Patriarchy on the map: Women's empowerment trajectories in Nepal's changing social context

Andréa Renk, Clarice Manuel
December 2023

DeFiPP Working Paper 2023-04

DeFiPP
Development Finance & Public Policies
defipp.unamur.be

UNIVERSITÉ DE NAMUR

Patriarchy on the map: Women's empowerment trajectories in Nepal's changing social context*

Andréa Renk[1,2] and Clarice Manuel[1]

[1]Université de Namur

[2]Paris School of Economics (EHESS)

December 2, 2023

Abstract

Gender inequalities persist globally, and Nepal is no exception. However, over the past two decades, numerous legal reforms have expanded the rights of women. This paper examines the changing impact of patriarchal intensity on women's empowerment proxies in this context. We develop a measure of patriarchy based on the demographic behavior of neighbors in 2001 and explore how its importance has changed in relation to women's empowerment indicators (decision-making power, paid and non-agricultural employment) over two decades. Our findings indicate a growing heterogeneity in women's empowerment over time, despite overarching positive trends. These results are consistent with a straightforward model suggesting that actual empowerment depends on the legal framework and a cost associated with seizing available opportunities, increasing with patriarchy. Furthermore, our results underscore the importance of employing a spatial measure that encompasses all neighbors to comprehend such dynamic patterns.

*We thank Jean-Marie Baland, Simone Bertoli, Guilhem Cassan, Hugues Champeaux, Juliette Crespin-Boucaud, Philippe De Vreyer, Joseph Flavian Gomes, Catherine Guirkinger, Sylvie Lambert, Perrin Lefebvre, Etienne Le Rossignol, François Libois, Karine Marazyan and Jean-Philippe Platteau for their valuable inputs. We also thank seminar participants at PSE and UNamur for their helpful comments. This research was financially supported by the Fonds Wetenschappelijk Onderzoek – Vlaanderen (FWO) and the Fonds de la Recherche Scientifique - FNRS under EOS Project O020918F (EOS ID 30784531), the Agence Nationale de la Recherche under the framework of the Investissements d'avenir programme reference ANR-17-EURE-001 and PSE development group.

1 Introduction

Gender equality and women's empowerment have been on the international policy agenda for decades. In 1979, the Convention on the Elimination of Discrimination against Women (CEDAW), often referred to as an international bill of rights for women (Cole, 2016), was adopted.[1] Still, gender imbalances continue to persist worldwide. Women are more likely to be engaged in unpaid domestic work compared to men, their political participation is lower (Sachs et al., 2021), and issues like domestic violence and femicide remain prevalent. Nonetheless, there has been a shift in societies, with discussions about gender dynamics and power imbalances becoming more mainstream.

There is a growing consensus that gender equality is a fundamental prerequisite for a peaceful, prosperous, and sustainable world (UN Women, 2023), especially in development, where women's empowerment and economic growth are interconnected (Duflo, 2012). However, despite progress made in recent decades, including increased female education, fewer child marriages, greater female leadership, and various pro-women and girls reforms, the current pace of progress suggests that it would take approximately 300 years to achieve full gender equality (UN, 2022).

The situation in Nepal illustrates this tension. In just one generation, Nepal transitioned from a society characterized by a deeply entrenched social hierarchy, where gender disparities were supported by the state and religious apparatus, to one where the call for gender equality and social inclusion is widespread (Adhikari and Sharma, 2022). Starting from the early 2000s, a series of laws supporting women's rights have been introduced. These measures induce changes in property and inheritance rights, the legalization of abortion, and reservation rights at all political levels. But Nepal undoubtedly remains a patriarchal society. Women still face both institutional and non-institutional forms of patriarchy (Lotter, 2017; Adhikari and Sharma, 2022), and numerous research studies and policy reports have highlighted the enduring influence of patriarchal norms, such as, the perception of women as "second-class citizens" and the limited access to land and property despite formal legal rights (IOM, 2016).

In this paper, we study women's empowerment gains in this fast-changing social context. Our focus is on the importance of patriarchal norms in shaping these trends over time: did the new laws and social environment enable women living in more patriarchal areas to catch up in terms of empowerment or, on the contrary, was there greater gains in places where women are relatively more empowered to start with?

[1] It was introduced in 1981 and ratified by 189 countries, with some notable exceptions like Iran, Somalia, Sudan, and Tonga not being signatories, and the United States and Palau not having ratified the treaty.

We hypothesize that, despite significant social and legal changes in favor of women, the practical utilization of these rights (or outside options) and ensuing empowerment gains may be constrained when local power dynamics continue to favor older men. To formalize this idea, we develop a simple theoretical model. This model suggests that the actual empowerment of women depends on the prevailing legal framework at a given time and the cost associated with seizing these new opportunities, which increases with the level of patriarchal influence. As women gain more rights given the evolution of the national legal framework and assuming that local patriarchal norms remain relatively constant, our model predicts a divergence in women's outcomes over time. This means that women in areas with lower patriarchal influence should experience greater empowerment gains compared to those in regions with higher patriarchal norms. Subsequently, we empirically test this hypothesis: we study the changes over time in the relationship between women's empowerment and the initial level of patriarchal intensity, while also accounting for potential confounding factors. Guided by our straightforward theoretical model, we anticipate a divergence in women's empowerment outcomes, i.e., a growing gap between women residing in areas with lower and higher patriarchal influence. This is expected to be empirically reflected in an increasingly negative patriarchy coefficient over time. We refrain from delving into the specific benefits associated with a particular reform or law due to the introduction of numerous new reforms over a short time span and the unclear timing of implementation.

Patriarchy is a broad concept. In our study, we incorporate both gender and generational aspects, aligning with the definition of "the rule of the father and the rule of the husband, in that order" (Therborn, 2004). This concept closely relates to what is commonly referred to as "classic patriarchy", as defined by Kandiyoti (1988). In this framework, the elder male holds authority over everyone within the patrilocal extended household, and women possess no rights to their father's patrimony (patrilineage), while their labor and progeny are vested in their husband. Our empirical measure of patriarchy largely draws from the work of Gruber and Szołtysek (2016), who developed an index rooted in family structures to gauge variations across different times and locations using census data. We expand on this by defining a localized measure, based on the demographic characteristics of spatial neighbors, understood to be people within a 10-kilometer radius. Subsequently, we concentrate on two facets of women's empowerment: intra-household decision-making authority and participation in the labor market. We utilize data from five waves of geolocalized Demographic and Health Surveys spanning from 2001 to 2022, which we spatially align with our patriarchy index. Intra-household decision-making authority is measured by women's self-reported roles in decisions regarding their

own health, visits to family and friends, and significant household expenditures. Labor-wise, we first study labor force participation. Then we focus on paid work, an acknowledgment of women's labor and a challenge to men's role as sole breadwinner, and non-agricultural work, which often involves interactions outside the private sphere.

Descriptive statistics reveal an overall increase in women's empowerment in Nepal from 2001 to 2022. However, our findings show not only substantial heterogeneity, but also growing heterogeneity. Specifically, women residing in areas with lower patriarchal intensity in 2001 have experienced more significant empowerment gains compared to those in regions with higher patriarchal influence. Often, the gap increases across the first periods, and stabilizes at high levels, although the precise trends differ across outcomes and samples. In terms of decision-making power, there is a notable divergence for all married women, with the most significant disparity occurring between 2006 and 2016, followed by a subsequent reduction in the gap by 2022. However, when examining more exposed groups, such as newly wedded women or younger women who have grown up in the changing social context, the situation unfolds differently. For newly married women, we observe a growing divergence between 2001 and 2011, followed by a stabilization of the gap at around 7 percentage points for a one standard deviation increase in our patriarchy index. This difference is substantial, constituting approximately 23 percent of the overall sample mean. Further examination of marriage-related indicators, such as age at first marriage or the educational gap between spouses, suggests that our results cannot be attributed to changes in the marriage market.

Regarding employment of women in working age, we also observe a divergence in both paid work (in cash or kind) and non-agricultural employment, especially in the later periods. It is important to note that labor force participation increases more in the later periods in more patriarchal areas, indicating that these trends are not primarily driven by a relatively larger increase in housewives in more patriarchal areas. For paid work, we see a growing gap between 2001 and 2011, followed by a stabilization at relatively high levels between 2011 and 2022. This gap corresponds to approximately 20 percent of the sample mean for a one standard deviation increase in our patriarchy index. When it comes to non-agricultural work, there are no significant differences between women located in more or less patriarchal areas (as measured in 2001) over the 2001-2011 period. However, during the last two periods, a substantial difference emerges, amounting to roughly 26 percent of the sample mean for a one standard deviation increase in our patriarchy measure. The results are similar for a more constrained sample whether by age or marital status.

In the final section of our study, we delve further into our measurement of patriarchal norms

and its implications for our findings. In this work, we acknowledge the importance of ethnicity, caste and religion (traditions) in women's status, that we empirically account for by adding ethnic and caste fixed-effects. To discuss how spatial and traditional measures interact, we reconstruct a measure based on traditions, and test how it affects our results. While we do observe variations among women when considering this measure, the differences remain relatively constant over time, except for non-agricultural work, where we observe similar trends than with our main measure. Consequently, we underscore the relevance of using a spatial measure when examining these dynamics. We also explore our neighborhood measure and its relevance: is it neighbors who matter, or neighbors that an individual identifies with? We create an in-group patriarchy measure based exclusively on individuals who share the same ethnic or caste group as the respondent, and an out-group measure. We find that both in-group and out-group measures matter, further emphasizing the need for a spatial approach to measure norms. In the very last section of this article, we investigate potential shifts in patriarchal norms. Our findings indicate that certain areas experienced a reduction in patriarchal influence and these areas tended to be more patriarchal in the initial period. When we incorporate this dimension into our results, we find that the areas that became less patriarchal were also regions where women enjoyed a higher status in 2006, aligning with the period marked by greater hopes for gender equality. Furthermore, women located in these areas also exhibit higher relative levels of empowerment in 2022.

Our findings contribute to the existing literature on patriarchy. Several empirical studies have directly examined patriarchy and its impact on women's outcomes. For instance, Heath and Ciscel (1988) present a patriarchal model in which "the division of labor and the distribution of goods and services are structured to benefit the male head", providing insights into various stylized facts concerning women's work in the United States during the late 20th century. In a different context, Malhotra et al. (1995) investigate fertility preferences in India with respect to patriarchal intensity. They employ six variables to approximate three dimensions of patriarchy, including active discrimination, the marriage system, and the economic value of women, for each Indian district. Similarly, in our study, we concentrate on variables defined within a specific spatial unit to construct our patriarchy index and incorporate controls for ethnicity, caste, and religion to assess their impact on women's outcomes. Additionally, Dildar (2015) explore how patriarchal norms and religiosity restrict women's labor force participation in Turkey. Their measurement of the "internalization of patriarchal norms" is based on women's responses to nine opinion questions, and they find that it diminishes women's participation in the labor force in urban areas, particularly among more educated women. To the best of our knowledge, our paper represents the first attempt to examine changes in the importance

of patriarchy for women's outcomes over a span of twenty years.

Our findings also connect to the body of literature on pro-women policies and their impact on women's well-being. Although our study does not specifically examine individual reforms and their effects on women, it builds up on this literature. Recent research has focused on inheritance reforms, which have received considerable international support due to their potential to enhance women's rights to land and other productive resources, leading to improved household welfare and a broader range of rights for women (United Nations, 2013, p2). In Nepal, inheritance rights reforms have been a part of the legal framework and various studies have found that land ownership has had a positive impact on women's empowerment (Allendorf, 2007; Mishra and Sam, 2016; Pradhan et al., 2019). Additionally, in India, changes to the Hindu Succession Act have yielded positive effects on women's well-being, such as, increased female education (Bose and Das, 2017; Roy, 2015), greater autonomy, and labor force participation (Heath and Tan, 2020). However, these reforms have also had unintended consequences, including an increase in son preference (Bhalotra et al., 2020), higher female mortality (Rosenblum, 2015), and elevated suicide rates among women (Anderson and Genicot, 2015). In a different context, Harari (2019) found that an inheritance reform in Kenya significantly improved women's education and health, with suggestive evidence pointing toward increased bargaining power. On another note, Erten and Keskin (2022) demonstrated that awareness of a law aimed at reducing gender inequality and preventing domestic violence, which was also part of the reform package in Nepal, did not correlate with lower rates of domestic violence or an increased ability to leave abusive relationships in Turkey. Our contribution to this literature lies in highlighting the heterogeneous gains in women's well-being following a package of gender-equality reforms.

Lastly, our results contribute to the literature examining the role of culture and norms in the adoption of (pro-women) policies. While our study doesn't directly investigate the adoption or non-adoption of modern laws, it focuses on second-order outcomes related to women's empowerment. As outlined in our simple theoretical model, we anticipate that modern laws, or the changing social context more broadly, influence women's empowerment by creating new opportunities that were previously unavailable, albeit with varying effects contingent upon local patriarchal norms. In theory, customary laws can act as a barrier to the widespread adoption of modern laws. If a modern law contradicts established customs, people are less likely to adhere to it even if they are aware of its existence (Aldashev et al., 2012a; Acemoglu and Jackson, 2017). Our contribution to this literature is to demonstrate that in the context of substantial changes in formal law, women located in more patriarchal areas in the initial period did not experience as much benefit over time as those in less

patriarchal regions. Nevertheless, this literature also highlights that changes in formal law can still trigger shifts in customary practices, even when adherence to the formal law is not strictly followed through a "magnet effect" (Aldashev et al., 2012b). Relatedly, additional findings from our study indicate that more patriarchal areas, on average, became less patriarchal, suggesting that norms were influenced in a direction closer to the new legal framework.

2 Context

Nepal is a country with high ethnic and linguistic diversity. The predominant religions are Hinduism (81 percent) and Buddhism (9.2 percent), with Islam accounting for 4.4 percent of the population (CBS, 2014). Despite this cultural diversity, Nepal retains a patriarchal structure where a woman's life is significantly influenced by her father and husband (ADB, 1999; Sangroula and Pathak, 2002). Women are primarily viewed through the lens of their marital status and are predominantly engaged in domestic activities, such as housework and child-rearing, while men take on more prominent roles in the public sphere, involving political and economic participation (Tamang, 2000; Luitel, 2001). However, women's experiences vary, as in certain communities, women's roles are not restricted to the private sphere (Tamang, 2000). Gender dynamics within Tibeto-Burman groups are often described as less stringent compared to Indo-Aryan groups, notably given a greater flexibility in partner selection and the possibility of remarriage, whereas in Indo-Aryan culture, remarriage is infrequent, even in cases of early widowhood (ADB, 1999). Certain practices are also specific to Indo-Aryan groups, such as, "shift eating" where men eat their meals first, and women can only eat after the men have finished (Acharya et al., 2010).

Nepal's first civil code, the *Muluki Ain* of 1854, was drafted based on Hindu religious and legal texts, and contained numerous provisions that upheld the hierarchical nature of castes/ethnicities, the dominance of men, and the discrimination of women (Pradhan and Shrestha, 2005). Certain provisions recognized the rights of sons only to education, food, and inheritance, while others curtailed women's rights and property ownership based on their age and marital status (Subedi, 2009). In 1962, significant constitutional changes took place[2] and women were constitutionally acknowledged as a special interest group, though many discriminatory provisions persisted. Furthermore, the new civil code reinforced the idea of a single-family system of family law, primarily based on high-caste Indo-Aryan groups like Brahmans and Chhetris (Tamang, 2000). Within these groups, the division

[2]Following King Mahendra's coup d'état in December 1960, the 1961 Constitution introduced the Panchayat system in Nepal, which included a new civil code.

between the public and private spheres is particularly pronounced, with a strong emphasis on the "purity" of women.

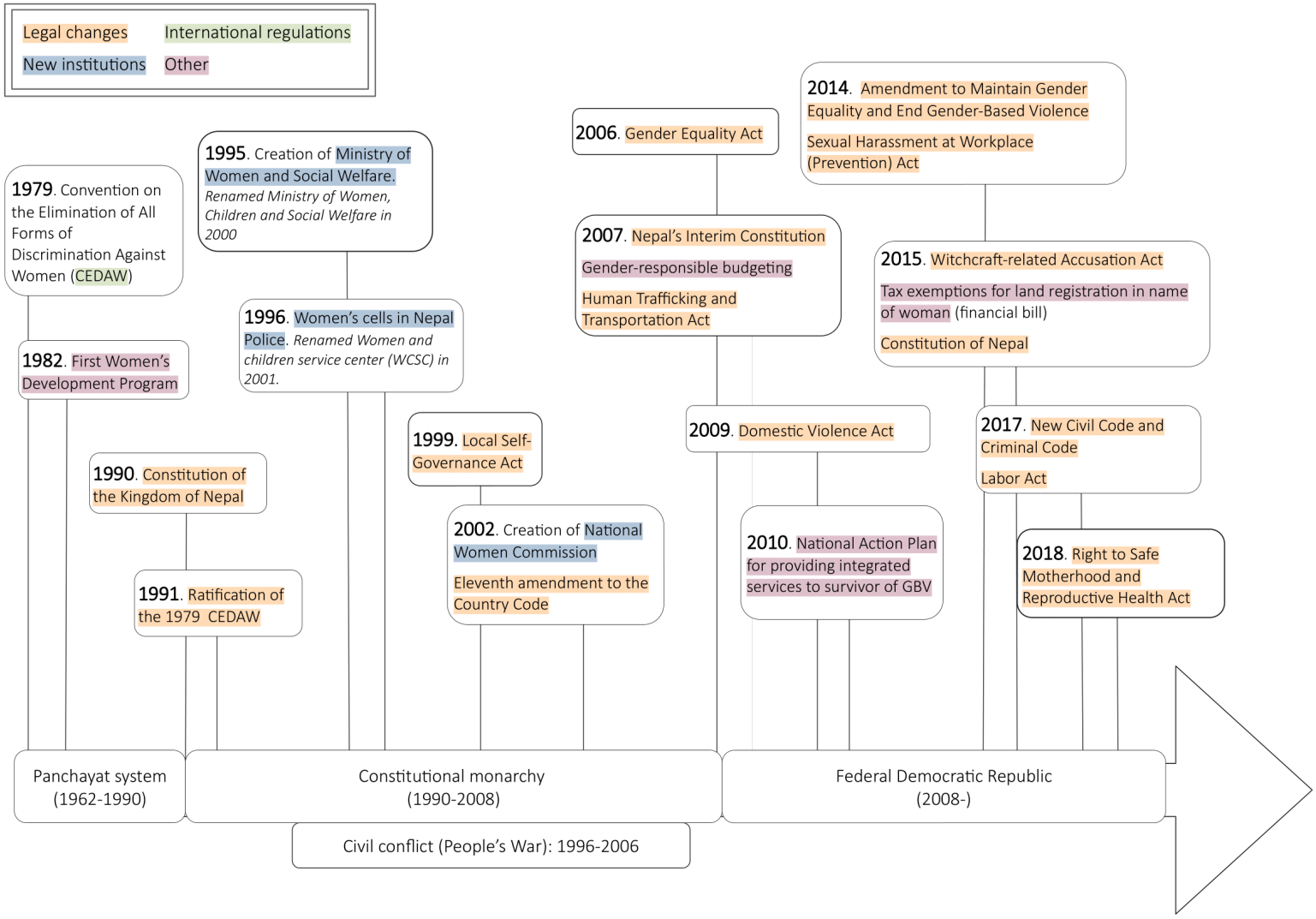
In recent decades, significant legal reforms have brought about substantial changes in the landscape of gender equality (Acharya et al., 2015). Figure 1 provides an overview of the institutional framework. A pivotal moment in this transformation occurred with the 1990 Constitution, which established two fundamental rights for women: the right to be free from sex discrimination; and positive discrimination to fully realize the right to equality (Sangroula and Pathak, 2002). Based on these new constitutional rights, various organizations initiated public interest litigations in the Supreme Court. Feminist lawyers successfully won several cases addressing property rights, succession rights, abortion rights, and other issues leading the Supreme Court to declare discriminatory laws unconstitutional and to issue directive orders to enact new laws. This led to the 11th amendment to the Country Code in 2002 (Acharya et al., 2015). The amendment introduced inheritance rights for unmarried daughters and allowed women to claim a share of their husband's property. Additionally, abortion was legalized, establishing a clear legal distinction between abortion and murder (Thapa, 2004).

Substantial advancements in women's rights continued in 2006 and 2007. Women gained the right to retain their share of ancestral land upon marriage. Domestic and sexual violence, including marital rape, were criminalized, and political quotas for women (33 percent) in all elections were introduced. The 2015 Constitution upheld these rights, and it included a special provision for women, ensuring their entitlement to special treatment to guarantee access to education, health, and employment opportunities (Acharya et al., 2015).

