

# Federalism and women empowerment in India

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## Abstract

This paper aims to assess the effect of Indian States' fiscal autonomy on women's empowerment. By using a two-stage least square estimation method with some political factors such as partisan affiliation as an instrument, we find a positive effect of states' fiscal autonomy on women's HDI and a negative effect on gender inequality. This inequality has been measured by a gender-specific HDI ratio or by the Gender Development Index (GDI). So, Indian federalism provides better access to education, health care, and economic opportunities for women while men seem to be the main beneficiaries of these policies.

**JEL classifications:** H1; H7; J16; R5

**Keywords:** Regional Government, Regional Policy, Public Economics, Public Finance, Economics of Gender

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## 1) Introduction

Women's empowerment is a fundamental issue in many developing, emerging, and sometimes even developed countries. The link between women's empowerment and development exists and has been the subject of an abundant literature with, among others, [Angrist \(2002\)](#), [Duflo \(2012\)](#), [Mehra \(1997\)](#), [Chiappori et al. \(2002\)](#), and [Miller \(2008\)](#), all of which emphasize the fact that the emancipation of women and their involvement in economic life lead to an increase in the labor force through their contribution to the labor market, an increase in the employment rate, and gains in terms of income. All of these would contribute to an increase in GDP and promote economic development. [Anderson and Baland \(2002\)](#) explain that community spares allow women to keep their savings in the community, which can make them more productive. Therefore, the question of the positive contribution of women becomes paramount and must no longer be reduced to a trade-off between cost and benefit for development. The question of their emancipation or their political representation is raised from a moral point of view and must be promoted.

At the same time, decentralization is supposed to bring the governors and the governed closer together to allow local populations to express their preferences for the provision of public goods and services ([Besley and Coate \(2003\)](#) and [Grossman et al. \(2017\)](#)). This rapprochement could therefore allow feminist and/or pro-gender demands to be expressed more easily than in a national framework in the implementation of public policies at the local level. Also, the competition between local governments that results from the decentralization process should also allow local populations to choose or express their preferences through vote, thus putting different local governments in competition with each other. By voting with their feet, people can create regions with homogeneous preferences. Thus, there is a real risk of regional fractures appearing on certain issues such as the place of women in politics. Indeed, ultra-conservative regions may oppose the implementation of certain reforms or political measures, while others may be in favour. This can be seen with the abortion issue in the United States, where Missouri is opposed to abortion while California remains a sanctuary for abortion rights. Because of the particular federal nature of the United States, it is impossible for the national government to decide the issue, despite the protests of many women. Decentralization is also used in several countries to allow ethnic

minorities to express certain cultural or public policy preferences. Women are unfortunately a minority through their political and economic representation. It is therefore conceivable that decentralization is a means of allowing women to express themselves, to be more visible in the political landscape at the local level and then at the national level through a mimicry effect both between local governments and between the local and national levels. Decentralization also allows for a redistribution of power within political parties, as has been shown. A strengthening of the powers of local governments allows them to have more weight within the internal decision-making bodies of their party. As the regional level becomes more important, so do the elections at this level and the associated issues. Regional leaders become important players in the political game and thus carry more weight within their party. Moreover, the strengthening of the competencies at the local level allows women to express themselves and to participate more easily in the decision-making process on issues that concern them directly. Although there are several studies on women's empowerment, especially in India, they are mostly focused on a single Indian state such as (Heller et al. (2007) for Kerala, Kumar and Prakash (2017) for Bihar and Prodip (2014) for Uttar Pradesh). Thus, this article focuses on this under-researched aspect of the literature on the links between administrative architecture and emancipation. It poses the question of *assessing the effects of Indian state fiscal autonomy on women's empowerment*. To do so, the Human Development Index (HDI), which is specific to women and covers the aspects of education, health and income, was used as a tool to measure this empowerment.

The rest of the article is structured as follows: section 2 reviews the literature, section 3 presents the Indian federal system and its particularities. Section 4 presents the empirical strategy with the model, the data and the first results. The results of the additional robustness analyses to consider the gender differences are available in section 5. Finally, section 6 concludes this article.

## 2) Literature review

The literature on the effect of decentralization is focused on developed countries and deals with some specific issues. There are some papers focused on developing and emerging countries like India. They are usually focused on specific social outcomes (infant mortality or fertility rate for example), or political participation of women.

