Power War	(5) Polity was Attacked	(6) Polity Attacked
Queen	0.369***	0.185	0.184	0.380***	0.022	0.358*
	[0.141]	[0.142]	[0.161]	[0.139]	[0.192]	[0.189]
Observations	3,368	3,368	3,368	3,354	3,354	3,354
R-squared	0.215	0.164	0.156	0.205	0.203	0.005
Number of polities	17	17	17	17	17	17
Specification	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 9
Queens and War: Effects by Marital Status

VARIABLES	(1) Polity Attacked	(2) Polity was Attacked	(3) Polity Attacked	(4) Polity was Attacked	(5) Polity Attacked	(6) Polity was Attacked	(7) Polity Attacked	(8) Polity was Attacked	(9) Polity Attacked	(10) Polity was Attacked
Queen	-0.376	0.722**	-	-	-	-	-	-	-	-
	[0.233]	[0.340]	-	-	-	-	-	-	-	-
Queen x Married in Reign	0.567*	-0.913***	-	-	-	-	-	-	-	-
	[0.321]	[0.340]	-	-	-	-	-	-	-	-
Solo Queen	-	-	-0.440**	0.861***	-0.429*	0.873***	-0.424*	0.882**	-0.412*	0.894**
	-	-	[0.215]	[0.332]	[0.232]	[0.332]	[0.224]	[0.371]	[0.240]	[0.366]
Solo Queen x Married in Reign	-	-	0.635*	-1.106***	0.684**	-1.126***	0.652**	-1.138***	0.694**	-1.158***
	-	-	[0.327]	[0.366]	[0.335]	[0.345]	[0.304]	[0.302]	[0.313]	[0.283]
Married in Reign	0.142**	-0.005	0.144**	-0.045	0.151**	-0.051	0.121*	-0.025	0.126**	-0.030
	[0.064]	[0.052]	[0.064]	[0.063]	[0.066]	[0.060]	[0.062]	[0.063]	[0.064]	[0.061]
Observations	3,354	3,354	3,250	3,250	3,222	3,222	3,250	3,250	3,222	3,222
R-squared	0.089	0.167	0.107	0.153	0.083	0.152	0.100	0.155	0.077	0.154
Number of polities	17	17	16	16	16	16	16	16	16	16
Specification	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Accession Age	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Spousal Military Experience							Y	Y	Y	Y
Sample Restriction?	None	None	No co-ruling queens	No co-ruling queens	No co-ruling monarchs	No co-ruling monarchs	No co-ruling queens	No co-ruling queens	No co-ruling monarchs	No co-ruling monarchs

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level. Accession age is the average age of accession of the monarchs in the reign. Spousal military experience is one if the spouse had any military experience prior to marriage.

Table 10

Queens and Allies: Effects by Marital Status

VARIABLES	(1) Any ally	(2) Any ally	(3) Any ally	(4) Any ally	(5) Any ally	(6) Any ally
Queen	0.151	-0.687	-	-	-	-
	[0.095]	[0.583]	-	-	-	-
Queen x Married in Reign	-	1.125**	-	-	-	-
	-	[0.447]	-	-	-	-
Solo Queen	-	-	0.146	-0.665	-0.543	-0.555
	-	-	[0.097]	[0.531]	[0.505]	[0.499]
Solo queen x Married in Reign	-	-	-	0.841***	0.839***	0.889***
	-	-	-	[0.312]	[0.088]	[0.133]
Married in Reign	-	0.383***	-	0.340***	0.312***	0.305**
	-	[0.084]	-	[0.087]	[0.117]	[0.129]
Observations	516	516	503	503	503	502
R-squared	0.651	0.638	0.650	0.678	0.716	0.716
Number of Polities	8	8	7	7	7	7
Standard Controls	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y
Accession Age	Y	Y	Y	Y	Y	Y
Spouse's Military Experience						Y
Sample Restriction?	War years	War years	War years and no co-ruling queens	War years and no co-ruling queens	War years and no co-ruling monarchs	War years and no co-ruling queens

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level. Accession age is the average age of accession of the monarchs in the reign. Spousal military experience is one if the spouse had any military experience prior to marriage.