Nepal's social and political transformation as a consequence of the Maoist Insurgency (1996-2006)[3] has contributed to the abundance of these reforms. The Communist Party of Nepal (Maoists) largely contributed to placing gender equality on the political agenda among other demands for more equitable and representative state structures (Acharya et al., 2015). Women, particularly those from Janajati ethnic groups (mostly Tibeto-Burman), were drawn to what they perceived as a struggle against the oppression and discrimination they faced based on gender, caste, and class. During this period, in some cases, the 'People's courts' helped women gain land ownership and address or eliminate discriminatory practices against them. In the economics literature, Valente (2014) find that girls' education increased in districts with the highest casualties during the conflict and Menon and Van der Meulen Rodgers (2015) found that it enhanced women's likelihood of employment. Additionally,

[3]The Communist Party of Nepal (Maoist) initiated 'the People's war' in February 1996, advocating for more equality and larger recognition of minorities in a context where most political power and civil servants positions were held by high-caste groups (Brahmin and Chhetri). In 2001, it became an armed conflict between the Maoist and the Nepal Army resulting in the death of over 17,000 people and numerous civil rights infringements.

Figure 1: Legal framework (1979-2018)



Authors' own production. Important sources: Acharya et al. (2015), Sangroula and Pathak (2002), Nepal Law Commission

women actively participated in the armed struggle, constituting about one-third of the guerrilla forces (Manchanda, 2004). However, in the post-conflict environment, the Maoist ideological commitment to gender equality appeared to be more limited, especially in relation to former fighters (KC and Van Der Haar, 2019).

In summary, Nepal has witnessed substantial shifts in gender equality over the past two decades, driven by evolving societal demands for egalitarian ideologies and accompanied by the enactment of reforms and laws.

3 Conceptual framework

In this section, we present a basic model to guide our empirical analysis and elucidate the underlying assumptions of this study. The model is based on a changing context marked by two decades of legal reforms benefiting women. These reforms establish a maximum level of empowerment for each time period. However, attaining this level of empowerment comes with a cost, and this cost increases with the degree of patriarchy. The observed level of empowerment depends on these two factors. Formally, we express this relationship as:

$$Y_{it} = [1 - C(P_i)]Y^*(\alpha_t)$$

where Y_{it} represents the situation for a woman i in each period t, α_t represents the legal framework in time t with $\alpha_t > \alpha_{t-1}$ and $C(P_i)$ signifies a cost that strictly increases with patriarchy P_i, different across women, ranging from 0 to 1. The maximum level of empowerment, Y^*, is determined solely by α_t and increases with the new rights and demands of women. Since these reforms are national, the maximum level is the same for all women.

As we transition from time 0 to time t, we can express it as:

$$Y_{it} = Y_{i0} + [1 - C(P_i)][Y^*(\alpha_t) - Y^*(\alpha_0)]$$

Hence, as women gain more rights over time, our model predicts an increasing divergence in women's empowerment, depending on patriarchal norms.

In this paper, we define patriarchy spatially, based on observable demographic characteristics related to male and generational dominance (details on index construction in section 4.2). The central question of our work revolves around the existence of a "patriarchal barrier", a social phenomenon, to women's empowerment. In the literature, norms are often discussed in relation to traditions proxied

by ethnicity or religion while, in our case, ethnicity, caste and religion are considered as individual characteristics. Our perspective emphasizes that (spatial) communities can exhibit varying degrees of patriarchy due to specific historical factors or population demographics. As a result, patriarchy is less "essential" in our work compared to an approach grounded in ethnicity or religion.

In the model and throughout this paper, patriarchy and the associated cost remain fixed over time, that is, at the initial period of 2001 in our data. In reality, the central assumption is rank preservation, meaning that a place more patriarchal than another in 2001 should continue to be more patriarchal over time. If this holds true, using a fixed measure over time allows us to measure changes based on the relative level of patriarchy. Interestingly, the patriarchal measure in 2001 has a 0.93 correlation with the measure computed in 2011, strong indication of the credibility of the rank preservation assumption. In Section 7.3, we relax this assumption by considering the shifts in patriarchal norms between 2001 and 2011.

The costs, which rise with the level of patriarchy, can be viewed as the costs of conflicting with authority or deviating from the status quo, which was characterized by limited women's rights as reforms in favor of women began in the early 2000s (see section 2). In a community structured by patriarchal authority, a woman who challenges the patriarchal norm - for example, by taking a more prominent role in the public sphere or participating in decision-making - would clash with that authority: in a society where (older) men hold structural dominance, increased female empowerment implies a reduction in power for those in authority, making it undesirable. In practice, the cost of such conflict would result in social exclusion from the community. In the framework of identity economics, patriarchy would be a prescription, and individuals, both men and women, benefit by conforming to it. Any behavior that threatens this identity is met with condemnation (social ostracization) by other community members (Akerlof and Kranton, 2000; Aldashev et al., 2012a). Hence, for the same behavior, the cost is higher in more patriarchal areas because the prescription is stronger. Additionally, there may be a more direct cost in the form of lengthier procedures to assert one's rights, owing to greater reluctance on the part of local public authorities to enforce them. It is important to note that, given the context, this paper primarily focuses on women's outcomes, but men may also encounter the constraints of patriarchy as deviating from these norms would be costly for them as well.

Given our spatial approach, migration could pose challenges. Assuming a population with heterogeneous preferences, individuals less inclined to conform to patriarchal norms might opt to migrate to places where their identity markers are less pronounced, such as cities offering greater anonymity, or destinations with norms aligning more closely with their preferences. In this scenario,

the most reformist individuals may relocate to less patriarchal areas, while the more traditional ones would gravitate toward more patriarchal ones. This dynamic supports the rank preservation hypothesis.

Finally, it is important to emphasize that the model's predicted divergence is not really among women based on their initial level of patriarchy but rather among women in areas with varying degrees of patriarchy, as measured in 2001, in each period, given that migration is not observed.

4 Data

4.1 Sources

The first major data source used in this paper is the Nepal Population and Housing Census (Central Bureau of Statistics, 2011). We use data from the 2001 and 2011 extended questionnaires, which were administered to one in eight households,[4] and made available for researchers. The 2001 data collection took place in June, prior to the declaration of the State of Emergency and the deployment of the Nepalese Royal Army. Nonetheless, due to the conflict, data collection in 83 villages (spanning over 3,914 Village Development Committees and 58 municipalities) was impeded. Additionally, a technical issue in matching questionnaires led to a reduction in the final dataset size. See Figure A1 in appendix for a map of the spatial units accurately surveyed in the 2001 census.

In households selected for the extended questionnaire, all household members were interviewed. The complete dataset encompasses information on household characteristics and individual-level demographic details such as gender, age, marital status, caste/ethnicity, or educational attainment. For women, further information was collected, including age at first marriage and the number, gender, and vital status of their children. Information regarding the age and gender of absent and recently deceased household members was also recorded. Importantly, households were precisely geolocated based on the 2001 Census map of Enumerated Areas (EAs), which consisted of 35,965 units.

Our second principal data source is the Demographic and Health Surveys (DHS) conducted at five-year intervals from 2001 to 2022.[5] The primary source of information within the DHS is the women's questionnaire, which is administered to women aged 15-49. It contains data on women's age, ethnic/caste group, employment status, and details regarding marital life, including husband's characteristics, age at first marriage, and decision-making. The DHS geocoded dataset provides access

[4]Except in less populous areas – six districts in the mountains and several small municipalities - where all households were administered the survey.

[5]The first wave in Nepal dates back to 1996, but the data lacks geocoding, rendering it unusable for this study. The 2022 wave, initially scheduled for collection in 2021, was postponed due to the global COVID-19 pandemic.

to other crucial variables pertaining to geographical characteristics, such as a nightlight composite measure, altitude, and in most waves, slope and travel distance to the nearest city in 2000. It is important to highlight that in 2001, only ever-married women were surveyed. Additionally, we do not have information on whether the current marriage is a first marriage.[6]

We merge these data sources using a spatial approach. To protect the privacy of respondents, DHS cluster locations were randomly shifted within 0-2 kilometers for urban areas and 0-5 kilometers for rural areas, with 1 percent experiencing a shift of 0-10 kilometers (Perez-Heydrich et al., 2013). Leveraging the precise localization available in the census data, we construct 2 (5) kilometre buffers around the geolocated urban (rural) DHS cluster and intersect them with the census EAs to calculate the average or median value of a given variable for this buffer. Figure A2 in appendix shows the location of the DHS clusters in each wave.

4.2 Measurement of patriarchy

The central question of our work is centered on the possible existence of a "patriarchal barrier" to women's empowerment. We explore the notion that patriarchy may manifest in differing degrees owing to distinct historical influences, population characteristics, and traditions. To quantify patriarchy, we embrace a spatial perspective that relies on observable demographic attributes (Gruber and Szołtysek, 2016; Singh et al., 2022). This methodology underscores patriarchy as a societal phenomenon.

4.2.1 Choice of variables

The patriarchy index we construct relies on demographic characteristics. Based on revealed behavior, it captures a demographic dominance of older males in a given neighborhood. Gruber and Szołtysek (2016) first introduced this approach, creating an index to gauge the intensity of patriarchy in Europe during the 18th to 20th centuries by using historical census microdata. Although they acknowledge patriarchy is "multifaceted" and a complex social system, they advocate for a measure admittedly less holistic but based on a set of characteristics and aspects that can be studied across space and time to eventually understand more precisely historical cross-country differentials in fertility, parental control, and other aspects. Their study is therefore focused on the motivation and methodology of building such an index. Singh et al. (2022) adapted this index for contemporary India (India Patriarchy

[6]This particular data is available in the census data: in 2001, 2.6 percent of ever-married women were re-married, and this figure was 2 percent in 2011. Also, polygamy is illegal in Nepal. Still, about 2 percent of men declare they are multiple married according to the same data. In one case study in the Doti district, selected based on high prevalence of discriminatory practices, there is no co-residence among wives: the first wife is with her parents-in-law, while the second wife lives with the husband in a second residence (Ghimire and Samuels, 2014).

Index) and found strong correlations with mainstream measures of gender equality. One noteworthy advantage of such a measure is its exclusive reliance on observable demographic variables. Unlike some studies that use survey responses regarding gender role attitudes to construct patriarchy indices (Gündüz-Hoşgör and Smits, 2008; Dildar, 2015), our approach minimizes potential biases related to socially desirable responses. Such biases may cause respondents to provide answers they consider socially acceptable, rather than reflecting their true beliefs.

The choice of variables used in the index mostly follows Gruber and Szołtysek (2016) and Singh et al. (2022). However, we have a more limited set of variables, retaining only those used in both studies, i.e. original variables relevant to the South Asian context. All the variables as well as the motivation to include them in the first place derived from the original papers are presented in Table 2. In these papers, variables are grouped into four dimensions (five in Singh et al. (2022)): male domination, generational domination, patrilocality, and son preference (and socio-economic domination). The first dimension includes female head, young bride, and older wife; the second neolocal, joint family, and young household head, an additional variable not used here for reasons explained below; the third matrilocality. The fourth dimension, son preference, differs significantly.

We depart from the original measures of son preference for several reasons. In the original papers, the first component of the son-preference dimension is the stopping rule, which is measured by building a dummy on whether the last child born is a boy for women who have completed their fertility. In a recent paper, Baland et al. (2020) show that the stopping rule (and selective abortion) can be measured at the child level by studying the composition of older and younger siblings for girls: a larger number of younger (older) siblings for girls compared to boys denotes the presence of the stopping rule (selective abortion). This approach allows for the examination of fertility decisions before birth and is not reliant on completed fertility. In our case, distinguishing between younger and older siblings at the child level is not possible. Nevertheless, as both mechanisms suggest a higher number of siblings for girls, we create an aggregated measure, which is the ratio between the average number of siblings for girls and boys. An additional crucial reason for our departure from the original measure is the suspiscion of ill measurement of the youngest children in household rosters coupled with the fact that relationships between household members are defined in relation to the household head, which creates uncertainty about parental relations or implies to exclude many joint families from this measure. Given the mismeasurement of the youngest children in household rosters, we focus on the sex ratio of children aged 5 to 8 years, rather than those aged 0 to 4 or 5.

Table 1 presents the pairwise correlations between the variables. Based on this table, the variable

Table 1: Pair-wise correlations of patriarchy index variables

	female_head	young_bride	older_wife	young_head	neolocal	jointfam	marrdaug	rsiblings	sexratio_5_8
female_head	1.0000								
young_bride	-0.5662*	1.0000							
older_wife	0.3213*	-0.6914*	1.0000						
young_head	-0.1820*	0.1192*	-0.0947*	1.0000					
neolocal	0.1566*	-0.5311*	0.4851*	-0.1102*	1.0000				
jointfam	-0.5405*	0.7292*	-0.6593*	0.1877*	-0.6462*	1.0000			
marrdaug	0.2878*	-0.4377*	0.4271*	-0.0758*	0.3371*	-0.4281*	1.0000		
rsiblings	-0.1815*	0.1877*	-0.3386*	-0.0547*	-0.0309*	0.2124*	-0.1772*	1.0000	
sexratio_5_8	-0.0734*	0.1596*	-0.2098*	0.0540*	-0.1020*	-0.0793*	-0.0793*	0.2336*	1.0000

Pair-wise correlations of variables considered for the patriarchy index, based on Gruber and Szołtysek (2016); Singh et al. (2022). * denotes significance at the 5% level.

younger head does not seem to capture what it should, as it is systematically correlated in the opposite direction than the one expected. Therefore, we chose not to use this variable when computing the patriarchy index for Nepal.

4.2.2 Spatial construction

As presented in Table 2, each variable pertains to a distinct population group and is therefore unsuitable for computation at the household level or within very small spatial units since a minimum number of observations is necessary. In practice, for each enumeration area, we use all observations up to 10km,[7] as illustrated in Figure A3 in appendix. To enhance the internal validity of the index, we retain only those spatial units where all variables are defined based on a minimum of 15 observations.

4.2.3 Principal component analysis

In the original studies, the variables were transformed into index points. Each dimension of the index was represented by the mean value of these index points. Then, the final index was computed as the average value across the dimensions. We depart from this approach by employing Principal Component Analysis (PCA) to consolidate the various variables for two reasons. First, the allocation of variables across dimensions, especially for the generational dominance and patrilocality dimensions, is not clearly defined in the original method. Second, the relative weight of each variable in constructing the final index remains unknown, making it challenging to interpret the index. PCA offers a solution to

[7]As area coverage increases as we move away from the center, we correct for the differences in area so that those further away do not influence more the index than those closer. To do so, we introduce a "geometrical" weight defined such as if density of observation is similar across space, observations between 0 and 5km count as observations between 5 and 10km -despite the latter more numerous.

Table 2: Patriarchy index variables: definitions

Variable	Description	Patriarchy hypothesis	+/−	Definition
Female head	Proportion of female household heads	Only men can be household heads	−	Number female headed household / Number of households
Young bride	Proportion of young brides	A lower female age at marriage facilitates male domination	+	Number of female 15-19 years old ever married / All female 15-19 years old
Older wife	Proportion of wives older or same age as husband	The husband is always older than his wife	−	Share of couples with wife older or same age than husband. *Couples considered: head and wife, son and daughter-in-law (when 1 in household), parents*
Neolocal	Proportion of neolocal residence among young men	Sons cannot establish their own household on marriage	−	Number of ever married men 20-35 years old in nuclear household / Number of ever married men 20-25 years old)
Joint family	Proportion of elderly people living in joint families	All sons have to stay in the household of their father	+	Number of people over 60 living with at least 2 married sons or 2 daughters in law / Number of people over 60
Matrilocality	Proportion of elderly people living with married daughters	All daughters move into their husband's father's house	−	Number of people over 60 living with at least 1 married daughter / Number of people over 60 living with at least 1 married child in household
Siblings	Difference in average number of siblings for boys and girls	Parents continue child bearing until they reached a specific number of boys	+	Average number of siblings for girls / Average number of siblings for boys
Sex ratio	Number of boys compared to number of girls in 5-8 years old population	Girls are treated worse or are considered to be of lesser importance than boys	+	Number of boys 5-8 years old*100 / Number of girls 5-8 years old

Patriarchy hypothesis based on Gruber and Szołtysek (2016), except for *siblings*, motivated by Baland et al. (2020). +/− denotes the expected positive or negative relation to patriarchy, based on patriarchal hypothesis.

these issues.

PCA is a statistical technique utilized for reducing data dimensionality. It takes a set of n variables and generates a space of n uncorrelated dimensions (known as components) through linear combinations of the original variables. Each component aims to maximize the variance left unexplained. To construct an index using PCA, one can utilize the linear combination derived from the first component, as this component inherently explains the most variation in the data. For the index to be valid, it is essential that the first component explains a substantial portion of the data's variance, ensuring the index's relevance. Furthermore, it is crucial to verify that the coefficients associated with each variable in the first component align with expectations. For instance, they should be positive (negative) for variables positively associated with more (less) patriarchy. If this is not the case, it indicates that the underlying data does not behave as anticipated, making interpretation of the first component more challenging. We conduct the PCA using the Stata statistical software and standardize our variables to have a mean of 0 and a standard deviation of 1. This standardization ensures that the linear combination coefficients directly reflect the importance (weight) of each variable in the first component.

Following the computation, we find the first component to explain 45 percent of the variance (Eigenvalue 3.63), while it is only 14 percent (1.15) for the second component (scree plot in Figure A4 in appendix). Note that 45 percent is well above the figures mentioned in Vyas and Kumaranayake (2006)'s meta-study about constructing socio-economic status indices with PCA, with the first component's explained variance ranging between 12 and 27 percent. Table 3 presents the average values of the variables in Nepal and their contributions to the PCA. The final column of the table indicates that all variables contribute significantly and in the expected direction. Only the last two variables, sex and sibling ratio, contribute slightly less.

4.2.4 Final patriarchy index

In Figure 2, we present spatial distribution of the patriarchy index. The western and southern regions of Nepal exhibit higher levels of patriarchy, with noticeable variations within subregions. Interestingly, major cities like Kathmandu and Pokhara do not stand out as having lower patriarchy levels on the map. Importantly, this pattern is not influenced by our choice of using PCA instead of the original approach, as the pairwise correlation between these two potential indices is 0.98. Figure 3 illustrates the distribution of the patriarchy index recomputed at the level of DHS clusters.[8] Reassuringly, the

[8]Each DHS cluster's value is calculated as the average of EA values derived from the census data within a 2 (5) kilometer radius around the geolocated DHS cluster for urban (rural) areas. Due to sampling challenges in some areas

Table 3: Average value and contribution of variables for patriarchy index

	Mean	Std. Dev	Obs	PCA coef.
Female head	.154	.361	520,624	- .3203
Young bride	.348	.428	135,100	+ .4593
Older wife	.095	.294	449,265	- .4309
Neo-local	.412	.492	240,249	- .3553
Joint family	.105	.307	127,363	+ .4658
Married daughters	.104	.306	104,595	- .3209
Siblings ratio	1.061		423,811	+ .1862
Sex ratio	105.17		295,921	+ .1413

Average value of variables used in the index at the national level, and contribution to the PCA. For index computation, variables are standardized with mean values set to 0 and standard deviations to 1; thus the coefficients directly represent the importance (weight) of the different variables in our index.

distribution of the patriarchy index remains relatively consistent across various DHS waves.

Lastly, we assess the "reliability" of our patriarchy index by exploring its relationship with variables not incorporated into the index but expected to be related to patriarchy. Using the DHS data, we investigate whether we observe differences in patriarchal intensity among married women in terms of: (i) the likelihood of having at least one living son, (ii) expressing a preference for having more sons than daughters, (iii) ever using contraception, (iv) owning land alone, and (v) justifying a husband's violence against his wife. Our analysis includes controls for age, education, wealth, and year-wise subregion fixed effects to mitigate the influence of confounding factors; the results are presented in Table 4. For all variables, except the tolerance for domestic violence, the coefficient of the patriarchy index is significantly different from 0, and it aligns with our expectations. These findings suggest that our measure, which relies on observable demographic characteristics, effectively captures the influence of patriarchy.