For the developed countries, the literature is focused on countries like the United States, Spain and Great Britain (due to their federal characteristics). Indeed, [Francis and Francis \(2011\)](#) shows that United States federalism, by allowing subnational variation in the recognition of rights, represents a second-best solution to the problem of deep moral disagreement about rights. However, federalism provides a second-best solution only on the condition that citizens can move from one subnational jurisdiction to another. To the extent that citizens are able to move to rights regimes that are more favourable to them, intranational variation in the recognition of rights may have advantages over international variation, where national borders may pose barriers to migration. Despite the fact that they have not focused their study on gender issues, federalism can also allow women to move to more “feminist” states or a state which represents their political choices. However, they remain that there are some legal barriers which reduce the ability to move for the citizens. [Lemke \(2016\)](#) in his paper on the United States married women status in the early nineteenth century argue that interjurisdictional competition between states and territories was instrumental in motivating the reforms which allow them to own property, enter into contracts without their husband’s permission, or stand in court as independent persons. So, the competition principle of decentralization led to an improvement of women empowerment and autonomy In the United States in the early nineteenth century. The power’s sharing and subnational governments autonomy can help to empower the women and reduce the gender gap. [Shaw and Stein \(2016\)](#) in their paper are focused on the interstates dynamics of abortion informed-consent in the US. Some states used this method to discourage abortion practice. The purpose is to inform the women that abortion might cause depression and even suicide idea and actual suicide. Although there is broad medical consensus that such warnings are unnecessary, courts have nonetheless concluded that the Supreme Court’s Casey decision shields them from constitutional challenge. However, because doctors’ informed-consent obligations incorporate medical information and practices from other jurisdictions, a doctor’s failure to warn a patient about post abortion depression may expose her to liability for medical malpractice—even where her own state does not mandate such a warning statutorily. Eliminating this risk by warning a patient that abortion might lead to depression costs the doctor much less than the penalties she might incur for withholding that information. So, the decision taken in a state can have some effects in the neighbouring states. Even if the neighbours have different political orientations.

Federalism allows some oil spot effects which could be more important than those at national level. These effects could lead to a competition between states for the better or worst about women empowerment and health care.

About political representation of women, [Kenny and Verge \(2012\)](#) in their work on British and Spanish political decentralization by using a qualitative comparative case study of gender quota reforms in Spain and Britain finds that the effect of decentralization on women's political representation is contingent on the internal organization of the party. Indeed, the share of power between central and regional party branches is an important determinant of women's representation in politics and gender quota implementation. The response of parties to the greater inclusion of women in politics depends on their internal dynamics. The decentralization could increase the power of the party's local branches which could be against the quota adoption because of their interest or due to the importance of conservative values in their electorate. Their result goes in the same way as those of [Bruhn \(2003\)](#) about the political parties' strategies and gender quota adoption in Mexico. The paper points to the importance of political parties to ensure minority political representation and maximize the chances of success for gender quotas. Women are a minority in the political landscape and are subject to the same principles as the sexual minority study in the paper of [Bruhn \(2003\)](#). [Alonso and Verge \(2014\)](#) in an article on Spanish gender equality policies explains that the Spanish decentralized structure allows competition between local governments. This competition stimulated the diffusion of gender policies or local reform across the regions. The regional level has also offered new opportunities for feminist policy innovation, particularly when the central government presented opposition towards positive action in political representation. However, high decentralization coupled with deficient mechanisms of intergovernmental relations has brought about negative side-effects that fail to guarantee the same rights and equal access to resources to all Spanish women in the field of gender-based violence policies. So, the overall effect of the decentralization of gender equality in Spain stays mitigated.

There are also some studies about women empowerment which are focused on gender quota adoption and/or effects on women political participation. They used some country-level or cross country data. For example, [Weeks \(2018\)](#) in a paper on the determinants of gender quota adoption for Belgium and Austria, and Portugal and Italy highlight two key explanations for this.

The first explanation is the fear to be overcome by a more progressive political party which could be seen as a threat in their wish to keep the power. Another reason is the wish to gain power over candidate selection within their parties, in the face of entrenched local party monopolies (internal party competition). Decentralization by strengthening the powers of local governments vis-à-vis the central government, but also vis-à-vis the national leadership of political parties affects the internal dynamics within the political parties. [Barnes and Córdova \(2016\)](#) with a study on 24 Latin American countries by using ordered logistic multilevel models with random intercepts, explaining that gender quotas are mainly determined by institutional factors. The factors are quality of governance, population support for democracy, and their perception of the government's performance. These factors increase quota support at a higher rate among men than women. Their results show the importance of institutional quality to improve women's empowerment and their political representation. The quality of governance affects the citizen gap and the perception of the opposite sex as other citizens, with the same duties but also the same rights from the political point of view. [Santacreu-Vasut et al. \(2013\)](#) work on a cross-sectional analysis finds that religion and electoral system (majoritarian or proportional) affect the gender quota's adoption. By the way, decentralization can increase conservative and religious values in local communities. These cultural or religious values can reduce the probability of the adoption of a gender quota.