Table 11
Effects based on Timing

VARIABLES	(1) In External War	(2) In Balance of Power War	(3) Polity Attacked	(4) Polity was Attacked	(5) In Civil War
Queen	0.261**	0.275**	0.263**	0.013	-0.003
	[0.122]	[0.132]	[0.132]	[0.132]	[0.085]
Queen X Second Half of Reign	0.186	0.240	0.204	0.064	0.091
	[0.146]	[0.201]	[0.219]	[0.133]	[0.086]
Observations	3,377	3,368	3,354	3,354	3,377
R-squared	0.175	0.201	0.022	0.208	0.157
Number of polities	17	17	17	17	17
Specification	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y
Reign Length	Y	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 12
Effects based on Age

VARIABLES	(1) In External War	(2) In Balance of Power War	(3) Polity Attacked	(4) Polity was Attacked	(5) In Civil War
Queen	0.315*	0.333**	0.275*	0.067	-0.048
	[0.172]	[0.140]	[0.156]	[0.167]	[0.068]
Queen x Age at Accession	-0.009	-0.010	0.014	-0.024	0.019
	[0.012]	[0.013]	[0.015]	[0.023]	[0.020]
Observations	3,377	3,368	3,354	3,354	3,377
Number of polities	17	17	17	17	17
Specification	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y
Control Total Siblings	Y	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table 13
Queens and Internal Instability

VARIABLES	(1) Reign length	(2) Monarch killed	(3) Polity ends	(4) Polity unites	(5) Polity partitioned / captured	(6) Polity becomes republic
Queen	3.501	-0.435	0.130	0.293	-0.220	-0.006
	[14.562]	[0.396]	[0.295]	[0.228]	[0.171]	[0.006]
Observations	3,377	3,058	3,377	3,350	3,350	3,350
R-squared	0.183	0.184	0.288	0.192	0.055	0.032
Number of polities	17	17	17	16	16	16
Specification	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table A.1
Polities with Queens

Burgundy and the Low Countries
Portugal
Spain
The Duchy of Bourbonnais
The Duchy of Brittany
The Duchy of Lorraine
The Farnese and Bourbons in Parma
The Grand Duchy of Luxemburg
The polity of England
The polity of Navarre (Pamplona)
The polity of Scotland
The polity of Sweden
The polities of Leon and Castile
The Medici and their Successors in Florence
The Modern Netherlands
The Principality of Monaco
The Tsardom of Russia

Table A.2
Alternative Instrument Sets

VARIABLES	(1) In External War	(2) In External War	(3) In External War	(4) In External War
Queen	0.275**	0.250**	0.291	0.262
	[0.109]	[0.104]	[0.294]	[0.198]
Observations	3,377	3,377	3,377	3,909
R-squared	0.200	0.207	0.195	0.170
Number of polities	17	17	17	17
Instruments	FBM_{r-1} , $Sister_{r-1}$, FBM_{r-1} X $Sister_{r-1}$	FBM_{r-1} , $Sister_{r-1}$, FBM_{r-1} X At least Two $Children_{r-1}$	FBM_{r-1}	$Sister_{r-1}$
First Stage F-statistic	18.0	17.0	6.6	9.4

Notes. Variables not shown include polity and decade fixed effects. FBM denotes First-Born Male. In column (5), the instrument set includes the First Born Male and Sister variables, as well as their interactions with an indicator of whether the polity ever had a queen. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table A.3

Robustness Checks with Additional Controls and Outcomes

VARIABLES	(1) In External War	(2) In Civil War	(3) In External War	(4) In External War	(5) In External War or Civil War	(6) Number War Participants
Queen	0.351**	0.022	0.334*	0.051	0.309**	-1.703
	[0.151]	[0.080]	[0.201]	[0.083]	[0.151]	[3.704]
Observations	3,291	3,291	3,377	3,377	3,377	883
R-squared	0.187	0.172	0.191	0.164	17	0.705
Number of polities	17	17	17	17	0.199	9
Specification	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y
War in Previous Reign	Y	Y				
Age at Accession			Y	Y		

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. Columns (3)-(4) control for the average age at accession of the monarchs in the reign. These specifications also control for a missing age indicator to account for missingness in this variable. The number of war participants in column (6) is the average number of participants conditional on war. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table A.4