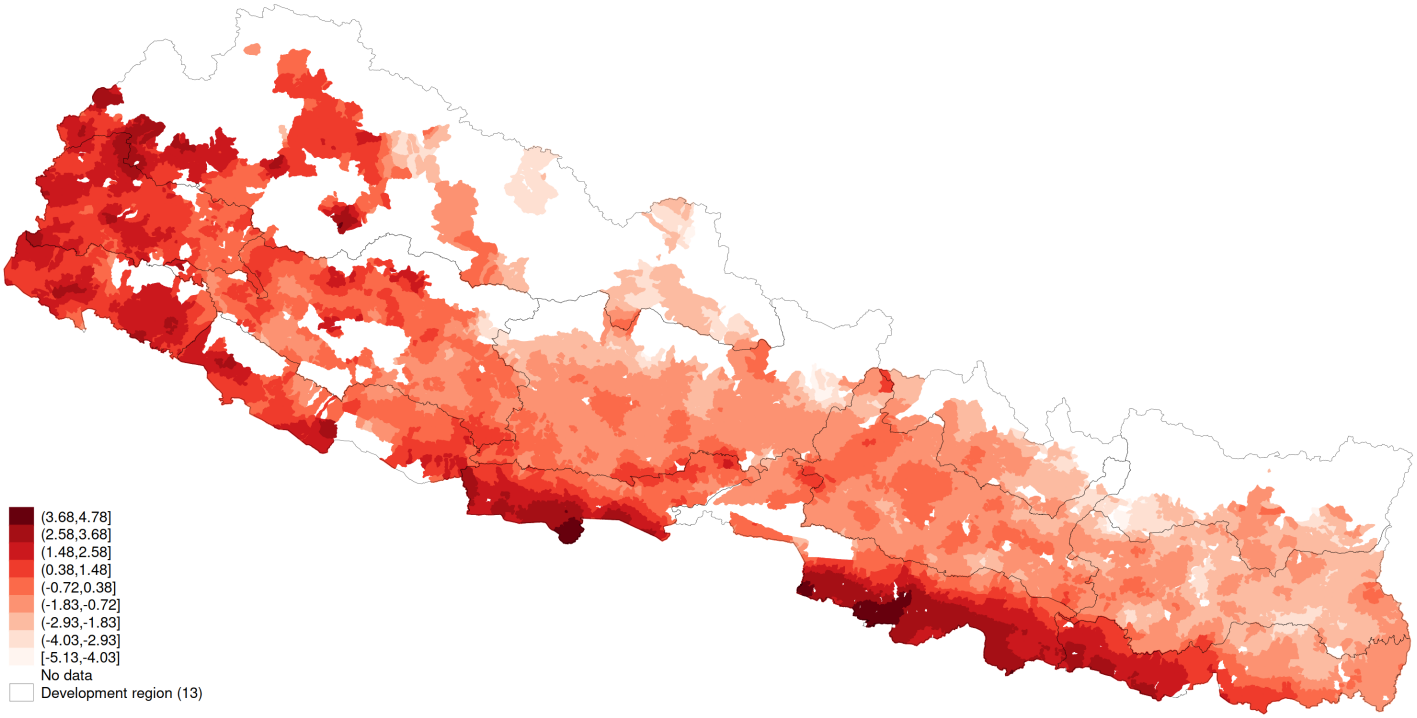
4.3 Outcome variables

In our analysis of women's empowerment, we focus on two key dimensions using data from the DHS: intra-household decision-making and women's labor force participation. Regarding decision-making, we concentrate on a woman's role in determining matters related to her own healthcare, significant household purchases, and her ability to visit family and friends.[9] To construct this measure, we recode

in 2001 (as discussed in section 4.1), we were unable to establish values for 15 DHS clusters out of 1,659.

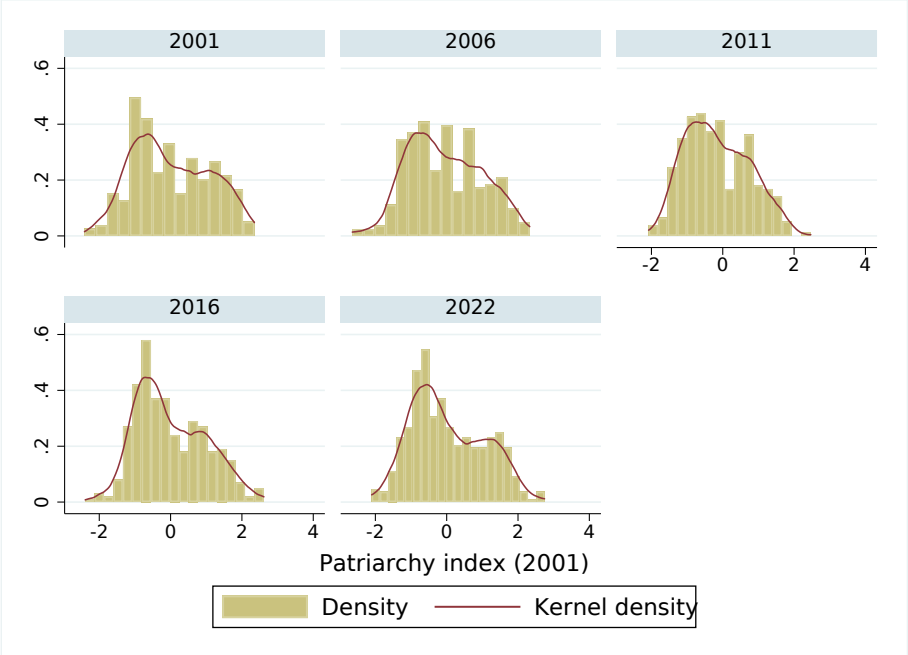
[9]The survey includes questions asking each female respondent: "Who usually decides how [decision item] is made: you, your husband/partner, you and your husband/partner together, or someone else?" Our primary variable of interest

Figure 2: Patriarchy index in 2001



Patriarchy index based on observable demographic characteristics from 2001 census data. For each ward (35,000 units), individual observations up to 10 kilometers are used.

Figure 3: Density of patriarchy index in DHS



Distribution of patriarchy index in DHS, for each wave. The unit of observation is the DHS cluster (1,644 in total).

Table 4: Reliability of patriarchy index

	(1) Son alive	(2) Ideal more boys	(3) Ever contracep.	(4) Owns land	(5) Tolerance beat.
Patriarchy	0.0133**	0.0950**	-0.0506**	-0.0108*	0.000615
	(0.00417)	(0.0106)	(0.00982)	(0.00465)	(0.0109)
Age-group: 20-24	0.328**	0.0268**	0.199**	0.0125**	-0.0156
	(0.0104)	(0.00709)	(0.00839)	(0.00332)	(0.0104)
Age-group: 25-29	0.542**	0.0570**	0.356**	0.0570**	-0.0126
	(0.0116)	(0.00868)	(0.0124)	(0.00501)	(0.00965)
Age-group: 30-34	0.649**	0.109**	0.445**	0.111**	-0.0311**
	(0.0104)	(0.00991)	(0.0148)	(0.00727)	(0.0107)
Age-group: 35-39	0.683**	0.128**	0.481**	0.152**	-0.0353**
	(0.00872)	(0.0107)	(0.0179)	(0.00967)	(0.0103)
Age-group: 40-44	0.699**	0.133**	0.468**	0.184**	-0.0361**
	(0.00928)	(0.0112)	(0.0182)	(0.0110)	(0.0114)
Age-group: 45-49	0.698**	0.167**	0.403**	0.209**	-0.0494**
	(0.00923)	(0.0140)	(0.0182)	(0.0105)	(0.0126)
Education: incomp. prim.	-0.00965*	-0.0884**	0.0595**	0.0319**	0.0228*
	(0.00448)	(0.00801)	(0.00713)	(0.00548)	(0.00969)
Education: primary	-0.0263**	-0.101**	0.0743**	0.0378**	0.0185
	(0.00865)	(0.0114)	(0.0101)	(0.00785)	(0.0121)
Education: incomp. sec.	-0.0519**	-0.146**	0.0902**	0.0463**	0.00262
	(0.00614)	(0.0110)	(0.0103)	(0.00522)	(0.00999)
Education: secondary	-0.122**	-0.164**	0.0859**	0.0600**	-0.0510**
	(0.00982)	(0.0132)	(0.0136)	(0.00823)	(0.0111)
Education: tertiary	-0.193**	-0.186**	0.0700**	0.0743**	-0.113**
	(0.0106)	(0.0155)	(0.0168)	(0.0115)	(0.0154)
Wealth quintile: second	-0.0129	-0.0202*	0.0639**	0.0210**	0.0142
	(0.00650)	(0.00779)	(0.00871)	(0.00617)	(0.00846)
Wealth quintile: middle	-0.0161*	-0.0427**	0.0823**	0.0438**	0.0158
	(0.00730)	(0.00825)	(0.0101)	(0.00557)	(0.00960)
Wealth quintile: fourth	-0.0226**	-0.0545**	0.103**	0.0625**	0.00255
	(0.00666)	(0.00924)	(0.0109)	(0.00722)	(0.0105)
Wealth quintile: highest	-0.0252*	-0.0997**	0.139**	0.107**	0.00451
	(0.0105)	(0.00999)	(0.0127)	(0.00783)	(0.0144)
Subregion*Year FE	Yes	Yes	Yes	Yes	Yes
N	46564	46324	46564	38324	37112
r2	0.25	0.16	0.19	0.08	0.04
Mean dep. var.	0.74	0.26	0.72	0.11	0.25

Standard errors in parenthesis. * denotes significance at the 10% level, ** 5% and *** 1%. Patriarchal intensity is measured in 2001. The sample is married women in all five DHS waves (2001-2022). Control variables: age-group fixed-effects (reference group: 15-19), education (reference group: no formal education) and relative wealth (reference group: poorest). Subregion*Year fixed-effects are also included.

the responses as follows: 0 if the woman does not participate in the decision, 1 if the decision is made jointly, and 2 if she makes the decision independently. We then standardize this "decision power" on a scale from 0 (no decision power) to 1 (full decision-making authority) using multiple correspondence analysis (MCA), following the approach used by Lépine and Strobl (2013); Bargain et al. (2019). It is important to note that this variable construction assumes that an individual decision is "better" than a joint decision, though this assumption may be debated, especially for significant household purchases. Therefore, as robustness we also study binary indicators for each decision item, taking the value 1 if the woman has a role in the decision and 0 if she does not. Note that these questions were asked exclusively to currently married women, with the exception of the 2006 wave.

Subsequently, we shift our focus to economic empowerment, and specifically female employment. For this dimension, our primary sample of interest comprises women between the ages of 25 and 49. This age range is chosen to mitigate the impact of educational changes and address the limitation encountered in the 2001 survey where only ever-married women were surveyed, as the 2001 census data indicates that only 6.28 percent of women aged 25 were never married. Our main outcomes are whether the woman has worked at all in the last 12 months (any work), whether she has worked against payment in cash or kind and whether she has had a non-agricultural job. First, we consider whether a woman has engaged in any form of work in the last 12 months, which serves as an essential indicator for assessing changes in female labor force participation. Secondly, we study whether the woman has worked against payment in cash or kind. Paid work is an interesting measure as it is a first step women achieving self-sufficiency, and challenges the role of men as sole breadwinners. It also signifies that the work performed by women is recognized as valuable. Thirdly, we examine non-agricultural employment, which is pertinent due to the expected involvement in work relationships outside the confines of the immediate family. Notably, our data reveals that approximately 46 percent of women engaged in non-agricultural work are employed by someone else, and that 78 percent maintain continuous employment throughout the year. It is important to underscore that the latter two variables are defined for all women in our sample. Consequently, a woman who declared she did not work in the past year would also not receive payment for her work and would not be involved in non-agricultural employment.

Figure 4 displays the temporal trends of the outcome variables. To facilitate a comparison of both trends and levels between more and less patriarchal regions, we have divided the sample based on the median value of our patriarchy index in the DHS sample. Concerning intra-household indicators, the

is a composite measure of these different decision items.

Figure 4: Outcomes across waves, high vs. low patriarchy

(a) Decisions

(b) Work

Average value of our outcomes of interest in each wave, split according to patriarchy dummy (median value in the sample). For decision-making, the sample accounts for all married women sample. *Dec. power* is an aggregated measure encompassing decisions made solely or jointly about woman's own health, large household purchases and family and friends; this measure comprised between 0 and 1. The other three variables described are whether the woman had a say in the decision. For work outcomes, all women above 25 years old are included. *Any work* takes value 1 if the woman declared to have worked in the past 12 months, 0 otherwise; *paid work* takes value 1 if the woman declared receiving payment (cash or kind) for her work, 0 otherwise; *non-agri work* takes value 1 if the woman declares working in the non-agricultural sector, 0 otherwise.

results consistently show more favorable outcomes in less patriarchal regions. Overall, decision-making power increases with time (except perhaps for 2016). As for labor force indicators, the levels are more similar across less and more patriarchal areas, and the proportion of women reporting paid work in the previous 12 months or in non-agricultural occupations increases over time.

5 Empirical strategy

5.1 Empirical specification

According to our simple model, a cost increasing with patriarchy, associated to moving from the status quo in a context of reformist social context, would lead to a divergence in women's outcomes over time, e.g. an increasing gap between women located in more and less patriarchal areas. To test this empirically, we estimate the importance of patriarchy in each time period, while controlling for important confounding factors. The empirical specification is:

$$Y_{ijt} = \sum_{t=2001}^{2022} \beta_t Patriarchy_{2001,j} + \alpha_t + X_{it} + Z_{jt} + \epsilon_{ijt} \quad (1)$$

with Y_{ijt} the outcome of individual i living in area j in period t, $Patriarchy_{2001,j}$ the patriarchy index in 2001 in area j, β_t coefficients of interest, α_t a wave fixed-effect, X_{it} controls at individual or household level in time t, and Z_{it} spatial controls. All control variables are interacted with the DHS wave, in order to take into account a potentially different effect over time. Standard errors are clustered at the district level to allow for spatial and time clustering.

Our objective is to explore the importance of patriarchy in women's empowerment trajectories. As the outcomes that we are interested in are not constant over time (bargaining power can be renoegociated, and work-related decisions can be made in each time period), the only way to capture variation over time is by allowing the β coefficient to vary. An alternative approach, which could potentially provide us with a more comprehensive understanding of the relationship between national reforms and empowerment with respect to patriarchal intensity, would involve exploiting the timing of these reforms. For example, we could compare outcomes for women who married just before or just after these reforms, assuming that most of the bargaining occurs at the time of marriage. However, considering the context, we opt not to pursue this alternative. Many of the reforms were implemented within a relatively short timeframe, sometimes amid civil war, and their actual enforcement might have taken a considerable amount of time.[10] Given the substantial number of reforms and the uncertain timing, we believe that an approach aiming to isolate the effect of individual reforms is not the most interesting one.

In this work, control variables X_{it} and Z_{jt} play a crucial role because patriarchy is not expected to be random across space. Cultural traditions likely played a significant role in shaping the extent of patriarchy in different regions, and in Nepal, ethnic groups tend to be concentrated in specific geographic areas. Moreover, historical cities might have faced physical constraints in terms of their geographic expansion, potentially leading to fewer extended families due to limited available space. Simultaneously, these cities could have offered a majority of non-agricultural job opportunities, which would introduce a spurious correlation between our patriarchy index and non-agricultural employment.

Regarding individual characteristics, we consistently incorporate age, education level, the husband's residence in the household, and a measure of wealth as control variables. For work-related outcomes, we also incorporate a categorical variable indicating the number of children below 5 years old (0,

[10]For instance, while abortion was legalized in 2002, it was not until 2004 that the first legal abortion services became available in Kathmandu (Thapa, 2004).

1 or 2 and more). Additionally, we introduce a fixed effect for nine ethnic/caste groups[11] that are available in the DHS dataset. These categories are Hill Brahmin-Chhetri, Hill Janajati, Hill Dalit, Muslim, Madhesi caste, Madhesi Dalit, Newar, Tarai Janajati, and others (constituting 0.49 percent of the sample). Given that the research objective revolves around understanding the importance of societal patriarchal barriers, it is always better to examine the coefficient's magnitude after accounting for individual characteristics, including ethnicity/caste and religion, as we are aware that women's situation vary significantly across these groups (see section 2).

Secondly, given that the distribution of patriarchy is not random across space, it is imperative to consider specific geographical characteristics that could indirectly affect measures of empowerment. One primary spatial control is the inclusion of a fixed effect for the region of development, which corresponds to the level of stratification applied in the majority of DHS waves. In our main specification, we introduce an interaction term between a fixed effect for these 13 subregions and the DHS waves to account for unobservable time-variation at the subregion level. In addition to this, we identify several key geographical factors that need to be taken into consideration, namely: (i) urbanity and development (population density and nightlights intensity), (ii) isolation (altitude, latitude), (iii) specific population characteristics (support for Maoist and share of workers abroad), the later mostly to enhance the precision of our estimates. A more detailed discussion of control variables and their relationship with patriarchy can be found in the following subsection.

5.2 Additional control variables

To gain a deeper understanding of the connections between the patriarchy index and the individual and geographical attributes within our sample, we study how these controls and the index correlate in Table 5. In this analysis, we pool our sample since the temporal perspective seems less crucial to us than the structural relationship in our sample as a whole. For geographical characteristics, our unit of observation is the DHS cluster. For individual characteristics, we restrict the sample to married women only.

As anticipated, our patriarchy index displays correlations with several covariates. As previously mentioned, we categorize the geographical variables into three distinct groups, with the first category centering on urbanity and development. It is essential to consider the dynamism of a locality, particularly since cities tend to have, on average, better-educated women, which could influence bargaining power and employment decisions. Furthermore, cities are often assumed to have less

[11]The level of detail in this categorization varies over different years. We have created a set of nine consistent categories over time, drawing from Bennett (2008) and discussions with researcher Olivia Aubriot.

Table 5: Potential controls

	Mean	Coef	P-value	Coef	P-value	N
		without Region FE		*with Region FE*		
Geographic controls						
Population density[1]	10.3	0.185	0.83	4.632	0.17	1643
Nightlights	0.50	0.106	0.04	0.228	0.08	1644
Latitude	27.8	0.039	0.71	0.105	0.03	1644
Altitude	803	-295	0.00	-78.2	0.00	1644
Travel time to city in 2000	214	-36.5	0.01	-10.9	0.43	1176
Slope	5.45	-2.491	0.00	-1.154	0.00	1176
Share votes Maoist in 2008[2]	0.32	-0.053	0.00	-0.047	0.00	1642
Share absentees in pop[3]	0.06	-0.010	0.00	-0.011	0.00	1643
Individual controls						
Age	29.4	-0.496	0.00	-0.429	0.00	46736
Wealth quintile	2.94	-0.001	0.99	-0.227	0.00	46565
Years of education	4.38	-0.683	0.00	-0.718	0.00	46735
Number children 0-5	0.54	0.049	0.00	0.061	0.00	46736
Daughter in law	0.19	0.023	0.00	0.025	0.00	46736
Husband away	0.30	0.003	0.69	0.013	0.17	46736

[1] Population density is based on Global Human Settlement satelitte data and denotes the number of inhabitants included in a 3 arcsecond cell (90m at the equator); we take the average value of non-null pixels within the DHS buffer. [2] Share of votes for the Maoist in 2008 is originally defined at the constituency level (240); we match the DHS cluster centroid to the constituency to retrieve a value. [3] Share abstentees (migrants outside Nepal) in the population is derived from census data. To obtain value for each year, we use the most detailed geographic unit available across 2001, 2011 and 2021 censuses (753 units), that we geographically match to the DHS cluster.

Standard errors are clustered at the district level. The first column show the average value of the variable in our pooled sample, *Coef* show the value of the patriarchy coefficient when regressed on the variable and *p-val* the p-value associated. Geographic controls are measured at the DHS cluster level. Slope and travel time to city in 2000 are not available in 2022. Individual controls are evaluated on the sample of married women.

intense social norms. To account for this, we use population density as a measure of urbanity, and nightlights intensity as a proxy for local economic activity. Note that we use population density and not the urban-rural classification due to changes in administrative definitions in Nepal over time. If nightlight intensity is directly available from the DHS, population density, on the other hand, comes from the Global Human Settlement satellite data (European Commission). These data estimate the world population with grids of 3 arcsecond (90m at the equator) every 5 years starting 1975. We reconstruct a value at DHS cluster level by taking the mean value of pixels whose value is strictly greater than 0. Interestingly, our findings indicate that population density does not exhibit substantial variations, suggesting that there are no significant disparities in terms of patriarchal intensity between densely populated (urban) areas and sparsely populated (rural) areas. If anything, positive coefficients would imply a positive association, observed for nightlights.

The second category pertains to isolation. Increased isolation may indicate a more self-sufficient way of life, where national changes might not be as important. Within this group, we initially consider the variable of latitude. The southern region of Nepal, the Tarai plain, shares its border with India and features minimal altitude variation, whereas as you move further north, Nepal transforms into a mountainous terrain. The second variable in this category is altitude, with the notion that the highest altitudes are relatively less accessible. We also consider variables like travel time to a city and slope for similar reasons. In Table 5, slope and altitude display negative associations with patriarchy, whereas latitude is positively associated with it. This observation aligns with our earlier observation in Figure 2, where patriarchy appeared to be more pronounced in southern Nepal, particularly in the Tarai plain region. Travel times to a city in 2000 don't seem to vary systematically with the level of patriarchy, so we do not worry for this variable (unavailable in 2022) in the final estimates. However, slope stands out as a relevant variable. To accommodate the inclusion of the 2022 wave in our analysis, we opt to use altitude exclusively, correlated with slope at 0.80.

The third dimension is associated with specific population characteristics that we aim to distinguish from the level of patriarchy. The initial variable within this dimension pertains to the proportion of votes for the Maoists in the first constituent assembly. The rationale behind this is that ideas advocating for increased equality might have spread and contributed to empowerment, as measured by bargaining power and economic empowerment (we come back to this point in section 7.3). Omitting this dimension from our regressions would compromise the accuracy of our estimates. To gauge adherence to the Maoists' egalitarian agenda, we use data from the electoral commission on votes cast during the 2008 constituent assembly, which took place at the end of the conflict. This electoral data

(240 constituencies) is spatially matched to our DHS clusters. The second variable in this dimension is the share of international migrants in the population. This variable could be directly connected to our measure of patriarchy, given that international migration, a widespread phenomenon in Nepal that is predominantly male (3.3 percent (7.2 percent) of the population in 2001 (2011), 88 percent male), could influence household demographics, such as the prevalence of female-headed households or joint families. However, the impact of international migration is ambiguous. It increases the number of female-headed households only if the woman is left alone, while the alternative often involves living with the husband's family, therefore increasing the number of joint families. International migration could also impact the labor force, especially if conditions change at the community level. In this context, it appears more prudent to include this variable to ensure that the observed effects are not driven by migration-related changes. We measure international migrations using the census data.[12]

Turning to individual characteristics, there are clear differences with respect to patriarchy intensity. On average, married women in more patriarchal areas tend to be younger, possess lower levels of education, and have more young children (included systematically only for work-outcomes); they also have more children overall, although the specific coefficient is not reported here. The probability that the husband is in the household does not vary with patriachal intensity, yet it is crucial to include this variable as a control to enhance the accuracy of our estimates, as it could impact both decision-making and work-outcomes. Furthermore, they are more frequently identified as daughters-in-law, which, to some extent, is an inherent feature due to our index being reliant on family structures. There would be two reasons for including being a daughter-in-law as a control variable. Firstly, our patriarchy measure is community-based, not individual; secondly, being a daughter-in-law matters both for decision-making (where the mother-in-law typically holds authority) and labor market choices (more household chores) and thus matters for the precision of our estimates. At the same time, it represents a distinct family structure, with young married women under the authority of their mother-in-law, making it an integral component of the mechanism under scrutiny. Therefore, daughter-in-law is not included as a control in our main specification.