About the gender quota effect, [Paxton et al. \(2009\)](#) realized a study on 110 countries over the period 1975-2000 by using a Latent Growth Curve model which assesses the changes over time and is more focused on changes within the countries. They find that gender quota affects women's representation in politics but at a lower level than those designed in the legislated quota. At the same time, civil liberties affect women's political representation in the long term. The results go in the same way as the previous one of [Paxton and Kunovich \(2003\)](#) which highlights the strong effect of political and gender ideology on women's political representation. [Besley et al. \(2017\)](#) shows that a stricter gender based quota raised competence, especially among men. According to him, the quota had an immediate effect on the competence of male leaders by triggering a wave of resignations of mediocre leaders. Moreover, where mediocre men resign, they find the largest improvements in follower competence in the following election periods. The gender quota improves the quality of political representatives and positively affects the quality of men's political



representation. Socioeconomic and institutional factors are not the only determinant factors in gender quota adoption. [Terjesen et al. \(2015\)](#) explains in their cross-section analysis of a sample of 25 countries (at a different level of development) that the adoption of a gender quota for the directors' boards is more likely to establish if the country experienced state support to women participation to the labour market, some left-leaning partisan government coalitions, and a prior history of gender equality initiatives. They highlight the importance of institutional factors associated with gender quota legislation for boards of directors. Those institutional factors can also play a role from a political point of view in the probability to adopt a gender quota for legislative elections. As explained by [King and Stoker \(1996\)](#) decentralization by providing enough power and opportunity conducive for conducting transformation at the local level may help to shift the balance between men and women and ease the women's political participation.

The effects literature about women empowerment in the developing countries are mainly focused on the emerging ones. [Siahaan \(2003\)](#) studies the effect of the Indonesian decentralization process and finds that decentralization has increased popular participation, as in the emergence of civic forums. However, it has been less encouraging to women's participation and representation at the local level. This is due to the gendered local government structures and the emergence of patriarchal conflict of interest within the communities. These structures may obstruct the achievement of gender equity programs and activities. The article of [Tan \(2016\)](#) also shows the importance of institutional concerns on women's political representation. She shows that political parties' institutionalization, electoral competitiveness, legal enforcement, and social-cultural attitudes toward women are key determinants of women's political representation and gender quotas adoption in Taiwan, Singapore, and South Korea.

There are several studies on women's empowerment, especially in India, they are mostly focused on a single Indian state such as [Heller et al. \(2007\)](#). in their paper on 72 of the 990 *panchayats*<sup>1</sup> of Kerala states in India, [Heller et al. \(2007\)](#) show that the campaign to create structures of participatory democracy has increase the accountability of rulers and expectation of the populations. This is due to the resources devoted to the *panchayats*. They also find

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<sup>1</sup>the system of local self-government of villages in rural India as opposed to urban and suburban municipalities

a positive effect of this process on women's representation in the public sphere. [Kumar and Prakash \(2017\)](#) investigate the effects of decentralization and women reserved seats at the local states in the States of Bihar on the institutional births. By using the difference-in-differences methodology, they found a significant positive association between political decentralization and institutional births. They have also found that the increased participation of women at local governance led to an increased survival rate of children belonging to richer households

### 3) Indian federal system: a federation ruled by the centre



Indian political map

As it's well explained by [Shair-Rosenfield et al. \(2021\)](#), India is a federal republic composed of 28 states (some with asymmetry in shared rule) plus 5 standard union territories, 2 non-standard union territories, and one special autonomous region (the state of Jammu and Kashmir) which had lost its special autonomy status in 2019. India became independent from the British in 1947, the first constitution was enacted in 1950 and, as of 2019, there have been 102 amendments. Indian elites have struggled to balance internal diversity with a cosmopolitan identity and centralization with decentralization. On the whole, they have leaned to the side of centralization ([Jennings \(1953\)](#); [Sharma and Swenden \(2017\)](#); [Swenden \(2016\)](#)). Unusual for a federation, the constitution is very detailed in prescribing the internal organization of each constituent unit. Also, the national parliament can unilaterally change state boundaries as well as the conditions governing state representation in the Senate. And, with the exception of the State of Jammu and Kashmir, which (until 2019) had its own Constitution, the rest of the States have no separate constitutions of their own. From 1957, each state has a directly elected parliament, named the legislative council, and a centrally appointed governor.