Robustness to Additional Samples

VARIABLES	(1) In External War	(2) In Civil War	(3) In External War	(4) In External War	(5) In External War	(6) In External War	(7) In External War	(8) In External War	(9) In External War
Queen	0.289**	-0.024	0.233*	0.393**	0.337**	0.373*	0.407*	0.247*	0.414**
	[0.128]	[0.082]	[0.141]	[0.175]	[0.168]	[0.211]	[0.238]	[0.147]	[0.189]
Observations	3,586	3,586	2,958	2,977	3,350	3,246	3,020	3,027	1,684
R-squared	0.208	0.160	0.251	0.176	0.186	0.176	0.165	0.189	6
Number of polities	18	18	16	16	16	16	16	16	0.222
Specification	IV	IV	IV	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sample Change	Add Austria	Add Austria	No England	No Russia	No Leon and Castile	No Navarre	No Portugal	No Sweden	No other queen polities

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. Columns (1)-(2) backdate the Austrian monarchy to 1658 to include Maria Theresa as an additional queen. Column (9) excludes all other queen polities except the six queen polities omitted in columns (3)-(8). *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table A.5

Robustness to Specification: Queens and War in All Polities

VARIABLES	(1) In External War	(2) In Civil War	(3) In External War	(4) In Civil War
Queen	0.257**	0.038	0.352**	0.054
	[0.114]	[0.080]	[0.167]	[0.065]
Observations	6,390	6,390	6,390	6,390
R-squared	0.150	0.094	0.139	0.092
Number of polities	36	36	36	36
Standard Controls	Y	Y	Y	Y
Total Siblings			Y	Y
Sample	Queen & Non-queen polities	Queen & Non-queen polities	Queen & Non-queen polities	Queen & Non-queen polities
Instruments	$Sister_{r-1}$, FBM_{r-1}, $Sister_{r-1}$, FBM_{r-1} x Queen Polity, and $Sister_{r-1}$ x Queen Polity			

Notes. Variables not shown include polity and decade fixed effects. All specifications use Sister, First-born-male and their interactions with an indicator of whether the polity ever had a queen as instruments for queen. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table A.6
Solo Queens

VARIABLES	(1) In External War	(2) In Civil War	(3) In Balance of Power War	(4) Reign Entered	(5) Reign Continued	(6) Polity Attacked	(7) Polity was Attacked
Solo Queen	0.454**	0.054	0.494***	0.253	0.241	0.486*	0.022
	[0.221]	[0.116]	[0.186]	[0.191]	[0.218]	[0.264]	[0.261]
Observations	3,377	3,377	3,368	3,368	3,368	3,354	3,354
R-squared	0.136	0.163	0.159	0.149	0.111	-0.116	0.202
Number of polities	17	17	17	17	17	17	17
Specification	IV	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.

Table A.7
Alternative Reign Timing Measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	In External War	In Balance of Power War	Polity Attacked	Polity was Attacked	In Civil War	In External War	In Balance of Power War	Polity Attacked	Polity was Attacked	In Civil War
Queen	0.374**	0.388***	0.364*	0.038	0.053	0.137	0.265	0.314*	-0.076	-0.100
	[0.174]	[0.146]	[0.189]	[0.173]	[0.095]	[0.219]	[0.225]	[0.175]	[0.164]	[0.134]
Queen X First Two Reign Years	-0.319	-0.170	-0.086	-0.100	-0.138	-	-	-	-	-
	[0.328]	[0.256]	[0.168]	[0.172]	[0.191]	-	-	-	-	-
Queen X Log Year of Reign	-	-	-	-	-	0.102	0.063	0.026	0.056	0.057
	-	-	-	-	-	[0.096]	[0.093]	[0.113]	[0.096]	[0.060]
Observations	3,377	3,368	3,354	3,354	3,377	3,377	3,368	3,354	3,354	3,377
R-squared	0.178	0.215	-0.002	0.205	0.160	0.166	0.199	0.017	0.204	0.158
Number of polities	17	17	17	17	17	17	17	17	17	17
Specification	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV
Standard Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Total Siblings	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Reign Length	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Notes. Variables not shown include polity and decade fixed effects. Robust standard errors clustered at the polity level are shown in parentheses. *** is significant at the 1% level, ** is significant at the 5% level, * is significant at the 10% level.