Finally, the impact of introducing fixed effects for subregions yields mixed results. For certain variables, including population density, nightlights, latitude, wealth measures, and, to a lesser extent, the presence of the husband in the household, incorporating these fixed effects amplifies the magnitude of the coefficient linked to patriarchy and, in several instances, renders the difference statistically

[12]To be able to use the most information in a consistent manner, we use international migration rates aggregated at the 2021 local level (753 units) that we match spatially with the DHS clusters. For the years 2006 and 2016, when census data is not available, we extrapolate the measure by taking an average between the closest available years.

significant. However, for other variables like altitude, travel time to the city, or slope, the inclusion of these fixed effects diminishes the variability. Given that the inclusion of subregion fixed effects appears to impose more constraints and enables the consideration of unobservable variations specific to each region over time, in our primary specification, we incorporate subregion fixed effects interacted with the year of observation.

6 Results

6.1 Intra-household decisions

Table 6 displays our findings concerning intra-household decisions and patriarchal norms over time, incorporating various sets of controls; we refrain from presenting coefficients for controls other than the main ones due to the multitude introduced by year interactions. Generally, the specifications are stable, and we consistently observe a divergence in women's decision power, particularly between 2006 and 2016, with the gap subsequently diminishing to lower levels in 2022.

In our preferred specification (column 3), all controls are included except for being a daughter-in-law, which we consider to be part of the mechanism we study. In 2001, conditional on individual and spatial characteristics, women situated in more patriarchal areas have lower decision-making power compared to those in less patriarchal areas. An increase of one standard deviation (sd) in our patriarchy index is associated with a 3 percentage points reduction in decision-making power, equivalent to 6 percent of the sample mean (and nearly 10 percent when considering only the year 2001). However, by 2006, no discernible gap is observed, with the patriarchy coefficient not significantly different from 0. Notably, during this period, demands for egalitarianism were at their peak. Subsequently, in 2011, 2016, and 2022, the patriarchy coefficient became significantly negative once more. While the coefficients for 2001 and 2011 were not statistically different, in 2016, the coefficient significantly decreased,[13] with a one sd increase in our patriarchy index corresponding to a difference of 7.4 percentage points, amounting to 15 percent of the sample mean. However, in 2022, the gap narrowed, reaching levels akin to the early period. Results are similar if we decompose by type of decision, and consider only having a say in the decision[14] (Table A1 in appendix). In comparison to our model, we do observe a gradual increase in the magnitude of the patriarchy coefficient over time, indicating a divergence in women's decision-making power within the household based on patriarchal intensity, but only for the

[13] T-tests on the coefficients, results not reported in the paper. Significance is understood to be at the 5 percent level.

[14] As discussed in section 4.3, the variable *decision power* that we constructed implies that an individual decision indicates more empowerment than a joint decision. This assumption is debatable, as joint decisions could also reflect effective communication and, in this sense, are not necessarily "worse" than individual decisions.

2006-2016 period. However, another pattern emerges when examining the most exposed women.

One form of exposure is determined by the timing of marriage. The collective model in a dynamic setting, as formulated by Chiappori and Mazzocco (2017), posits that spouses commit to all future allocations at the time of marriage. Although this assumption has been empirically challenged, noting variations in decision power throughout a marriage (Baland and Ziparo, 2018), it is conceivable that an initial benchmark is established at the time of marriage, with only marginal subsequent renegotiations on average (inertia) or renegotiations based on accomplishments during the marriage. Bearing this in mind, we can narrow our focus to women recently married in each wave to examine the evolution of this benchmark bargaining power. Table 7 presents the results. The first column reiterates the previous findings for our preferred specification, providing a reference point for comparison. The subsequent two columns display results for women whose first marriage occurred 10 and 5 years ago, respectively. Interestingly, the results differ significantly, revealing a clear divergence between 2001 and 2016. Moreover, the magnitude of the patriarchy coefficient in 2022 is significantly lower than that in 2001. Patriarchy's impact is also stronger. Coefficients are higher on average, both in terms of point estimates and when compared to the sample mean, as recently married women exhibit lower decision power on average.

A supplementary analysis involves investigating variations based on birth cohorts, considering that younger individuals have been more exposed to this evolving social context. In this examination, we interact the patriarchy coefficient with 5-year birth year cohorts, as opposed to the DHS wave. We also assume a constant effect of controls over time. The patriarchy coefficient interacted with each cohort is presented in Figure 5. The divergence appears clearly, with relatively consistent coefficients for women born between 1955 and 1974, followed by a decline in subsequent cohorts until the most recent one. Once again, we observe more substantial effects compared to the overall effect on all women, with the gap between more and less patriarchal areas for the youngest cohorts approaching 20 percent of the sample mean.

These findings shed an interesting light on possible mechanisms at play. The substantial disparities between all married women and recently married women may be related to more significant renegotiations upon marriage in areas with higher patriarchal intensity. Given our results, it is possible that women renegotiate their bargaining power after a while, and eventually separate, or remarry into "better" marriages when bargaining fails, and more so in more patriarchal areas. According to official figures from the National Population censuses, divorces and separations increased over time. Approximately 0.35 percent of the female population was reported as divorced or separated in 2001 and 2011, compared

Table 6: Decision power and patriarchy over time

	Decision power			
	(1)	(2)	(3)	(4)
Patriarchy*2001	-0.030	-0.032	-0.034	-0.031
	(0.010)	(0.013)	(0.013)	(0.013)
	[0.003]	[0.016]	[0.008]	[0.017]
Patriarchy*2006	-0.025	-0.019	-0.017	-0.005
	(0.009)	(0.009)	(0.011)	(0.010)
	[0.006]	[0.051]	[0.116]	[0.633]
Patriarchy*2011	-0.043	-0.041	-0.044	-0.033
	(0.008)	(0.009)	(0.010)	(0.010)
	[0.000]	[0.000]	[0.000]	[0.001]
Patriarchy*2016	-0.060	-0.076	-0.074	-0.058
	(0.008)	(0.010)	(0.011)	(0.011)
	[0.000]	[0.000]	[0.000]	[0.000]
Patriarchy*2022	-0.034	-0.028	-0.026	-0.018
	(0.007)	(0.008)	(0.008)	(0.008)
	[0.000]	[0.001]	[0.002]	[0.022]
Core controls	Yes	Yes	Yes	Yes
Subregion*Year	No	Yes	Yes	Yes
Add. geographic*Year	No	No	Yes	Yes
Daughter in law*Year	No	No	No	Yes
N	46421	46421	46326	46326
r2	0.25	0.25	0.25	0.32
Mean dep. var.	0.48	0.48	0.48	0.48

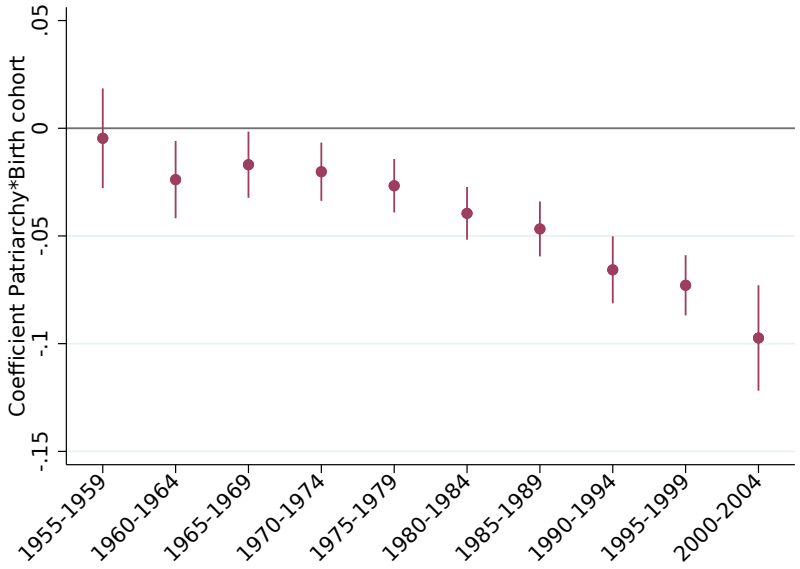
Standard errors in parenthesis, p-values in brackets. Married women. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

Table 7: Decision power and patriarchy over time depending on time since marriage

	Decision power			
	(1)	(2)	(3)	(4)
Patriarchy*2001	-0.034	-0.024	-0.012	-0.008
	(0.013)	(0.012)	(0.011)	(0.010)
	[0.008]	[0.040]	[0.279]	[0.441]
Patriarchy*2006	-0.017	-0.044	-0.042	-0.028
	(0.011)	(0.013)	(0.013)	(0.013)
	[0.116]	[0.001]	[0.001]	[0.028]
Patriarchy*2011	-0.044	-0.062	-0.067	-0.057
	(0.010)	(0.012)	(0.016)	(0.015)
	[0.000]	[0.000]	[0.000]	[0.000]
Patriarchy*2016	-0.074	-0.092	-0.077	-0.062
	(0.011)	(0.010)	(0.015)	(0.015)
	[0.000]	[0.000]	[0.000]	[0.000]
Patriarchy*2022	-0.026	-0.060	-0.073	-0.058
	(0.008)	(0.012)	(0.015)	(0.014)
	[0.002]	[0.000]	[0.000]	[0.000]
Main controls	Yes	Yes	Yes	Yes
Subregion*Year	Yes	Yes	Yes	Yes
Add. geographic*Year	Yes	Yes	Yes	Yes
Daughter in law*Year	No	No	No	Yes
Sample	Married	Marr $\leq$10y	Marr $\leq$5y	Marr $\leq$5y
N	46326	18998	10198	10198
r2	0.25	0.25	0.25	0.34
Mean dep. var.	0.48	0.38	0.30	0.30

Standard errors in parenthesis, p-values in brackets. Married women. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

Figure 5: Decision power and patriarchy over birth cohorts



Each point represents the point estimate of the patriarchy index interacted with birth cohort (95% confidence interval). Married women. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Controls included in the cohort regression are: birth year five-years cohort fixed-effects (FE), wave FE, five-years age group FE, wealth quintile FE, ethnic/caste group FE, whether husband lives in household, nightlights, log population density, latitude, altitude, share of absentees, share of votes in favor of Maoist in 2008 and subregion FE. Contrary to the main estimations, controls are not interacted with year of observation.

to 0.7 percent in 2021.[15] Still, significant differences exist upon marriage (or in close proximity to it) across women in more or less patriarchal areas, persisting until 2011 and subsequently stabilizing with a difference of around 7 percentage points (23 percent of the most recently married sample mean) for a one standard deviation increase in our patriarchy index.

Our results could be related to changes in the marriage market itself. For instance, progressive women could increasingly choose to marry in less patriarchal areas over time (selective migration). To evaluate the plausibility of changes in the marriage market as an explanation for our findings, we conduct a similar birth cohort analysis, this time focusing on age at first marriage, age at first birth, education, and age gaps between spouses. In Figure 6, we note a substantial convergence in age at marriage and age at first birth, while patriarchy-associated coefficients for age and education gaps remain relatively constant. Consequently, changes in marriage markets are unlikely to account for all the divergences observed in decision power.

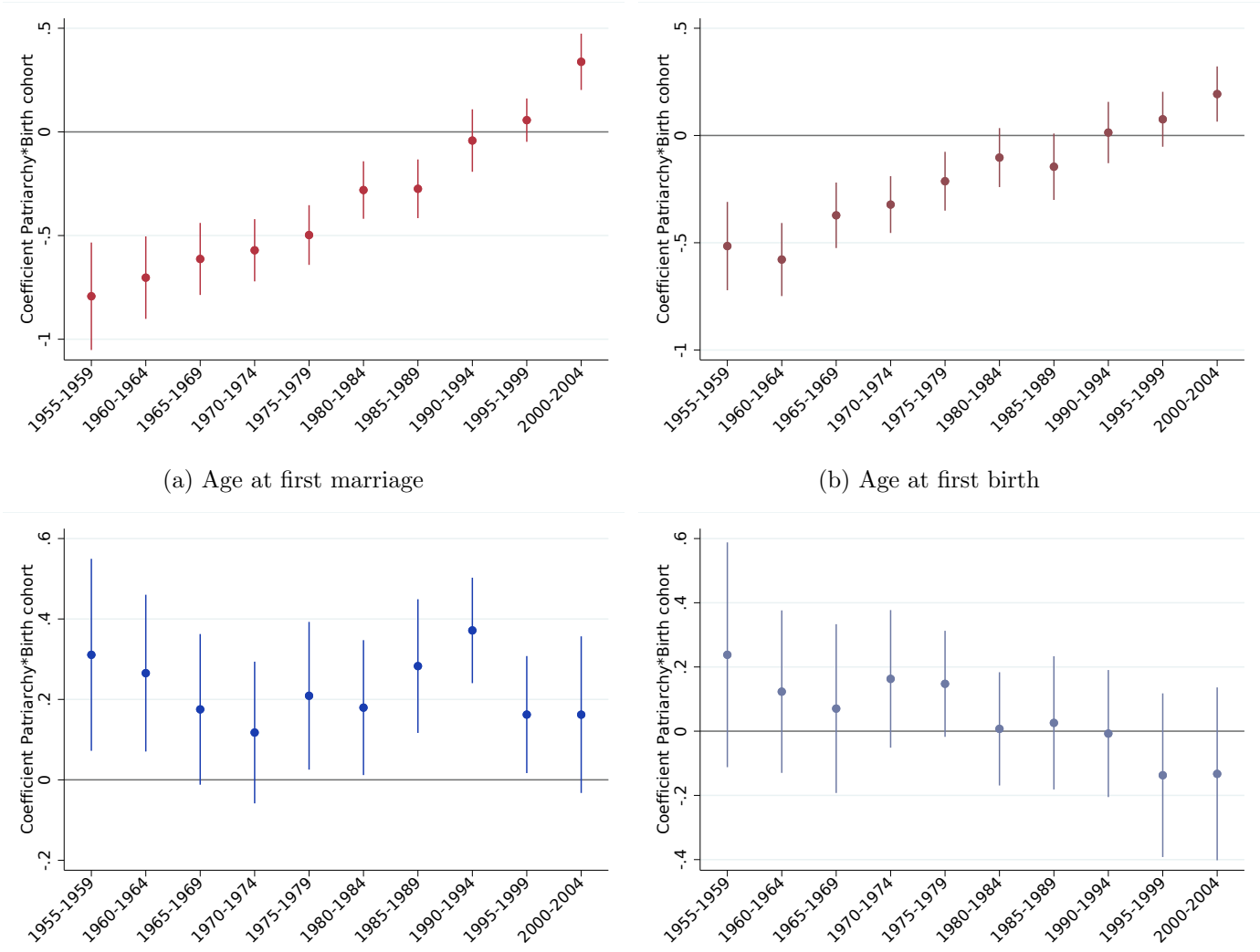
6.2 Women's labor supply

To investigate economic empowerment, our primary focus is on women aged 25 or older, regardless of marital status (see section 4.3). Table 8 presents the results for any type of work, incorporating various controls. It is worth noting the importance of including geographical controls (see section 5.2), and particularly subregion fixed-effects. This is unsurprising as the possibility and decision to work are contingent on labor demand, specific to local markets. In our preferred specification (column 3), in the first period, if anything, women work more in more patriarchal areas, although the difference is significant only at a 10 percent level. However, for the last two periods, the results are clear: women work more in more patriarchal areas, with an increase of one standard deviation in our patriarchy index associated with a 5 percentage points increase in work declaration (equivalent to 6 percent of the sample mean).

Examining paid work in Table 9, given its reflection of women's labor deemed valuable and its challenge to the traditional role of men as sole breadwinners, we observe a distinct divergence. While there were no differences in 2001, coefficients increasingly turn negative in 2006 and 2011. The gap stabilizes in the later periods at elevated levels, approximately 7 percentage points (17 percent of the sample mean) for a one standard deviation increase in the patriarchy index. Note that these results are interpreted based on point estimates, as only the 2001 coefficient differs from the rest. Additionally, it is noteworthy that this pattern closely mirrors the one observed for decision power among recently

[15] Own computations for 2001 and 2011, for 2021: https://censusnepal.cbs.gov.np/results/population, accessed on October 26th, 2023.

Figure 6: Marriage quality indicators



(a) Age at first marriage

(b) Age at first birth

(c) Age gap between husband and wife

(d) Education gap (years) btw husb and wife

Each point represents the point estimate of the patriarchy index interacted with birth cohort (95% confidence interval). Married women. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Controls included in the cohort regression are: birth year five-years cohort fixed-effects (FE), wave FE, five-years age group FE, wealth quintile FE, ethnic/caste group FE, whether husband lives in household, nightlights, log population density, latitude, altitude, share of absentees, share of votes in favor of Maoist in 2008 and subregion FE. Contrary to the main estimations, controls are not interacted with year of observation.

Table 8: Any work and patriarchy over time

	Any work in past 12 months			
	(1)	(2)	(3)	(4)
Patriarchy*2001	0.007	0.015	0.023	0.024
	(0.009)	(0.013)	(0.013)	(0.013)
	[0.416]	[0.239]	[0.077]	[0.075]
Patriarchy*2006	-0.022	-0.016	-0.017	-0.018
	(0.012)	(0.012)	(0.013)	(0.013)
	[0.077]	[0.164]	[0.192]	[0.160]
Patriarchy*2011	-0.046	-0.035	-0.026	-0.028
	(0.013)	(0.015)	(0.014)	(0.014)
	[0.001]	[0.026]	[0.062]	[0.047]
Patriarchy*2016	-0.009	0.019	0.051	0.052
	(0.015)	(0.020)	(0.019)	(0.019)
	[0.549]	[0.341]	[0.007]	[0.007]
Patriarchy*2022	0.025	0.036	0.047	0.047
	(0.010)	(0.012)	(0.012)	(0.011)
	[0.017]	[0.004]	[0.000]	[0.000]
Core controls	Yes	Yes	Yes	Yes
Subregion*Year	No	Yes	Yes	Yes
Add. geographic*Year	No	No	Yes	Yes
Daughter in law*Year	No	No	No	Yes
N	34400	34400	34336	34336
r2	0.19	0.20	0.21	0.21
Mean dep. var.	0.83	0.83	0.83	0.83

Standard errors in parenthesis, p-values in brackets. Women aged 25 years old and above. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, whether the woman has 0, 1 or 2 or more children aged 0-5, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

married women.

Finally, we examine our last outcome, non-agricultural work, as it implies the establishment of (professional) relationships beyond the private sphere. The results are presented in Table 10. These findings exhibit somewhat less stability than those for paid work across various specifications. This variability is reasonable since, similar to any work, non-agricultural work is contingent on available opportunities, emphasizing the significance of accounting for geographical characteristics. In terms of trajectories, a more pronounced difference emerges among women in the later periods. In the first three periods, point estimates are negative but not significantly distinct from 0 or from one another at a 5 percent level. However, in the last two periods, the coefficient associated with patriarchy is notably larger, representing almost 30 percent of the sample mean (10 percentage points), and significantly differs from the coefficients in the first three periods. While not a gradual divergence as predicted in the model, we do observe a clear distinction over time between women in more or less patriarchal areas in this case as well.

In summary, for paid and non-agricultural work, we observe a divergence stabilizing at elevated levels between women situated in more or less patriarchal areas, akin to what we observed for decision-making power among newly married women. These results hold true not only for women aged 25-49 but also for married women or a more constrained age group (see Table A2 in appendix).

6.3 Robustness checks

As an initial robustness check, we compute our primary results using time-invariant controls, with the exception of the region interacted with years controls, which enables the capture of unobservable time-variant characteristics at the subregion level (13). Additionally, this approach allows for the reporting of the values of the control variables. The results remain overall stable and can be found in Tables A3 to A6 in appendix.

As a second robustness check, we examine the linearity of the patriarchy coefficient. To do this, we reconstruct our patriarchy index as a categorical variable with four values: low, medium-low, medium-high, and high, each representing 25 percent of our pooled sample. Figure 7 depicts the coefficient of each categorical value interacted with waves, with the values of reference being the low category and wave 2001, for each of our main variables. These results reveal some linearity, as coefficients for high patriarchy are greater in magnitude than those for medium-high patriarchy, themselves higher than medium-low patriarchy.