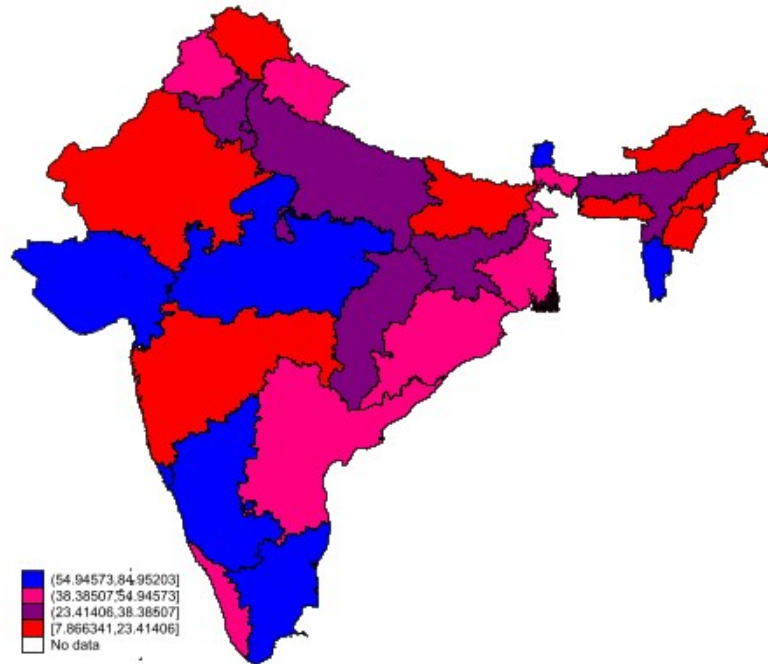
The governor holds executive power. He in turn appoints a council of ministers, with the chief minister at the head. The chief minister is the head of the local majority at the state parliament. The governor, on advice of the chief minister, appoints members of the council of ministers– the cabinet that advises the chief minister. Despite the power vested in the chief minister, which includes advising the governor and chairing the legislature and the council of ministers, the governor is more than a figurehead. They have considerable authority, including the right to dismiss state governments discretion over a state's contingency fund, the ability to enter into and execute contracts, the ability to grant pardons and suspend, remit, or commute sentences of convicted persons, and in some cases, can appoint a small subset of state legislators.

States have exclusive authority over local police, education, welfare (pensions, unemployment, and disability), the economy (trade and commerce within the state, money-lending, and lenders), and culture (theatres, sports, religious societies, libraries, museums, and other similar institutions controlled or financed by the State; ancient and historical monuments and records). The National Capital Territory of Delhi (NCT) was controlled by a chief commissioner appointed by the central government from 1947 until 1951. From 1952 to 1956, the NCT has been authorized to create a directly elected 48-member unicameral assembly and a chief minister of Delhi selected by the

assembly. In 1956 the States Reorganization Act eliminated the assembly and the chief minister of Delhi and replaced both with a union minister appointed by the president of India. This was the beginning of a long period of President's Rule. In September 1966 President's Rule was softened with the Delhi Administration Act, which restored a weakened version of the prior representational structure. The new dual structure consisted of an advisory Delhi Council, with 56 directly elected members and 5 appointed members, and a centrally appointed lieutenant governor. The Constitution Act of 1991 created a directly elected legislative assembly and an executive council of ministers elected among assembly members and chaired by a chief minister of Delhi. While in the states the chief minister is appointed by a centrally appointed governor, the chief minister of Delhi is appointed by the president. The position of lieutenant governor continues to exist and now resembles the position of state governor. Taxation is centralized in India, yet states are responsible for the implementation of many central policies alongside their own policies.