Table 9: Paid work (cash or kind) and patriarchy over time

	Paid (cash or kind) work			
	(1)	(2)	(3)	(4)
Patriarchy*2001	-0.012	0.015	0.026	0.029
	(0.019)	(0.026)	(0.030)	(0.029)
	[0.522]	[0.582]	[0.382]	[0.325]
Patriarchy*2006	-0.050	-0.043	-0.047	-0.034
	(0.017)	(0.020)	(0.020)	(0.019)
	[0.003]	[0.033]	[0.022]	[0.084]
Patriarchy*2011	-0.040	-0.083	-0.079	-0.074
	(0.019)	(0.016)	(0.017)	(0.017)
	[0.037]	[0.000]	[0.000]	[0.000]
Patriarchy*2016	-0.039	-0.047	-0.070	-0.064
	(0.017)	(0.023)	(0.023)	(0.023)
	[0.020]	[0.040]	[0.003]	[0.007]
Patriarchy*2022	-0.040	-0.077	-0.076	-0.073
	(0.020)	(0.019)	(0.019)	(0.018)
	[0.051]	[0.000]	[0.000]	[0.000]
Core controls	Yes	Yes	Yes	Yes
Subregion*Year	No	Yes	Yes	Yes
Add. geographic*Year	No	No	Yes	Yes
Daughter in law*Year	No	No	No	Yes
N	34415	34415	34351	34351
r2	0.20	0.21	0.22	0.23
Mean dep. var.	0.42	0.42	0.42	0.42

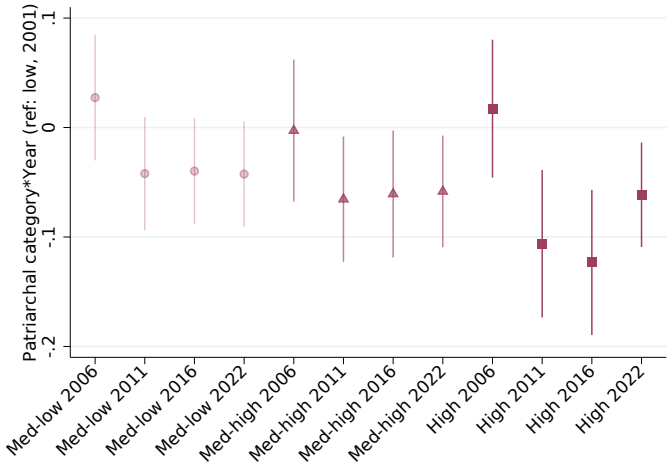
Standard errors in parenthesis, p-values in brackets. Women aged 25 years old and above. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, whether the woman has 0, 1 or 2 or more children aged 0-5, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

Table 10: Non-agricultural work and patriarchy over time

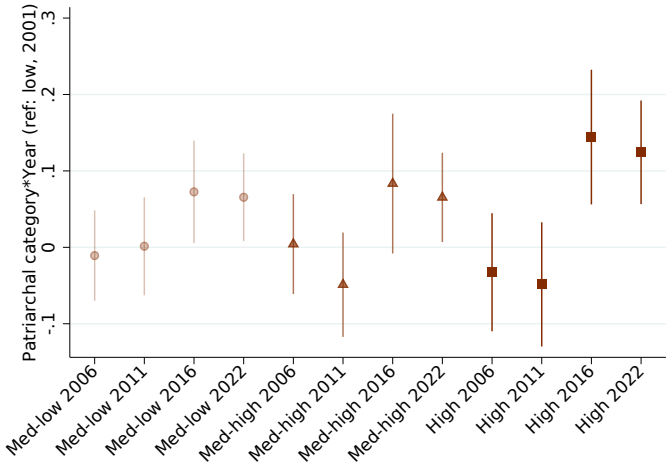
	Non-agricultural work			
	(1)	(2)	(3)	(4)
Patriarchy*2001	-0.015	-0.025	-0.035	-0.034
	(0.013)	(0.018)	(0.018)	(0.018)
	[0.249]	[0.158]	[0.056]	[0.062]
Patriarchy*2006	-0.011	-0.017	-0.016	-0.013
	(0.016)	(0.021)	(0.022)	(0.022)
	[0.471]	[0.403]	[0.484]	[0.568]
Patriarchy*2011	-0.000	-0.022	-0.025	-0.021
	(0.014)	(0.018)	(0.018)	(0.018)
	[0.993]	[0.241]	[0.177]	[0.250]
Patriarchy*2016	-0.039	-0.075	-0.110	-0.107
	(0.019)	(0.025)	(0.023)	(0.023)
	[0.044]	[0.004]	[0.000]	[0.000]
Patriarchy*2022	-0.058	-0.075	-0.092	-0.090
	(0.012)	(0.014)	(0.014)	(0.014)
	[0.000]	[0.000]	[0.000]	[0.000]
Core controls	Yes	Yes	Yes	Yes
Subregion*Year	No	Yes	Yes	Yes
Add. geographic*Year	No	No	Yes	Yes
Daughter in law*Year	No	No	No	Yes
N	34400	34400	34336	34336
r2	0.36	0.38	0.38	0.38
Mean dep. var.	0.36	0.36	0.36	0.36

Standard errors in parenthesis, p-values in brackets. Women aged 25 years old and above. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, whether the woman has 0, 1 or 2 or more children aged 0-5, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

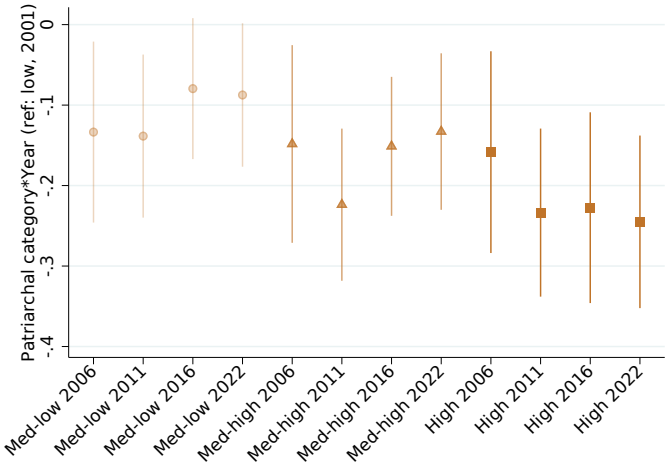
Figure 7: Testing non-linearity of patriarchy coefficients



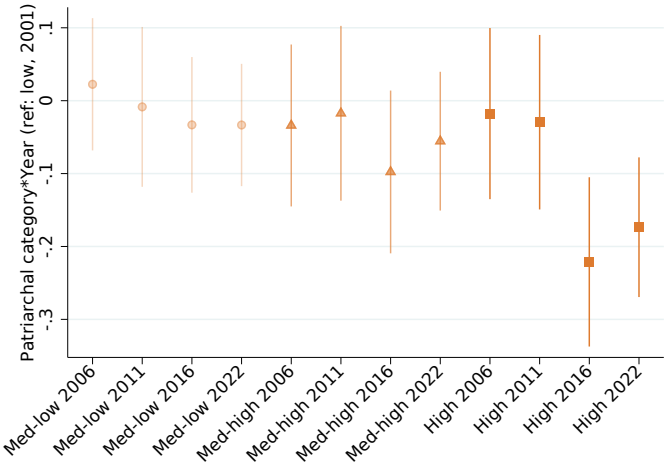
(a) Decision power



(b) Any work



(c) Paid work



(d) Non-agricultural work

Each point represents the point estimate of the patriarchy category interacted with year of observation (95% confidence interval). The groups of reference is low patriarchy (as opposed to medium-low, medium-high and high). Samples are married women for decision power, women aged 25 years old and above otherwise. Standard errors are clustered at the district level. Controls are: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, nightlights, log population density, latitude, altitude. For work-outcomes, we also control for whether the woman has 0, 1 or 2 or more children aged 0-5. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

7 Discussion around patriarchal norms

7.1 Patriarchy as tradition

In this study, our metric for patriarchy relies on observable demographic characteristics within a specific community. As we define it, patriarchy serves as an indicator of the dominance of older men, discernible through observable demographic characteristics. We hypothesis that such dominance could influence the effectiveness of public policies or the intensity of demands for increased rights, and consequently, impact bargaining power and women's labor participation. Additionally, we acknowledge the significant role of culture in women's roles by incorporating fixed effects based on ethnic groups and castes, as variations in the traditional role of women are extensively documented (see section 2). In our estimation approach, we thus consider the possibility that culture may partially influence bargaining power or labor market decisions, and we compare outcomes across different patriarchal contexts, accounting for individual ethnic group or caste.

However, an alternative approach would be to view patriarchy primarily as a norm that varies according to culture (ethnic group, caste, religion). Instead of comparing people from the same culture in different locations, this approach would involve comparing individuals in the same location who adhere to different (patriarchal) norms.[16]. This represents a distinct perspective, as it involves considering patriarchal norms at the group level and observing whether there are differences in our empowerment measures with respect to culture, contingent upon the (spatial) context in which individuals operate. Therefore, it seems worthwhile to explore how our results would vary with such an approach.

To approach the question from this perspective, the distinction between the Tibeto-Burman and Indo-Aryan groups appears pertinent in light of the existing literature. Additionally, to effectively control for the spatial context, we employ fixed-effects at the DHS cluster level; as this limits variation in our data, a binary variable is preferable. Consequently, we define an alternative measure of patriarchy, assigning the value 1 for Indo-Aryan groups, where the traditional role of women in public space is more constrained, and 0 for Tibeto-Burman groups.[17] For the analysis, we employ the same

[16]This is not the main approach in this work for several reasons. Firstly, it implies a relatively individual definition of patriarchy, whereas our neighborhood measure takes a more societal perspective. Related to this point, using a spatial measure enables us to estimate whether, conditional on traditionally different roles for women, being located in a place where male (demographic) domination is more marked is a form of barrier to greater independence for women, which is the issue at stake in this work

[17]See section 2 for details. For this categorization, we are constrained by the categories available in the DHS. The 2006 wave contains a very detailed ethnic categorization, but this is not the case for the other years. Indo-Aryan groups are Hill Brahmin Chhetri, Hill Dalit, Muslims, Madhesi, Tarai Janajati. Tibeto-Burman groups are Hill Janajati and Newar.

specification as the main one, altering the measure of patriarchy to the binary measure of belonging to an Indo-Aryan group and omitting the ethnic group/caste fixed effects. In a second specification, we eliminate spatial controls and replace them with DHS cluster fixed effects.

Table 11 presents the findings. Significance levels tend to decrease when adding DHS cluster fixed-effects, as compared to spatial controls, likely due to the more limited variation available for analysis. Regarding decision-making, irrespective of the specification, the coefficients for each year are negative and not significantly different from one another. No evidence of the previously highlighted divergence is observed. While the results for work outcomes are more mixed, in column (5), it appears that the coefficients are negative and of approximately the same magnitude. Consequently, these findings suggest that more patriarchal Indo-Aryan women are worse off in terms of empowerment than Tibeto-Burman women, but the difference remains relatively consistent over time. These results implies that a spatial measure, contingent on traditions, may offer a more precise assessment of the dynamics at play compared to a tradition-based measure, which fails to capture changes over time. Note that it is because we anticipate a constant impact of culture that we use ethnic-group/caste fixed effects, not interacted with years, as controls in the main estimation.

7.2 'Relevant' neighbors

A notable assumption behind our patriarchy measure, defined for a neighborhood, is that the collective conduct of neighbors serves as a pertinent indicator of the patriarchal norm influencing an individual. However, if individuals only identify with the behavior of specific neighbors, such as those from the same ethnic or religious group, individuals in the same location could be exposed to different norms.

To assess the relative importance of 'similar' neighbors, defined here as those belonging to the same caste or ethnic group, as opposed to all neighbors, we undertake a two-stage analysis. Initially, utilizing census data, we reconstruct our patriarchy measure for each spatial unit and for each of our ethnic groups/castes.[18] Figure 8 displays the outcomes, revealing differences between groups at the same location. For instance, in the far east of Nepal, the patriarchy measure is consistently higher for the Hill Brahmin Chhetri group than for the Hill Janajati. In southern Nepal (Tarai plain), the values for the Madhesi groups are higher than for the Hill Brahmin Chhetri, which are, in turn, higher than for the Hill Janajati. This figure also provides a spatial representation of the locations of the different groups.

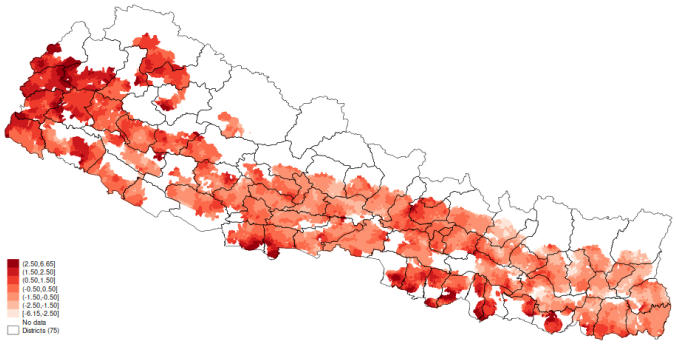
[18]To ensure an adequate number of observations, we expand the radius from 10 to 15 km. It is important to note that only the mean values of the variables contributing to the PCA are recalculated, while the coefficients of the linear combination remain fixed.

Table 11: Women empowerment trajectories: Indo-Artan vs. Tibeto-Burman

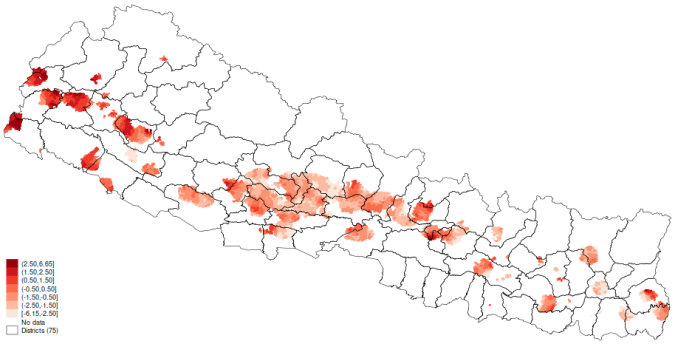
	Decision power		Paid work		Non-agri work	
	(1)	(2)	(3)	(4)	(5)	(6)
IndoAryan*2001	-0.038	-0.010	-0.014	-0.013	-0.035	0.014
	(0.013)	(0.014)	(0.019)	(0.030)	(0.017)	(0.018)
	[0.004]	[0.503]	[0.457]	[0.650]	[0.047]	[0.423]
IndoAryan*2006	-0.021	-0.020	0.026	0.016	-0.042	-0.030
	(0.015)	(0.014)	(0.017)	(0.018)	(0.017)	(0.018)
	[0.156]	[0.156]	[0.137]	[0.371]	[0.016]	[0.109]
IndoAryan*2011	-0.050	-0.038	-0.022	-0.026	-0.038	-0.020
	(0.011)	(0.011)	(0.018)	(0.022)	(0.016)	(0.017)
	[0.000]	[0.001]	[0.228]	[0.238]	[0.019]	[0.223]
IndoAryan*2016	-0.045	-0.027	-0.022	-0.007	-0.041	0.003
	(0.011)	(0.013)	(0.020)	(0.016)	(0.019)	(0.019)
	[0.000]	[0.040]	[0.280]	[0.683]	[0.031]	[0.861]
IndoAryan*2022	-0.053	-0.030	-0.039	-0.015	-0.055	-0.039
	(0.010)	(0.008)	(0.019)	(0.015)	(0.016)	(0.012)
	[0.000]	[0.001]	[0.045]	[0.308]	[0.001]	[0.002]
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Spatial controls	Yes	No	Yes	No	Yes	No
DHS cluster FE	No	Yes	No	Yes	No	Yes
N	46445	46639	34434	34561	34419	34546
r2	0.24	0.32	0.20	0.32	0.37	0.50
Mean dep. var.	0.48	0.48	0.42	0.42	0.36	0.36

Standard errors in parenthesis, p-values in brackets. Standard errors are clustered at the district level. Samples are married women for decision power, women aged 25 years old and above otherwise. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Individual controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household. Spatial controls include: nightlights, log population density, latitude, altitude, subregion FE. All controls are interacted with year of observation.

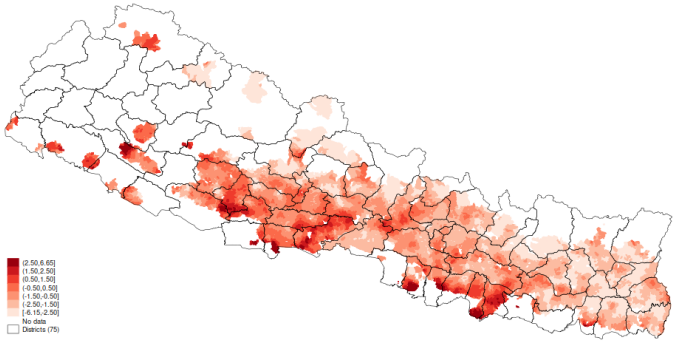
Figure 8: Ethnic/caste-specific spatial patriarchy index



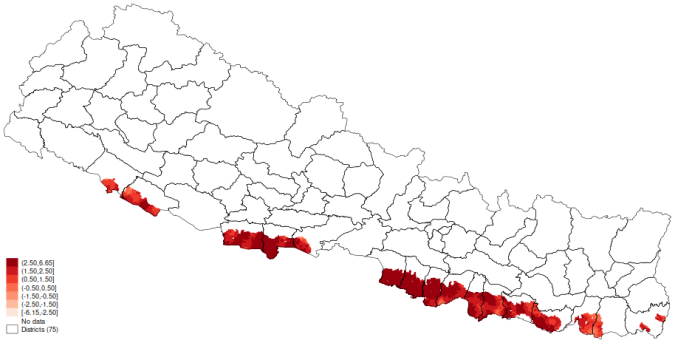
(a) Hill Brahmin Chhetri



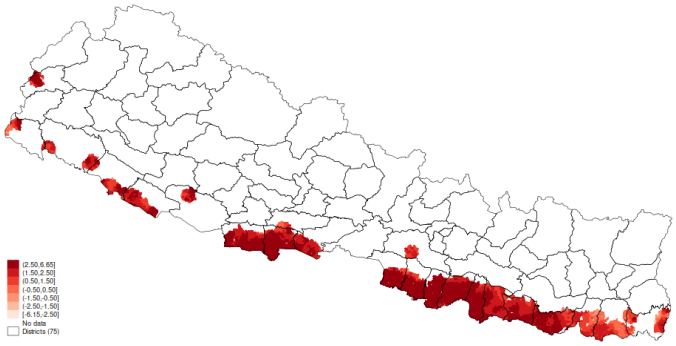
(b) Hill Dalit



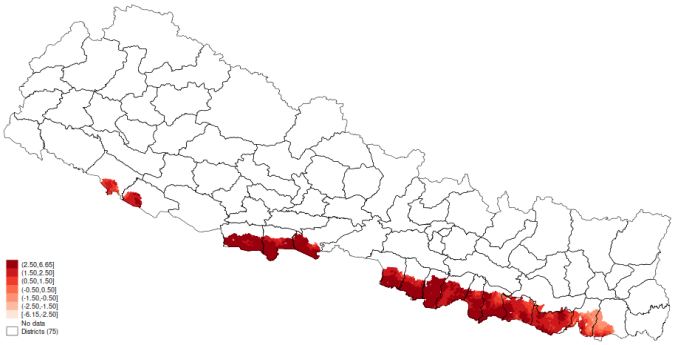
(c) Hill Janajati



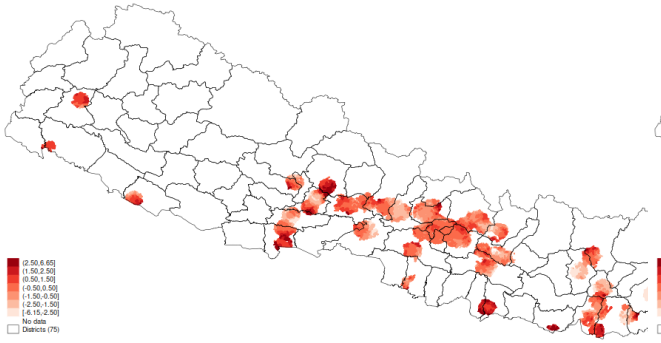
(d) Muslim



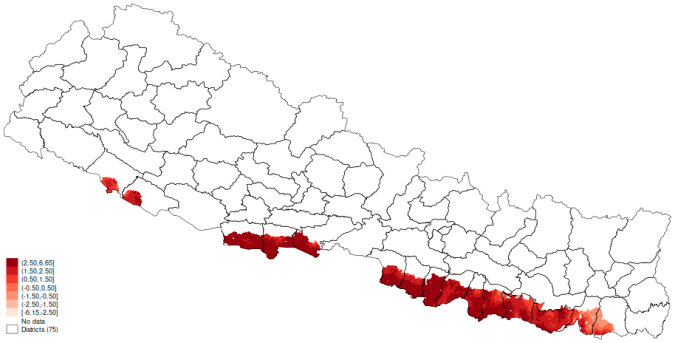
(e) Madhesi caste



(f) Madhesi Dalit



(g) Newar



(h) Terai Janajati

Patriarchy index defined for each ethnic/caste group. 15 km radius. Indo-Aryan groups are: Hill Brahmin Chhetri, Hill Dalit, Muslim, Madhesi caste, Madhesi Dalit and Terai Janajati; Tibeto-Burman groups are: Hill Janajati and Newar.