To finance both delegated functions and state policies the center transfers a substantial share of taxation to the states. The basic structure of center-state transfers consists of statutory (constitutionally guaranteed) and non-statutory grants. The former are generally unconditional, while the latter are earmarked. The bulk of transfers to the states comes from statutory unconditional grants (about 70% in the 2000s). The unconditional grants are paid from shared tax revenues. The states' share as well as the distribution across states is prescribed every five years by an independent Finance Commission, a non-partisan body of experts appointed by the central government for a fixed term, that has a constitutional mandate. The most recent Indian tax reform was the introduction of a Goods and Services Tax (GST) to replace the old taxes. Prior to the GST reform in 2017, the Indian tax system was quite complex and inefficient. In addition to the multitude of sales and excise taxes levied by the states There were also some central taxes. The multiplication of taxes was creating tax distortions and fragmenting the Indian domestic market. It was therefore urgent for India to reform the system in order to make it more understandable for taxpayers, efficient in terms of tax revenues, and to reduce its negative impact on the Indian domestic market. Like the harmonised sales tax harmonised sales tax that exists in Canada (but which is in fact a VAT), the GST is in fact composed of two main elements. The Central Goods and Services Tax (CGST) whose rate is decided by the Central Government,

and the States Goods and Services states (SGST) whose rates are decided by the States. In order to maintain their financial autonomy, local governments have some flexibility in the SGST rate they apply. The reform imposed a fluctuation band; each state can set their SGST rates within this band. The advantage of the band is that it provides some autonomy while avoiding an aggressive tax competition.



Share of own revenues on total revenues in 2019

### 3.1) The Indian caste system

The Indian caste system divides Hindus into rigid hierarchical groups based on their karma (work) and dharma (the Hindi word for religion, but here it means duty) is generally accepted to be more than 3,000 years old. The caste system divides Hindus into four main categories - Brahmins, Kshatriyas, Vaishyas and the Shudras. Many believe that the groups originated from Brahma, the Hindu God of creation. At the top of the hierarchy were the Brahmins who were mainly teachers and intellectuals and are believed to have come from Brahma's head. Then came the Kshatriyas, or the warriors and rulers, supposedly from his arms. The third slot went to the Vaishyas, or the traders, who were created from his thighs. At the bottom of the heap were the

Shudras, who came from Brahma's feet and did all the menial jobs. The main castes were further divided into about 3,000 castes and 25,000 sub-castes, each based on their specific occupation. Outside of this Hindu caste system were the achhoots - the Dalits or the untouchables.

For centuries, caste has dictated almost every aspect of Hindu religious and social life, with each group occupying a specific place in this complex hierarchy. Rural communities have long been arranged on the basis of castes - the upper and lower castes almost always lived in segregated colonies, the water wells were not shared, Brahmins would not accept food or drink from the Shudras, and one could marry only within one's caste. Independent India's constitution banned discrimination on the basis of caste. Despite the changes though, caste identities remain strong, and last names are almost always indications of what caste a person belongs to. According to [Bidner and Eswaran \(2015\)](#), this caste system also affects women status mainly through sanctions to enforce endogamy. For them, endogamy is embraced by a group to minimize an externality that arises when group members marry outsiders. Their theory suggests that women's economic contributions to household production are essential to the income from their husband's occupations. When both spouses hail from families in the same occupations, spousal complementarities in production enable incomes to be at maximal levels. When there is a mismatch in spousal skills, income falls. When a member of an occupational group outmarries, there is an externality in that some group member of the opposite sex does not find a match within the group. To minimize this externality the group enforces endogamy with the threat of punishments, and a caste is born. For them, women had to be treated with greater severity than men to enforce endogamy. Ironically, it is women of the upper castes that have borne the brunt of this. This aspect of caste is very visible in India even today: the actions of upper caste women are monitored and circumscribed much more than those of lower caste women.

The caste systems put in place a burden which affects women behaviour and can constrain their ability to empower themselves. However, the lack of data about the caste and their repartition among the states led us to not consider it in our empirical analysis. We make the assumption that this phenomenon will be captured by the fixed effects of our model.

## 4) Empirical strategy

### 4.1) Data

The data used for our empirical analysis mainly come from the Indian reserve bank database which collects data at the state-wise level and has been widely used in the literature about Indian federalism. State government local own-source revenue data are expressed in local currency units and cover the period 1991-2020. To consider the real autonomy of the states and to best measure their autonomy, we use the ratio between the states' own local resources, and the states' total revenues. This measure allows us to determine the financial autonomy capacity of the Indian states.

At the same time, this measure is correlated with certain political indicators and allows us to consider certain political considerations. Indeed, states ruled by political parties opposed to the Prime Minister's party may tend to be self-sufficient from a fiscal point of view to assert themselves vis-à-vis the central government or to reduce their dependence on central government transfers. Thus, we do not use state-level governing parties or discretionary transfers as a control variable since it can implicitly affect with the level of fiscal autonomy. However, party affiliation is used as instrumental variable.

The other variables such as GDP per capita, agriculture and Banking sector share into local GDP are available on the Indian reserve bank database. These data and local GDP are expressed in local currency units. We make the ratio to transform them into their share of local GDP. We also add the local GDP per capita to consider the potential effect of income level on the public spending efficiency.

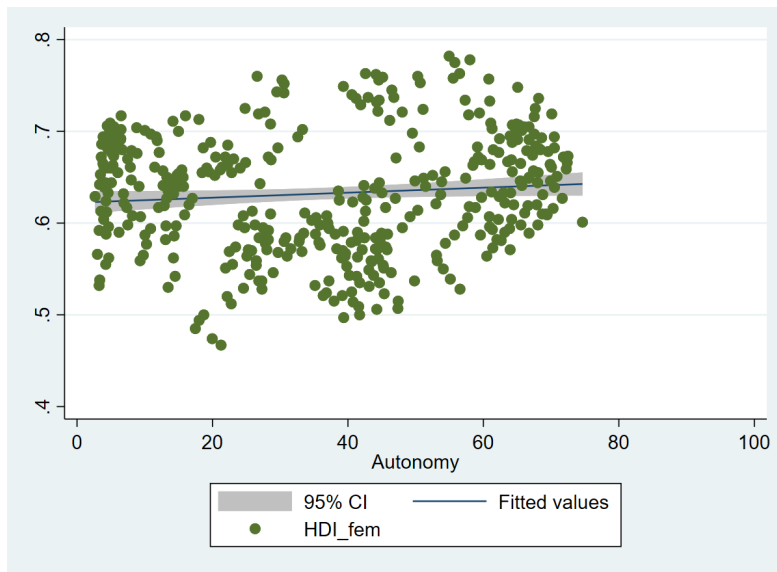
The results of these empirical estimations are available in the next table.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
HDI_female	0.633	0.064	0.467	0.782	420
HDI_ratio	0.928	0.016	0.871	0.96	308
autonomy	38.172	22.382	2.665	92.632	454
IV_HDI	0.5	0.179	0	0.725	510
IV_HDI_ratio	0.534	0.389	0	0.946	510
winner (share of vote)	38.626	8.621	20.18	71.09	432
opposition	0.633	0.482	0	1	510
density	826.612	2068.256	15.664	12589.381	425
GDP per capita	70404.456	53981.405	7588	337031	495
electricity supply	821.706	580.827	78	3511.6	439
Central government effectiveness	0.01	0.137	-0.225	0.295	420
Industry(%GDP)	27.612	10.847	9.76	60.978	442
gender budgeting (GB)	0.414	0.493	0	1	510

The next graphs show the correlation between female HDI and states autonomy. The visual analysis suggests a light and positive link between these variables.





Correlation between female HDI and fiscal autonomy

## 4.2) Empirical model

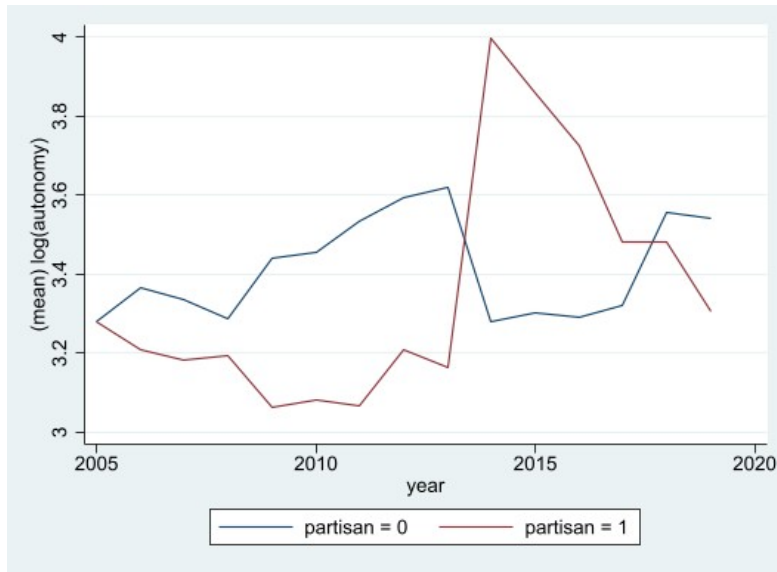
We use an instrumental variable for local taxes as a measure of fiscal decentralization to tackle the endogeneity issues which can be raised between decentralization measures, and women empowerment at the state-wise level. An instrumental variable is a third variable introduced into regression analysis that is correlated with the predictor variable, but uncorrelated with the response variable. By using this variable, it becomes possible to estimate the true causal effect that some predictor variable has on a response variable.