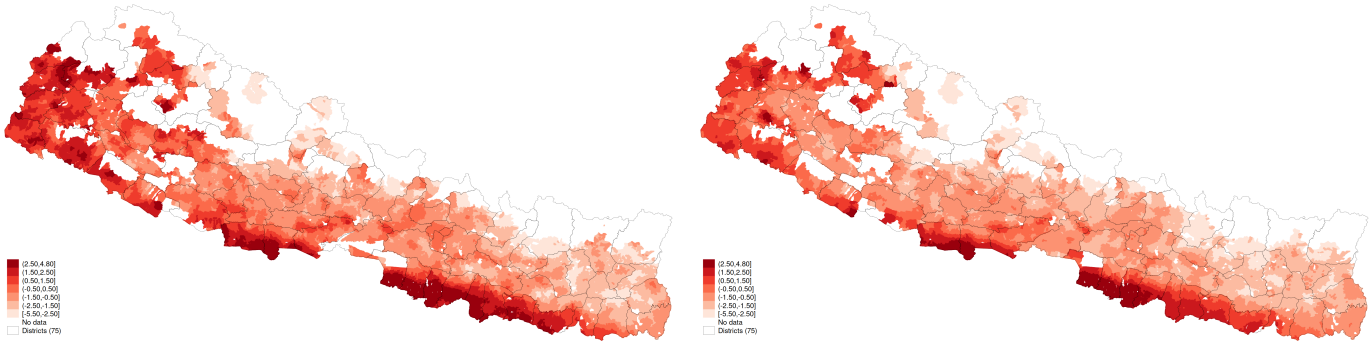
Table 12: Same group vs. out-group neighbors

	Decision power			Paid work			Non-agricultural work		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Patriarchy	-0.040			-0.046			-0.053		
	(0.005)			(0.011)			(0.011)		
	[0.000]			[0.000]			[0.000]		
Same group patri.		-0.033	-0.027		-0.026	-0.015		-0.044	-0.042
		(0.003)	(0.004)		(0.008)	(0.007)		(0.009)	(0.008)
		[0.000]	[0.000]		[0.003]	[0.040]		[0.000]	[0.000]
Out-group patri.			-0.013			-0.027			-0.016
			(0.005)			(0.010)			(0.010)
			[0.018]			[0.008]			[0.118]
Core + spatial cont.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subregion*Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	46326	42487	40821	46442	42599	40928	46424	42581	40911
r2	0.25	0.25	0.25	0.21	0.21	0.21	0.36	0.36	0.36
av	0.48	0.48	0.48	0.42	0.42	0.42	0.36	0.36	0.36

Standard errors in parenthesis, p-values in brackets. Standard errors are clustered at the district level. Samples are married women for decision power, women aged 25 years old and above otherwise. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core + spatial controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, nightlights, log population density, latitude, altitude. For work-outcomes, we also control for whether the woman has 0, 1 or 2 or more children aged 0-5. All controls are interacted with year of observation.

In a second step, we reconstitute the index using all observations except those belonging to the group to which the individual under consideration is affiliated. Consequently, for each individual, we create two distinct indexes: the 'same-group' measure, where the mean values for each variable are computed solely based on individuals in its group, and the 'out-group' measure, where the mean values are calculated for all individuals excluding those in the same group. If only similar neighbors are influential, we anticipate the coefficient of the same-group measure to exhibit a comparable or even stronger magnitude than our primary measure (given that our measure would be noisy). Meanwhile, the coefficient associated with the out-group measure should not be significantly different from 0. Since the focus is on the measure itself and not on the temporal evolution, we report only one coefficient across the years. Table 12 presents the findings. For decision power and paid work, both same-group and out-group patriarchal intensity are relevant, and utilizing only the same-group measure leads to an underestimation of the relationship between patriarchal intensity and the outcomes.

Figure 9: Changes in patriarchy index values between 2001 and 2011



(a) Patriarchy index 2001

(b) Patriarchy index 2011

Patriarchy index based on observable demographic characteristics from 2001 and 2011 census data. No standardization. 2011 patriarchy index constructed with same linear combination than 2001. For each ward (35,000 units), individual observations up to 10 kilometers are used.

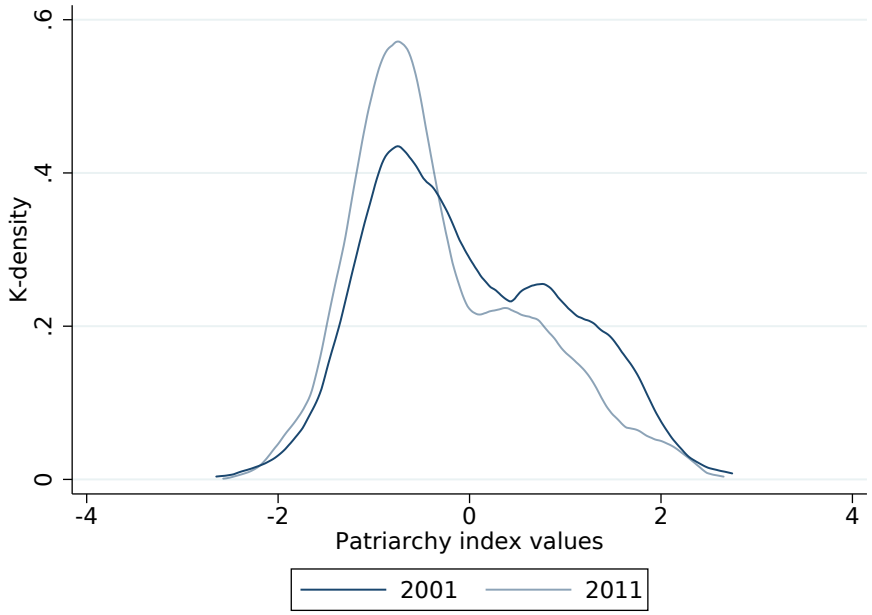
7.3 Changing norms

The perspective adopted in this study posits that patriarchal norms, based on demographic characteristics in a specific neighborhood in 2001, remain relatively stable over time (rank preservation hypothesis). To assess the validity of this hypothesis, we recreate the index in 2011. Specifically, we utilize the coefficient provided by the original PCA, and standardize the index using the standard deviation value from 2001 to enable a direct comparison of the two indices. Figure 9 illustrates the spatial distribution of the two indices based on census data. Overall, the correlation is robust. Among our 1,644 DHS cluster values, the pair-wise correlation across the two different years' values (rank) is 0.92 (0.91) - Figure A5 in appendix showcases the scatter plots. In Figure 10, we present the k-densities of both indices, 2001 and 2011, for our DHS sample. On average, patriarchy, as measured by our index, has decreased, particularly in more patriarchal areas. In other words, regions with higher patriarchal intensity have witnessed a stronger reduction in patriarchal intensity over time.

In most of our findings, the disparities among women residing in more or less patriarchal areas are least pronounced in 2006. Simultaneously, the civil conflict was reaching its conclusion, with the Maoist party transitioning into mainstream politics following the peace agreement. The party's political agenda, encompassing gender equality among other issues, was widely supported.[19] Notably, Nepal's Interim Constitution of 2007 incorporated a robust gender equality component. It acknowledged women's health as a fundamental right, prohibited discrimination based on sex, mandated the state to promote women's access to education, health, and employment opportunities, and legally obligated

[19]The Maoists secured the most votes in the April 2008 Constituent Assembly election, winning 220 out of 575 elected seats.

Figure 10: K-densities of patriarchy index in 2001 and 2011

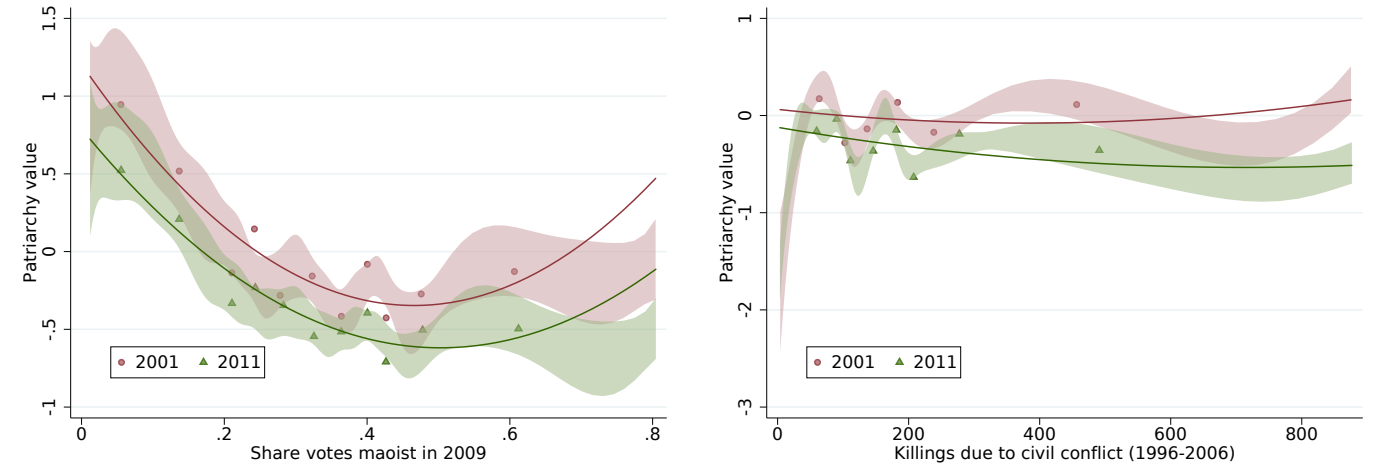


K-densities of patriarchy indices, standardized using standard deviation in the 2001 patriarchy index in DHS clusters.

each political party to include at least 33 percent women among their candidates in elections (Acharya et al., 2015). While our findings suggest that this period might have narrowed differences for a while, the impact doesn't seem enduring enough in our data to permanently bridge the gap. In their qualitative study, (KC and Van Der Haar, 2019) document the initially high hopes, later disappointed, of Maoist female fighters. In their own words: "Women felt empowered through the Maoist ideology as they were exposed to non-traditional gender roles; experienced an equal division of labor, power, and positions; and enjoyed equal treatment regardless of identity, caste, gender, ethnicity, positions, and class. However, in the post-conflict setting, the Maoist ideological commitment to gender equality is still far from being a practiced reality."

In Figure 11, we examine whether the changes in our patriarchy index over time are linked to the egalitarian ideology promoted by the Maoists, based on our DHS data. We utilize a binscatter methodology (Cattaneo et al., 2019) to highlight average values of the patriarchy index in both years based on bins of the share of Maoist votes, conditional on subregion. We also explore the relation with the number of killings in each district, aiming to align with Valente (2014); Menon and Van der Meulen Rodgers (2015). We do not find evidence that areas with the highest Maoist votes in 2009 (or killings) are the same ones where the decrease in patriarchal intensity was the most significant.

Figure 11: Civil conflict and patriarchal intensity in 2001 and 2011



(a) Votes in favor of Maoist in 2008

(b) Killings due to civil conflict

Binscatter with confidence bands of patriarchy index values in 2001 and 2011 according to share of votes for Maoist in 2008, measured at the constituency level (240) and killings in districts (75).

Although it could have been a potential pathway, this is not surprising since our patriarchy index is negatively correlated with votes in favor of the Maoists, and as observed previously, it is predominantly more patriarchal areas in 2001 that exhibited the strongest decrease in 2011.

Lastly, in Table 13, we directly explore the impact of changing norms on our results. We introduce a variable representing the difference between patriarchy in 2001 and 2011, where a value of 1 indicates a decrease of one standard deviation in patriarchy between 2001 and 2011, higher values indicating a more substantial decrease in patriarchy. Several noteworthy patterns emerge. Firstly, a reduction in patriarchal intensity between 2001 and 2011 is linked to increased empowerment outcomes in the last period for decision power and non-agricultural employment. Secondly, in our primary estimations, we found that the patriarchy coefficient in 2006 was not significantly different from 0 for decision power and non-agricultural work. These new results reveal that, in 2006 as well, women in more patriarchal areas had lower empowerment outcomes on average. However, this difference was counteracted by areas where patriarchy decreased in 2011, known to be more patriarchal on average.

8 Conclusion

This paper delves into the influence of patriarchy on women's empowerment over time. We deliberately opt for a "societal" measure of patriarchy, grounded in observable demographic neighbor behavior, to explore the notion that a "patriarchal barrier" may hinder empowerment gains, despite a rapidly

Table 13: Additional effect of changing norms on empowerment outcomes

	(1) Dec. power	(2) Paid work	(3) Non-agri work
Patriarchy*2001	-0.043	0.009	-0.052
	(0.016)	(0.031)	(0.018)
	[0.009]	[0.768]	[0.005]
Patriarchy*2006	-0.035	-0.031	-0.041
	(0.012)	(0.020)	(0.020)
	[0.004]	[0.133]	[0.042]
Patriarchy*2011	-0.043	-0.069	-0.037
	(0.012)	(0.019)	(0.021)
	[0.000]	[0.001]	[0.085]
Patriarchy*2016	-0.089	-0.075	-0.116
	(0.015)	(0.025)	(0.027)
	[0.000]	[0.003]	[0.000]
Patriarchy*2022	-0.048	-0.092	-0.127
	(0.008)	(0.022)	(0.019)
	[0.000]	[0.000]	[0.000]
Difference*2001	0.014	0.029	0.026
	(0.016)	(0.026)	(0.022)
	[0.372]	[0.284]	[0.238]
Difference*2006	0.036	-0.036	0.053
	(0.014)	(0.021)	(0.018)
	[0.012]	[0.090]	[0.006]
Difference*2011	-0.003	-0.021	0.019
	(0.012)	(0.019)	(0.020)
	[0.808]	[0.285]	[0.328]
Difference*2016	0.024	0.008	0.008
	(0.013)	(0.018)	(0.024)
	[0.062]	[0.655]	[0.738]
Difference*2022	0.034	0.026	0.055
	(0.009)	(0.022)	(0.018)
	[0.000]	[0.238]	[0.003]
Core + spatial cont.	Yes	Yes	Yes
Region*Year	Yes	Yes	Yes
N	46326	34351	34336
r2	0	0	0
av	0.48	0.42	0.36

Standard errors in parenthesis, p-values in brackets. Standard errors are clustered at the district level. Samples are married women for decision power, women aged 25 years old and above otherwise. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core + spatial controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, nightlights, log population density, latitude, altitude. For work-outcomes, we also control for whether the woman has 0, 1 or 2 or more children aged 0-5. All controls are interacted with year of observation.

changing social and legal landscape. In line with this, we construct a simple model that predicts a divergence among women if a cost, escalating with patriarchy, constrains actual empowerment, despite a national legal framework granting more and more rights to women.

Our findings tend to support this idea. Concerning decision-making power, we observe a growing divide among women situated in more or less patriarchal areas, with an expanding gap over time, despite an overall upward trend. This divergence is particularly noticeable for newly married women, with an increasing gap between 2001 and 2011, succeeded by a stabilization at elevated levels, ranging from around 5 percent in the first period to over 20 percent of the sample mean in the last periods, for an increase of one standard deviation in our measure. Similar patterns emerge for paid and non-agricultural employment, with a much wider gap in the later periods compared to the earlier ones. Such a divergence is not fueled by an increase in housework in more patriarchal areas, as, to the contrary, more women declare working in these areas in the later periods.

In this paper, we take the opportunity to discuss the measurement of patriarchal norms, beginning with a comparison of our spatial and neighborhood-based measure to one grounded in traditions. Our findings underscore that our spatial measure provides insight into dynamic patterns that may go unnoticed with a tradition-based measure. Additionally, our results indicate that the influence of all neighbors matters, not solely 'similar' neighbors, aligning with a societal perspective of patriarchy rather than an exclusively culture-based one. Finally, allowing for changing norms in our estimations further accentuates the divergence pattern.

If we observe divergent trends in empowerment over time despite a similar legal context, the underlying reasons remain unclear. Could the disparity arise from the supply side, such as civil servants not adhering to modern laws? Alternatively, does it originate from the demand side, where more empowerment falls outside the "window of aspirations" (Baland and Guirkinger, 2022) for women in more patriarchal areas? Field interviews conducted in 2023 suggest a nuanced reality. When inquired about gender-based violence, several institutional actors emphasized the role of education and social media in raising women's awareness and framing such issues as addressable. However, instances of police refusal to file violence reports or survivors being coerced to drop charges were also cited. Although gender equality has not been fully realized, our results indicate that women in less patriarchal areas have significantly benefited from the evolving social context. We can only hope these positive changes will spread fast enough so it will not take 300 years for men and women to be equals.

References

Acemoglu, D. and Jackson, M. O. (2017). Social norms and the enforcement of laws. *Journal of the European Economic Association*, 15(2):245–295.

Acharya, D. R., Bell, J. S., Simkhada, P., Van Teijlingen, E. R., and Regmi, P. R. (2010). Women's autonomy in household decision-making: a demographic study in Nepal. *Reproductive health*, 7(1):1–12.

Acharya, M., Singh, S., Acharya, B., Singh, M., Basnyat, M., Bahadur B.K., B., Koirala, C., Pradhan, S. M., Rana, P. S., and Satyal, V. R. (2015). *Progress of Women in Nepal (1995-2015). Substantive equality: non-negotiable*. UN Women Nepal.

ADB (1999). *Country Briefing Paper : Women in Nepal*. Asian Development Bank, Ortigas, Philippines.

Adhikari, R. and Sharma, J. R. (2022). Gendered consequences of social changes in Nepal: rich possibilities. *European Bulletin of Himalayan Research*, (58).

Akerlof, G. A. and Kranton, R. E. (2000). Economics and identity. *The Quarterly Journal of Economics*, 115(3):715–753.

Aldashev, G., Chaara, I., Platteau, J.-P., and Wahhaj, Z. (2012a). Formal law as a magnet to reform custom. *Economic Development and Cultural Change*, 60(4):795–828.

Aldashev, G., Chaara, I., Platteau, J.-P., and Wahhaj, Z. (2012b). Using the law to change the custom. *Journal of Development Economics*, 97(2):182–200.

Allendorf, K. (2007). Do women's land rights promote empowerment and child health in Nepal? *World development*, 35(11):1975–1988.

Anderson, S. and Genicot, G. (2015). Suicide and property rights in India. *Journal of Development Economics*, 114:64–78.

Baland, J.-M., Cassan, G., and Woitrin, F. (2020). The Stopping Rule and Gender Selective Mortality: World Evidence.

Baland, J.-M. and Guirkinger, C. (2022). Traditional Institutions and Policy Reforms: A Review of RA4 Projects.

Baland, J.-M. and Ziparo, R. (2018). Intra-household bargaining in poor countries. *WIDER Working Paper Series*, 69(1).

Bargain, O., Boutin, D., and Champeaux, H. (2019). Women's political participation and intrahousehold empowerment: Evidence from the Egyptian Arab Spring. *Journal of Development Economics*, 141:102379.

Bennett, L. (2008). *Caste, ethnic, and regional identity in Nepal: further analysis of the 2006 Nepal Demographic and Health Survey*. Population Division, Ministry of Health and Population, Government of Nepal.

Bhalotra, S., Brulé, R., and Roy, S. (2020). Women's inheritance rights reform and the preference for sons in India. *Journal of Development Economics*, 146:102275.

Bose, N. and Das, S. (2017). Women's inheritance rights, household allocation, and gender bias. *American Economic Review*, 107(5):150–53.

Cattaneo, M. D., Crump, R. K., Farrell, M. H., and Feng, Y. (2019). On binscatter. *arXiv preprint arXiv:1902.09608*.

CBS (2014). *Population Monograph of Nepal–Volume I–Population dynamics*. Central Bureau of Statistics of Nepal, Kathmandu, Nepal.

Central Bureau of Statistics (2011). *Population and Housing Census 2011*. Government of Nepal, Kathmandu, Nepal.

Chiappori, P.-A. and Mazzocco, M. (2017). Static and intertemporal household decisions. *Journal of Economic Literature*, 55(3):985–1045.

Cole, W. M. (2016). Convention on the elimination of all forms of discrimination against women (CEDAW).

Dildar, Y. (2015). Patriarchal norms, religion, and female labor supply: Evidence from Turkey. *World Development*, 76:40–61.

Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic literature*, 50(4):1051–1079.

Erten, B. and Keskin, P. (2022). Does Knowledge Empower? Education, Legal Awareness, and Intimate Partner Violence. *Feminist Economics*, 28(4):29–59.

Ghimire, A. and Samuels, F. (2014). Change and continuity in social norms and practices around marriage and education in nepal. *London: Overseas Development Institute*.

Gruber, S. and Szołtysek, M. (2016). The patriarchy index: a comparative study of power relations across historical Europe. *The History of the Family*, 21(2):133–174.

Gündüz-Hoşgör, A. and Smits, J. (2008). Variation in labor market participation of married women in Turkey. In *Women's Studies International Forum*, volume 31, pages 104–117. Elsevier.

Harari, M. (2019). Women's inheritance rights and bargaining power: Evidence from Kenya. *Economic Development and Cultural Change*, 68(1):189–238.