Indeed, we use an instrumental for two reasons. Firstly an increase in women HDI can lead to a pressure on state governments to provide public services and ensure education and economic opportunities to the women in particular, and more globally state populations. So, this empowerment can lead to a pressure to collect more revenues at the state-wise level. Secondly, another major concern about endogeneity issues in the literature, it's the possibility of omitted values which could bias our results.

One of the common instruments used by the scholars is the lagged value of fiscal decentralization. However, this instrument can has an effect on the current status of women empowerment. So, the instrument doesn't respect the conditions to be a good instrument. To tackle the issue and

get a good instrument, we choose to use the political affiliation of state chief governor (as [Knight \(2002\)](#) and [Brun and Sanogo \(2017\)](#)) and a dummy variable which take the value 1 if the state changes ruling party at an election and 0 otherwise. It helps us to know if the state is a swing state which can switch off the ruling party or if it's a stronghold of one party. These variables impact the state incentive to mobilize revenues due to the Centrally Sponsored Schemes (CSS) which are some discretionary grants from central government for a defined purpose and decided by the ministers at central level. The discretionary aspect of these grants led to many critics on the fact that they can be used as a way to interfere in state-wise politics, to attract some political opponents and conquer opponent's states or to reward some local politicians of the same party as central rulers.

Some papers investigate the links between political affiliation and the incentive for subnational governments to collect more revenue. [Dash and Raja \(2014\)](#) show that political determinants (like partisan affiliation) affect the fiscal indicators of 14 Indian states over the period 1980-2006. In the same way, [Caldeira and Rota-Graziosi \(2014\)](#) also shows a strong and negative effect of partisan affiliation on the incentive for local governments in Benin to collect their own revenue. The literature seems to validate the intuition of using partisan affiliation as an instrument for states fiscal autonomy. To check if the literature matches with the observation, we consider the evolution of average autonomy ratio across the period 2005-2019 for both (partisan and non-partisan states). The next graphs illustrate this evolution and clearly show that nonpartisan states seem to collect more own-revenue than those which are partisans. The peaks are due to the Indian national elections (followed by some elections at state level the following years) which led to a change of rulers at the national level and a change in the affiliation. Those which were non-partisan become suddenly partisan and inversely. This political factor can explain the important variation between 2013 and 2016



States fiscal autonomy evolution

The empirical model is:

$$HDI_{female_{it}} = \beta_1(local\_Taxes_{it} = affiliation_{it}) + \alpha_1 \log(GDP\_pc)_{it} + \alpha_2 X_{it} + \mu_i + \epsilon_{it} \quad (1)$$

Where  $X_{it}$  is a set of control variables used in the literature and expressed in the previous table.

### 4.3) Results

Table 2: Results on women HDI

VARIABLES	(1) HDI	(2) HDI	(3) HDI	(4) HDI	(5) HDI	(6) HDI	(7) HDI	(8) HDI
log(autonomy)	0.060* (0.032)	0.068** (0.032)	0.052* (0.029)	0.060* (0.031)	0.063* (0.034)	0.060* (0.032)	0.063* (0.033)	0.061* (0.031)
IV_HDI	0.536*** (0.081)	0.614*** (0.089)	0.516*** (0.076)	0.537*** (0.085)	0.550*** (0.083)	0.536*** (0.081)	0.531*** (0.081)	0.517*** (0.078)
log(density)	-0.062*** (0.018)	-0.059** (0.024)	-0.048*** (0.015)	-0.062*** (0.018)	-0.071*** (0.017)	-0.062*** (0.018)	-0.059*** (0.017)	-0.056*** (0.016)
log(GDP per capita)	0.027*** (0.005)	0.017** (0.007)	0.020*** (0.007)	0.027*** (0.006)	0.027*** (0.006)	0.027*** (0.005)	0.026*** (0.005)	0.027*** (0.005)
log(electricity)	0.018 (0.011)	0.017 (0.011)	0.021* (0.011)	0.018 (0.011)	0.019 (0.011)	0.018 (0.011)	0.014 (0.012)	0.011 (0.011)
Industry(% ofGDP)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Effectiveness	-0.005 (0.011)	-0.005 (0.011)	-0.005 (0.010)	-0.005 (0.011)	-0.005 (0.012)	-0.005 (0.011)	-0.005 (0.012)	-0.004 (0.011)
log(autonomy)*poor		0.002 (0.002)	-0.003** (0.001)					
log(autonomy)*rich		0.007*** (0.002)						
Agriculture(%GDP)				0.000 (0.001)				
GST*log(autonomy)					-0.000 (0.001)			
PR*log(autonomy)					-0.004*** (0.002)			
GB*log(autonomy)							0.003** (0.001)	
GB								0.015*** (0.005)
Observations	341	341	341	341	341	341	341	341
R-squared	0.717	0.727	0.744	0.718	0.715	0.717	0.715	0.726
Number of id	26	26	26	26	26	26	26	26