Heath, J. A. and Ciscel, D. H. (1988). Patriarchy, family structure and the exploitation of women's labor. *Journal of Economic Issues*, 22(3):781–794.

Heath, R. and Tan, X. (2020). Intrahousehold bargaining, female autonomy, and labor supply: Theory and evidence from India. *Journal of the European Economic Association*, 18(4):1928–1968.

IOM (2016). *Legislative Provisions Regulating Women's Access and Ownership of Land and Property in Nepal*. International Organization for Migration.

Kandiyoti, D. (1988). Bargaining with patriarchy. *Gender & society*, 2(3):274–290.

KC, L. and Van Der Haar, G. (2019). Living Maoist gender ideology: experiences of women ex-combatants in Nepal. *International Feminist Journal of Politics*, 21(3):434–453.

Lépine, A. and Strobl, E. (2013). The effect of women's bargaining power on child nutrition in rural Senegal. *World Development*, 45:17–30.

Lotter, S. (2017). Gender gap, gender trap: negotiations of intersectionality and patriarchy amongst women elites in Nepal. *International Quarterly for Asian Studies*, 48(1-2):97–115.

Luitel, S. (2001). The social world of Nepalese women. *Occasional Papers in Sociology and Anthropology*, 7:101–114.

Malhotra, A., Vanneman, R., and Kishor, S. (1995). Fertility, dimensions of patriarchy, and development in India. *Population and Development Review*, 21(2):281–306.

Manchanda, R. (2004). Maoist insurgency in Nepal: Radicalizing gendered narratives. *Cultural Dynamics*, 16(2-3):237–258.

Menon, N. and Van der Meulen Rodgers, Y. (2015). War and women's work: Evidence from the conflict in Nepal. *Journal of Conflict Resolution*, 59(1):51–73.

Mishra, K. and Sam, A. G. (2016). Does women's land ownership promote their empowerment? Empirical evidence from Nepal. *World Development*, 78:360–371.

Perez-Heydrich, C., Warren, J. L., Burgert, C. R., and Emch, M. E. (2013). *Guidelines on the Use of DHS GPS Data*. Spatial Analysis Reports No. 8. Calverton, Maryland, USA: ICF International.

Pradhan, R., Meinzen-Dick, R., and Theis, S. (2019). Property rights, intersectionality, and women's empowerment in Nepal. *Journal of Rural Studies*, 70:26–35.

Pradhan, R. and Shrestha, A. (2005). Ethnic and caste diversity: Implications for development.

Rosenblum, D. (2015). Unintended consequences of women's inheritance rights on female mortality in India. *Economic Development and Cultural Change*, 63(2):223–248.

Roy, S. (2015). Empowering women? inheritance rights, female education and dowry payments in india. *Journal of Development Economics*, 114:233–251.

Sachs, J., Kroll, C., Lafortune, G., Fuller, G., and Woelm, F. (2021). *Sustainable development report 2021*. Cambridge University Press.

Sangroula, Y. and Pathak, G. (2002). *Gender and laws: Nepalese perspective*. Pairavi Prakashan.

Singh, A., Chokhandre, P., Singh, A. K., Barker, K. M., Kumar, K., McDougal, L., James, K., and Raj, A. (2022). Development of the India Patriarchy Index: Validation and Testing of Temporal and Spatial Patterning. *Social Indicators Research*, 159(1):351–377.

Subedi, N. C. (2009). Elimination of gender discriminatory legal provision by the Supreme Court of Nepal with reference to women's right to property. *Tribhuvan University Journal*, 26(1):37–54.

Tamang, S. (2000). Legalizing state patriarchy in Nepal. *Studies in Nepali History and Society*, 5(1):127–156.

Thapa, S. (2004). Abortion law in Nepal: the road to reform. *Reproductive Health Matters*, 12(sup24):85–94.

Therborn, G. (2004). *Between sex and power: Family in the world 1900-2000*. Routledge.

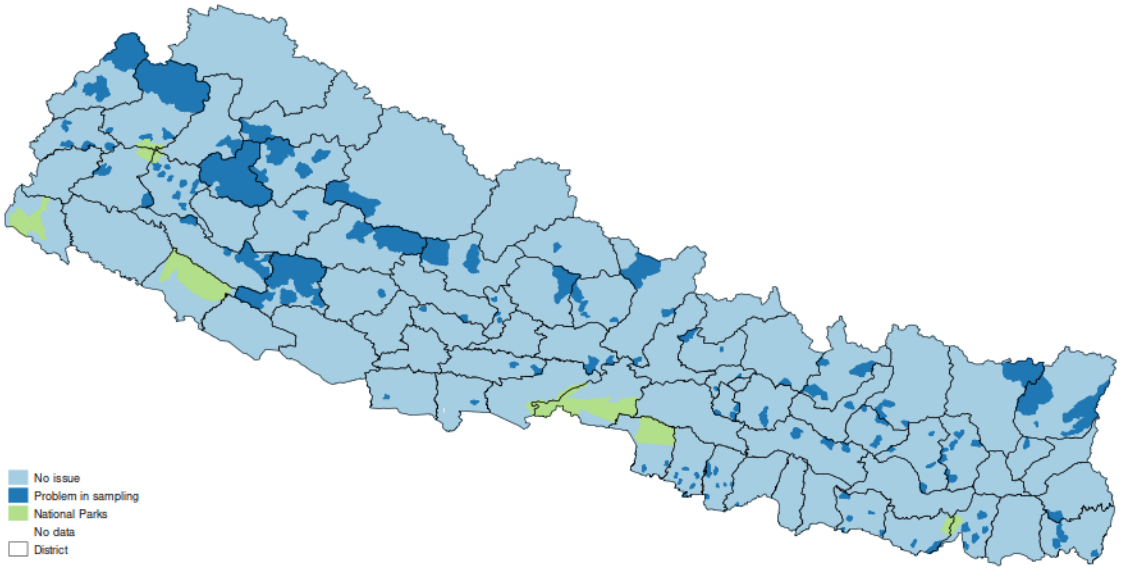
United Nations (2013). *Realizing Women's Rights to Land and Other Productive Resources*. Office of the High Commissioner for Human Rights and Women, UN.

Valente, C. (2014). Education and civil conflict in Nepal. *The World Bank Economic Review*, 28(2):354–383.

Vyas, S. and Kumaranayake, L. (2006). Constructing socio-economic status indices: how to use principal components analysis. *Health policy and planning*, 21(6):459–468.

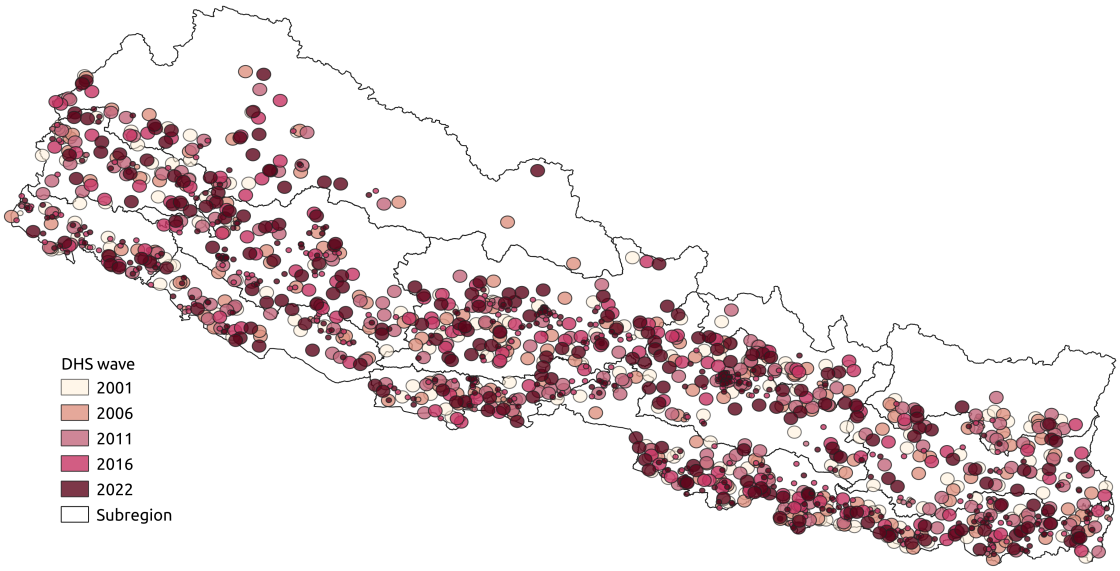
A Appendix

Figure A1: Sampling issues in 2001 census



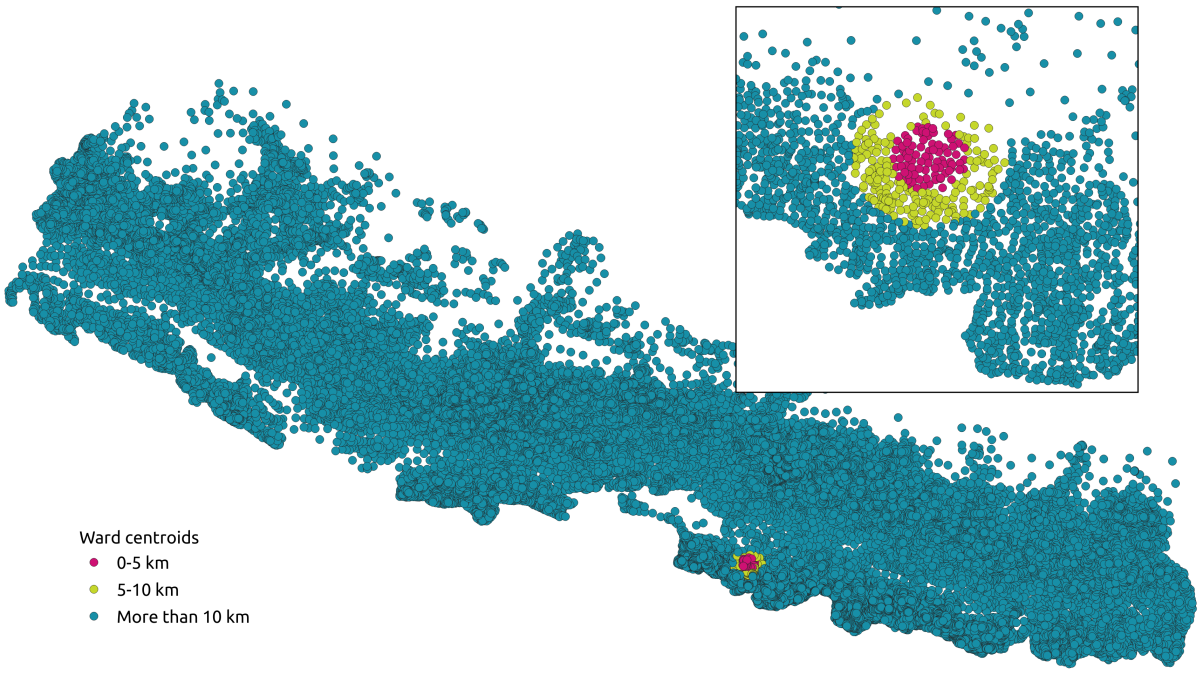
VDCs that present sampling issues, either due to the conflict or to a technical problem.

Figure A2: DHS clusters



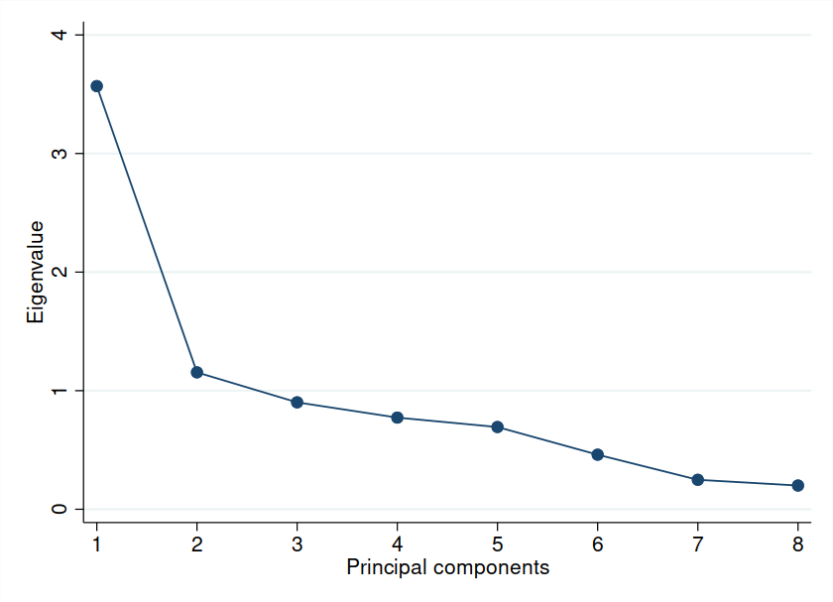
DHS clusters location. 2km buffer for urban areas, 5km for rural.

Figure A3: Spatial index



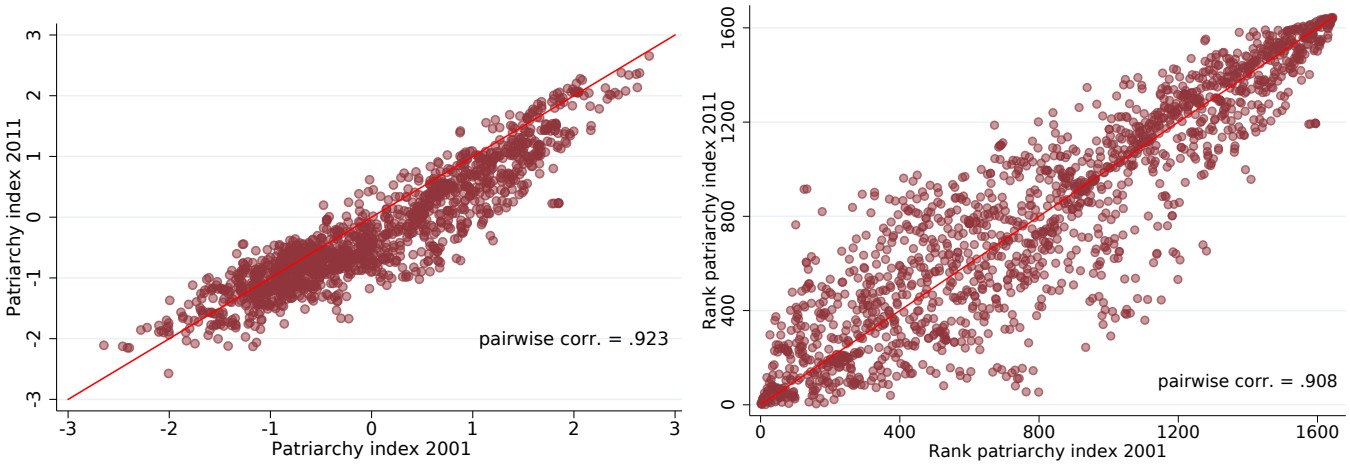
Observations up to 10km are used to compute the average value for each EA.

Figure A4: Scree plot of PCA



Eigenvalues of the PCA analysis. The highest the Eigenvalue, the more variance in the data it explains. The share of variance explained by the first component is .4460, second is .1443, third is .1127, fourth is .0966, fifth is .0867, sixth is .0575, seventh is .0311 and eighth is .0250.

Figure A5: Scatter plots between patriarchy index values and rank in 2001 and 2011



(a) Values

(b) Rank

Values and rank of patriarchy index in 2001 and 2011. The red line is the function y = x.

B Additional tables

Table A1: Decision power and patriarchy over time by type of decision

	(1) Dec. power	(2) Own health	(3) Visit	(4) Large purchase
Patriarchy*2001	-0.034	-0.021	-0.057	-0.050
	(0.013)	(0.014)	(0.023)	(0.017)
	[0.008]	[0.133]	[0.015]	[0.004]
Patriarchy*2006	-0.017	-0.017	-0.029	-0.010
	(0.011)	(0.016)	(0.015)	(0.015)
	[0.116]	[0.272]	[0.061]	[0.505]
Patriarchy*2011	-0.044	-0.050	-0.062	-0.026
	(0.010)	(0.015)	(0.013)	(0.014)
	[0.000]	[0.001]	[0.000]	[0.055]
Patriarchy*2016	-0.074	-0.061	-0.083	-0.093
	(0.011)	(0.016)	(0.016)	(0.014)
	[0.000]	[0.000]	[0.000]	[0.000]
Patriarchy*2022	-0.026	-0.021	-0.027	-0.015
	(0.008)	(0.013)	(0.011)	(0.014)
	[0.002]	[0.128]	[0.019]	[0.268]
Core controls	Yes	Yes	Yes	Yes
Subregion*Year	Yes	Yes	Yes	Yes
Add. geographic*Year	Yes	Yes	Yes	Yes
N	46326	46240	46202	46141
r2	0.254	0.190	0.180	0.182
av	0.48	0.55	0.56	0.51

Standard errors in parenthesis, p-values in brackets. Married women. Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

Table A2: Work outcomes and patriarchy over time for different samples of women

	Paid (cash or kind) work				Non-agricultural work			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Patriarchy*2001	0.026	0.045	0.039	0.072	-0.035	-0.030	-0.020	0.007
	(0.030)	(0.029)	(0.028)	(0.029)	(0.018)	(0.020)	(0.019)	(0.024)
	[0.385]	[0.123]	[0.167]	[0.015]	[0.053]	[0.135]	[0.299]	[0.778]
Patriarchy*2006	-0.047	-0.047	-0.049	-0.051	-0.016	-0.012	-0.001	0.031
	(0.020)	(0.024)	(0.020)	(0.028)	(0.022)	(0.025)	(0.021)	(0.023)
	[0.023]	[0.050]	[0.017]	[0.072]	[0.482]	[0.635]	[0.960]	[0.192]
Patriarchy*2011	-0.079	-0.095	-0.073	-0.062	-0.025	-0.054	-0.020	-0.009
	(0.017)	(0.016)	(0.015)	(0.014)	(0.020)	(0.022)	(0.020)	(0.024)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.212]	[0.018]	[0.330]	[0.713]
Patriarchy*2016	-0.070	-0.060	-0.066	-0.045	-0.110	-0.090	-0.099	-0.070
	(0.023)	(0.021)	(0.020)	(0.016)	(0.023)	(0.026)	(0.023)	(0.025)
	[0.003]	[0.006]	[0.002]	[0.005]	[0.000]	[0.001]	[0.000]	[0.007]
Patriarchy*2022	-0.076	-0.071	-0.061	-0.041	-0.092	-0.086	-0.089	-0.073
	(0.018)	(0.020)	(0.017)	(0.016)	(0.014)	(0.017)	(0.012)	(0.016)
	[0.000]	[0.001]	[0.000]	[0.013]	[0.000]	[0.000]	[0.000]	[0.000]
Core controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subregion*Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Add. geographic*Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
sample	25-49	25-35	Marr	≤10y	25-49	25-35	Marr	≤10y
N	34351	18670	46442	19102	34336	18663	46424	19094
r2	0.22	0.19	0.21	0.15	0.38	0.38	0.36	0.38
av	0.42	0.42	0.37	0.29	0.36	0.36	0.36	0.43

Standard errors in parenthesis, p-values in brackets. Four samples: women aged 25 years old and above (main sample), women between 25 and 35 years old, married women and recently married women (less than 10 years). Standard errors are clustered at the district level. An increase in 1 in patriarchy is an increase in one standard deviation in the patriarchy index. Core controls include: five-years age group fixed effects (FE), education FE, wealth quintile FE, whether the husband lives in the household, ethnic/caste group FE, whether the woman has 0, 1 or 2 or more children aged 0-5, nightlights, log population density, latitude, altitude. Additional geographic controls include share of votes in favor of Maoist in 2008 and share of absentees, measured at the DHS cluster level. All controls, except ethnic/caste group, are interacted with year of observation.

Table A3: Decision power and patriarchy over time, time-invariant controls

	Decision power			
	(1)	(2)	(3)	(4)
Patriarchy*2001	-0.0361*	-0.0283**	-0.0284**	-0.0242**
	(0.0194)	(0.0125)	(0.0122)	(0.0119)
Patriarchy*2006	-0.0247***	-0.0192*	-0.0192*	-0.0104
	(0.00818)	(0.00988)	(0.00971)	(0.00947)
Patriarchy*2011	-0.0474***	-0.0516***	-0.0516***	-0.0410***
	(0.00985)	(0.00835)	(0.00930)	(0.00887)
Patriarchy*2016	-0.0447***	-0.0698***	-0.0691***	-0.0546***
	(0.00817)	(0.00982)	(0.00996)	(0.00927)
Patriarchy*2022	-0.0305***	-0.0349***	-0.0342***	-0.0246**
	(0.00952)	(0.00997)	(0.0105)	(0.01000)
15-19	0	0	0	0
	(.)	(.)	(.)	(.)
20-24	0.138***	0.122***	0.122***	0.0947***
	(0.00735)	(0.00780)	(0.00778)	(0.00746)
25-29	0.293***	0.264***	0.265***	0.198***
	(0.00883)	(0.00985)	(0.00984)	(0.00946)
30-34	0.376***	0.340***	0.340***	0.247***
	(0.00873)	(0.0104)	(0.0103)	(0.00987)
35-39	0.426***	0.377***	0.378***	0.268***
	(0.00976)	(0.0115)	(0.0115)	(0.0110)
40-44	0.440***	0.385***	0.385***	0.265***
	(0.0111)	(0.0131)	(0.0131)	(0.0125)
45-49	0.439***	0.378***	0.378***	0.253***
	(0.0119)	(0.0141)	(0.0141)	(0.0133)
no education	0	0	0	0
	(.)	(.)	(.)	(.)
incomplete primary	0.0782***	0.0232***	0.0232***	0.0252***
	(0.00642)	(0.00570)	(0.00575)	(0.00570)
complete primary	0.0772***	0.0236***	0.0238***	0.0333***

	(0.00837)	(0.00762)	(0.00759)	(0.00703)
incomplete secondary	0.0955***	0.0322***	0.0321***	0.0474***
	(0.00587)	(0.00560)	(0.00557)	(0.00506)
complete secondary	0.125***	0.0439***	0.0441***	0.0682***
	(0.00751)	(0.00742)	(0.00740)	(0.00687)
higher	0.130***	0.0602***	0.0603***	0.0945***
	(0.00871)	(0.00798)	(0.00798)	(0.00830)
lowest quintile	0	0	0	0
	(.)	(.)	(.)	(.)
second quintile	-0.00674	0.00328	0.00309	0.0114*
	(0.00775)	(0.00682)	(0.00678)	(0.00631)
middle quintile	-0.0175*	-0.00357	-0.00341	0.0102
	(0.00933)	(0.00870)	(0.00865)	(0.00775)
fourth quintile	-0.0307**	-0.00662	-0.00645	0.00805
	(0.0122)	(0.0111)	(0.0111)	(0.00950)
highest quintile	-0.0214	0.0175	0.0185	0.0298***
	(0.0148)	(0.0131)	(0.0131)	(0.0109)
Brahmin-Chhetri	0	0	0	0
	(.)	(.)	(.)	(.)
Hill Dalit	0.0307***	0.0208***	0.0206***	0.0147**
	(0.00899)	(0.00731)	(0.00730)	(0.00710)
Hill Janajati	0.0304***	0.0288***	0.0290***	0.0304***
	(0.00946)	(0.00756)	(0.00752)	(0.00643)
Muslim	-0.0731***	-0.105***	-0.101***	-0.100***
	(0.0195)	(0.0131)	(0.0141)	(0.0139)
Madhesi castes	-0.0562***	-0.0754***	-0.0737***	-0.0748***
	(0.0132)	(0.00923)	(0.00946)	(0.00870)
Madhesi Dalit	-0.00431	-0.0432***	-0.0416***	-0.0516***
	(0.0178)	(0.0142)	(0.0137)	(0.0118)
Newar	-0.0259**	-0.0154	-0.0154	0.00459
	(0.0128)	(0.0105)	(0.0104)	(0.00884)
Terai Janajati	-0.0255**	-0.0470***	-0.0453***	-0.0353***

	(0.0126)	(0.0103)	(0.00987)	(0.00804)
Other	-0.0964***	-0.0837***	-0.0816***	-0.0657**
	(0.0244)	(0.0280)	(0.0277)	(0.0270)
Husband not in hh	0.160***	0.144***	0.144***	0.153***
	(0.00555)	(0.00583)	(0.00580)	(0.00615)
Nightlights	0.0232***	0.0174***	0.0168***	0.0125***
	(0.00416)	(0.00383)	(0.00379)	(0.00298)
Log pop dens	0.00963	0.0168***	0.0166***	0.0119***
	(0.00673)	(0.00464)	(0.00463)	(0.00409)
Latitude	0.00158	-0.0233	-0.0209	-0.0242
	(0.00708)	(0.0148)	(0.0157)	(0.0149)
Altitude	-0.0000405***	-0.0000383***	-0.0000376***	-0.0000349***
	(0.00000902)	(0.00000816)	(0.00000821)	(0.00000758)
Share absentees			0.123	0.218*
			(0.125)	(0.111)
Share votes Maoist 2009			-0.0191	-0.0211
			(0.0282)	(0.0256)
Daughter in law				-0.244***
				(0.00488)
Constant	0.0571	0.656	0.595	0.809**
	(0.202)	(0.404)	(0.424)	(0.404)
Region*Year	Yes	Yes	Yes	Yes
N	46421	46421	46326	46326
r2	0.199	0.247	0.247	0.313
Mean dep. var	0.48	0.48	0.48	0.48

Table A4: Any work and patriarchy over time, time-invariant controls

	Any work in past 12 months			
	(1)	(2)	(3)	(4)
Patriarchy*2001	0.00795	0.00505	0.0172	0.0170
	(0.0128)	(0.0133)	(0.0130)	(0.0131)
Patriarchy*2006	0.00198	-0.00285	0.0103	0.01000
	(0.0111)	(0.0123)	(0.0132)	(0.0132)
Patriarchy*2011	-0.0315**	-0.0323**	-0.0157	-0.0160
	(0.0125)	(0.0155)	(0.0146)	(0.0146)
Patriarchy*2016	-0.0245	0.0141	0.0294	0.0289
	(0.0178)	(0.0206)	(0.0192)	(0.0192)
Patriarchy*2022	0.00112	0.0233**	0.0360***	0.0357***
	(0.0100)	(0.0113)	(0.0109)	(0.0108)
25-29	0	0	0	0
	(.)	(.)	(.)	(.)
30-34	0.0334***	0.0343***	0.0328***	0.0337***
	(0.00782)	(0.00784)	(0.00775)	(0.00747)
35-39	0.0358***	0.0370***	0.0365***	0.0380***
	(0.00748)	(0.00775)	(0.00781)	(0.00720)
40-44	0.0313***	0.0331***	0.0314***	0.0332***
	(0.00934)	(0.00952)	(0.00953)	(0.00853)
45-49	-0.00260	0.00171	0.000462	0.00241
	(0.0114)	(0.0117)	(0.0116)	(0.0105)
no education	0	0	0	0
	(.)	(.)	(.)	(.)
incomplete primary	-0.0326***	-0.0192**	-0.0198**	-0.0198**
	(0.00911)	(0.00920)	(0.00916)	(0.00916)
complete primary	-0.0692***	-0.0448***	-0.0452***	-0.0455***
	(0.0133)	(0.0127)	(0.0127)	(0.0126)
incomplete secondary	-0.0840***	-0.0542***	-0.0539***	-0.0544***
	(0.0100)	(0.0108)	(0.0107)	(0.0107)
complete secondary	-0.100***	-0.0658***	-0.0642***	-0.0650***

	(0.0160)	(0.0169)	(0.0171)	(0.0172)
higher	-0.0521***	0.00416	0.00386	0.00263
	(0.0142)	(0.0155)	(0.0151)	(0.0154)
lowest quintile	0	0	0	0
	(.)	(.)	(.)	(.)
second quintile	0.0147*	0.00684	0.00764	0.00736
	(0.00742)	(0.00569)	(0.00562)	(0.00573)
middle quintile	-0.0155	-0.0266***	-0.0249***	-0.0254***
	(0.00967)	(0.00834)	(0.00837)	(0.00829)
fourth quintile	-0.0666***	-0.0785***	-0.0748***	-0.0753***
	(0.0114)	(0.0105)	(0.0103)	(0.0102)
highest quintile	-0.197***	-0.217***	-0.210***	-0.210***
	(0.0184)	(0.0157)	(0.0147)	(0.0146)
Hill Dalit	-0.0322***	-0.0263***	-0.0247***	-0.0245***
	(0.0107)	(0.00929)	(0.00885)	(0.00890)
Hill Janajati	-0.0113	-0.0148**	-0.0147*	-0.0147*
	(0.00911)	(0.00741)	(0.00752)	(0.00753)
Muslim	-0.216***	-0.172***	-0.152***	-0.152***
	(0.0290)	(0.0245)	(0.0243)	(0.0244)
Madhesi castes	-0.123***	-0.0923***	-0.0779***	-0.0779***
	(0.0213)	(0.0204)	(0.0203)	(0.0203)
Madhesi Dalit	-0.0341	0.000543	0.0180	0.0184
	(0.0277)	(0.0265)	(0.0259)	(0.0259)
Newar	0.0674***	0.0589***	0.0583***	0.0576***
	(0.0113)	(0.0106)	(0.00988)	(0.00979)
Terai Janajati	0.0423***	0.0592***	0.0643***	0.0639***
	(0.0139)	(0.0140)	(0.0129)	(0.0127)
Other	-0.182***	-0.193***	-0.179***	-0.180***
	(0.0557)	(0.0532)	(0.0532)	(0.0532)
Husband not in hh	-0.0201***	-0.00980*	-0.0143**	-0.0147**
	(0.00624)	(0.00570)	(0.00550)	(0.00558)
Nightlights	-0.0371**	-0.0401***	-0.0389***	-0.0387***

	(0.0149)	(0.0149)	(0.0137)	(0.0137)
Log pop dens	-0.00425	-0.0125	-0.0112	-0.0111
	(0.00948)	(0.00907)	(0.00865)	(0.00859)
Latitude	0.00529	0.0457	0.0431*	0.0432*
	(0.0112)	(0.0298)	(0.0248)	(0.0247)
Altitude	0.0000483***	0.0000124	0.0000112	0.0000111
	(0.0000105)	(0.0000103)	(0.00000964)	(0.00000961)
Children 0-5 (0, 1, 2+)	-0.0254***	-0.0377***	-0.0376***	-0.0378***
	(0.00551)	(0.00507)	(0.00514)	(0.00511)
Share absentees			0.819***	0.816***
			(0.151)	(0.151)
Share votes Maoist 2009			0.126***	0.126***
			(0.0328)	(0.0328)
Daughter in law				0.00929
				(0.0100)
Constant	0.767**	-0.212	-0.203	-0.207
	(0.320)	(0.824)	(0.687)	(0.684)
Subregion*Year	Yes	Yes	Yes	Yes
N	34400	34400	34336	34336
r2	0.163	0.193	0.197	0.197
Mean dep. var	0.86	0.86	0.86	0.86

Table A5: Paid work and patriarchy over time, time-invariant controls

	Paid (cash or kind) work			
	(1)	(2)	(3)	(4)
Patriarchy*2001	0.0225	0.0256	0.0245	0.0280
	(0.0289)	(0.0264)	(0.0270)	(0.0268)
Patriarchy*2006	-0.0413	-0.0319	-0.0335	-0.0290
	(0.0440)	(0.0210)	(0.0206)	(0.0205)
Patriarchy*2011	-0.00936	-0.0793**	-0.0814**	-0.0753**
	(0.0243)	(0.0162)	(0.0171)	(0.0170)
Patriarchy*2016	-0.0348	-0.0426*	-0.0457*	-0.0381
	(0.0179)	(0.0212)	(0.0208)	(0.0208)
Patriarchy*2022	-0.0641**	-0.0922**	-0.0943**	-0.0896**
	(0.0181)	(0.0195)	(0.0192)	(0.0191)
25-29	0	0	0	0
	(.)	(.)	(.)	(.)
30-34	0.0260**	0.0348**	0.0351**	0.0209**
	(0.00763)	(0.00624)	(0.00632)	(0.00607)
35-39	0.0490**	0.0571**	0.0571**	0.0339**
	(0.0103)	(0.00907)	(0.00916)	(0.00814)
40-44	0.0262	0.0343**	0.0345**	0.00571
	(0.0131)	(0.0118)	(0.0119)	(0.0102)
45-49	-0.0142	-0.00201	-0.00194	-0.0329*
	(0.0163)	(0.0147)	(0.0148)	(0.0133)
no education	0	0	0	0
	(.)	(.)	(.)	(.)
incomplete primary	-0.0191	-0.0105	-0.0112	-0.0110
	(0.0128)	(0.0107)	(0.0107)	(0.0106)
complete primary	-0.0496**	-0.0269	-0.0265	-0.0220
	(0.0169)	(0.0147)	(0.0145)	(0.0147)
incomplete secondary	-0.0419**	-0.0172	-0.0169	-0.00891
	(0.0147)	(0.0136)	(0.0136)	(0.0139)
complete secondary	0.0446	0.0680**	0.0683**	0.0817**

	(0.0226)	(0.0233)	(0.0232)	(0.0242)
higher	0.140**	0.183**	0.183**	0.203**
	(0.0254)	(0.0279)	(0.0279)	(0.0274)
lowest quintile	0	0	0	0
	(.)	(.)	(.)	(.)
second quintile	0.0482**	0.0534**	0.0527**	0.0573**
	(0.0169)	(0.0127)	(0.0128)	(0.0125)
middle quintile	0.0349*	0.0354*	0.0355*	0.0435**
	(0.0172)	(0.0140)	(0.0140)	(0.0136)
fourth quintile	0.0454*	0.0373*	0.0365*	0.0458*
	(0.0204)	(0.0182)	(0.0182)	(0.0173)
highest quintile	-0.00525	-0.0203	-0.0227	-0.0147
	(0.0219)	(0.0196)	(0.0199)	(0.0190)
Brahmin-Chhetri	0	0	0	0
	(.)	(.)	(.)	(.)
Hill Dalit	0.0422*	0.0585**	0.0587**	0.0549**
	(0.0171)	(0.0141)	(0.0140)	(0.0141)
Hill Janajati	0.00379	0.0124	0.0124	0.0129
	(0.0146)	(0.0111)	(0.0109)	(0.0107)
Muslim	-0.0510	-0.0288	-0.0342	-0.0354
	(0.0330)	(0.0265)	(0.0266)	(0.0261)
Madhesi castes	-0.0556*	-0.0335	-0.0381	-0.0377
	(0.0272)	(0.0221)	(0.0228)	(0.0226)
Madhesi Dalit	0.214**	0.228**	0.224**	0.219**
	(0.0437)	(0.0381)	(0.0375)	(0.0369)
Newar	0.0878**	0.0872**	0.0875**	0.0989**
	(0.0172)	(0.0149)	(0.0150)	(0.0160)
Terai Janajati	0.112**	0.106**	0.103**	0.109**
	(0.0248)	(0.0186)	(0.0189)	(0.0190)
10	-0.0908	-0.159**	-0.164**	-0.152**
	(0.0622)	(0.0497)	(0.0505)	(0.0495)
=1 if husband lives elsewhere	-0.0225*	-0.0199*	-0.0192*	-0.0125

	(0.00959)	(0.00759)	(0.00737)	(0.00745)
Nightlights	-0.000839	-0.00258	-0.00194	-0.00388
	(0.00975)	(0.0107)	(0.0108)	(0.0111)
Log pop dens	0.0315**	0.0279**	0.0282**	0.0263*
	(0.0116)	(0.0102)	(0.0102)	(0.0101)
Latitude	-0.0365**	-0.0271	-0.0308	-0.0321
	(0.0117)	(0.0336)	(0.0345)	(0.0347)
Altitude	-0.000000734	-0.0000280	-0.0000282	-0.0000272
	(0.0000165)	(0.0000178)	(0.0000178)	(0.0000175)
Children 0-5 (0, 1, 2+)	-0.0403**	-0.0415**	-0.0417**	-0.0378**
	(0.00645)	(0.00474)	(0.00479)	(0.00491)
Share absentees			-0.312	-0.266
			(0.211)	(0.208)
Share votes Maoist 2009			0.0174	0.0183
			(0.0502)	(0.0499)
Daughter in law				-0.148**
				(0.00965)
Constant	1.332**	0.945	1.045	1.112
	(0.325)	(0.908)	(0.928)	(0.933)
Region*Year	Yes	Yes	Yes	Yes
N	34415	34415	34351	34351
r2	0.044	0.193	0.194	0.204
Mean dep. var	0.42	0.42	0.42	0.42

Table A6: Non-agricultural work and patriarchy over time, time-invariant controls

	Non-agricultural work			
	(1)	(2)	(3)	(4)
Patriarchy*2001	-0.0291	-0.0169	-0.0306	-0.0291
	(0.0217)	(0.0183)	(0.0189)	(0.0189)
Patriarchy*2006	-0.0306	-0.0201	-0.0350	-0.0330
	(0.0185)	(0.0214)	(0.0223)	(0.0222)
Patriarchy*2011	-0.0178	-0.0219	-0.0407*	-0.0381*
	(0.0151)	(0.0189)	(0.0183)	(0.0182)
Patriarchy*2016	-0.0149	-0.0663*	-0.0838**	-0.0806**
	(0.0220)	(0.0274)	(0.0260)	(0.0258)
Patriarchy*2022	-0.0276*	-0.0679**	-0.0823**	-0.0803**
	(0.0118)	(0.0145)	(0.0147)	(0.0146)
25-29	0	0	0	0
	(.)	(.)	(.)	(.)
30-34	-0.0215**	-0.0230**	-0.0213**	-0.0274**
	(0.00795)	(0.00799)	(0.00798)	(0.00773)
35-39	-0.0305**	-0.0342**	-0.0338**	-0.0438**
	(0.00959)	(0.00974)	(0.00981)	(0.00907)
40-44	-0.0483**	-0.0542**	-0.0528**	-0.0651**
	(0.00882)	(0.00835)	(0.00824)	(0.00800)
45-49	-0.0524**	-0.0638**	-0.0625**	-0.0758**
	(0.0108)	(0.0102)	(0.0101)	(0.00930)
no education	0	0	0	0
	(.)	(.)	(.)	(.)
incomplete primary	0.0955**	0.0476**	0.0481**	0.0483**
	(0.0100)	(0.0104)	(0.0103)	(0.0103)
complete primary	0.124**	0.0729**	0.0740**	0.0759**
	(0.0157)	(0.0135)	(0.0133)	(0.0133)
incomplete secondary	0.167**	0.100**	0.0999**	0.103**
	(0.0125)	(0.0116)	(0.0114)	(0.0112)
complete secondary	0.326**	0.245**	0.243**	0.249**

	(0.0183)	(0.0170)	(0.0170)	(0.0170)
higher	0.388**	0.285**	0.285**	0.294**
	(0.0333)	(0.0300)	(0.0301)	(0.0294)
lowest quintile	0	0	0	0
	(.)	(.)	(.)	(.)
second quintile	0.0116	0.0363**	0.0348**	0.0367**
	(0.00971)	(0.00856)	(0.00842)	(0.00846)
middle quintile	0.0720**	0.106**	0.104**	0.108**
	(0.0141)	(0.0122)	(0.0119)	(0.0118)
fourth quintile	0.176**	0.215**	0.211**	0.215**
	(0.0197)	(0.0177)	(0.0173)	(0.0169)
highest quintile	0.357**	0.417**	0.409**	0.412**
	(0.0293)	(0.0246)	(0.0236)	(0.0231)
Brahmin-Chhetri	0	0	0	0
	(.)	(.)	(.)	(.)
Hill Dalit	0.109**	0.0986**	0.0968**	0.0952**
	(0.0159)	(0.0128)	(0.0125)	(0.0124)
Hill Janajati	0.0570**	0.0588**	0.0586**	0.0588**
	(0.0142)	(0.0105)	(0.0104)	(0.0103)
Muslim	0.247**	0.194**	0.171**	0.170**
	(0.0368)	(0.0292)	(0.0313)	(0.0314)
Madhesi castes	0.141**	0.106**	0.0894**	0.0896**
	(0.0282)	(0.0253)	(0.0261)	(0.0260)
Madhesi Dalit	0.111**	0.0628*	0.0418	0.0394
	(0.0344)	(0.0309)	(0.0305)	(0.0306)
Newar	0.0469*	0.0571**	0.0577**	0.0626**
	(0.0214)	(0.0193)	(0.0183)	(0.0187)
Terai Janajati	0.0115	-0.00855	-0.0153	-0.0126
	(0.0239)	(0.0185)	(0.0175)	(0.0173)
Other	0.135**	0.166**	0.150**	0.155**
	(0.0480)	(0.0466)	(0.0460)	(0.0457)
Husband not in hh	-0.0161**	-0.0335**	-0.0283**	-0.0254**

	(0.00610)	(0.00528)	(0.00494)	(0.00495)
Nightlights	0.0624**	0.0602**	0.0588**	0.0579**
	(0.0147)	(0.0163)	(0.0151)	(0.0148)
Log pop dens	0.0265*	0.0383**	0.0369**	0.0360**
	(0.0127)	(0.0120)	(0.0116)	(0.0114)
Latitude	0.0273	-0.0274	-0.0250	-0.0256
	(0.0150)	(0.0324)	(0.0267)	(0.0265)
Altitude	-0.0000563**	-0.0000243	-0.0000230	-0.0000225
	(0.0000150)	(0.0000137)	(0.0000132)	(0.0000131)
Children 0-5 (0, 1, 2+)	-0.0176**	0.00735	0.00700	0.00865
	(0.00626)	(0.00537)	(0.00546)	(0.00533)
Share absentees			-0.961**	-0.941**
			(0.192)	(0.191)
Share votes Maoist 2009			-0.138**	-0.138**
			(0.0441)	(0.0438)
Daughter in law				-0.0636**
				(0.0106)
Constant	-0.665	0.657	0.661	0.689
	(0.426)	(0.899)	(0.743)	(0.738)
Region*Year	Yes	Yes	Yes	Yes
N	34400	34400	34336	34336
r2	0.323	0.366	0.370	0.372
av	0.39	0.39	0.39	0.39