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The results suggest that the autonomy of Indian states, as measured by their ability to finance

themselves, tends to have a positive impact on the empowerment of women. A 1 percent increase in the autonomy index leads to a 0.06 point increase in the HDI of women. These results can be explained by the fact that increased state autonomy is associated with an increase in the quality of public goods and services provided at the local level. This increase improves the quality of indicators in terms of education and health and allows for a reduction in the infant mortality rate ([Kumar and Prakash \(2017\)](#)), which has a positive impact on the HDI for women.

The ability of states to be autonomous from central devolution and to decide their own policies makes them more attractive to the political demands of feminist movements or the pro-sex demands of local populations. The transfer of power from the central to the state level should theoretically promote a better match between the needs of local people and the leadership of the sub-units in the provision of public services. As explained by [Faguet \(2003\)](#) and [Bird and Rodriguez \(1999\)](#), the decentralization process has led to better outcomes in health, education, social services, housing and infrastructure in the Philippines and Bolivia. Improved outcomes have an effect on local living standards, but they also have a positive effect on women's empowerment and can facilitate their emancipation (Bianchi). As shown, investments in these utilities and in drinking water, fuel, and roads are directly related to the needs of rural Indian women and can contribute to increasing the state-level HDI for women in India. We also include a variable  $IV\_HDI_{it}$  which is an adjacency matrix, combined with the HDI of women in neighboring states. We find a positive impact of the status of women in the neighborhood on the status of women in state  $i$ . These policy interactions are significant at the 1 percent threshold with a size between 0.5 and 0.6 points for a 1-point increase in the gender HDI in neighboring states. There is mimicry and comparison across states on this point. Federalism in India, by bringing the rulers and the ruled closer together and improving the provision of public goods and services that benefit women, also allows for competition and comparison between these states. It thus positively affects the status of women. In the context of Indian federalism, the principles of proximity and competition help to improve the status of women (as measured by their specific HDI) in that country. Analyses to consider the heterogeneity in our sample show that the positive effects of state autonomy in India are attenuated for states in the bottom 50 percent (in terms of GDP per capita) and accentuated for states in the top 50 percent. Also, the implementation of gender-based budgets and the combined variable between gender-based budgeting and state

autonomy all have a positive impact on the situation of women. The implementation of gender budgets in India has been implemented at the central government level. The central government then invited the states to implement it at their level. Some agreed, others took longer to do so, and some still had not implemented it by 2019. However, implementing such a budget requires policy reforms that involve ex ante and ex post evaluation of spending and fiscal policy at the state level to ensure their effects on the situation of women. As we might expect, GDP per capita and electricity supply have a positive impact on women's empowerment. This may be because electricity supply and GDP per capita are indicators of income levels in the states. As shown by Araújo and Gatto (2022) and Hirschle (2013), growth in income level is beneficial to women because the trends are less conservative. The results for electricity supply are in line with those of Jensen and Oster (2009) and Khandker et al. (2014). The effect appears to be weaker for the richer states and stronger for the poorer states. This may be because increasing income affects conservative tendencies, as explained by Hirschle (2013) and Araújo and Gatto (2022). Another peculiarity of the Indian federal system is the *president rule*. This system allows the central government to suspend a state's autonomy and dissolve the local assembly, thus handing over all powers to the governors if the central government believes that the stability and security of the union is threatened (for political reasons, armed insurrection or political protest). The interactive variable to see the effects of increased fiscal autonomy when the state is under *president rule* has a negative impact on women's empowerment. This can be reflected in the lack of accountability at the local level. The governor is appointed by the president of the Indian Union and is not accountable to the local electorate. This political measure breaks the accountability cycle and destroys the benefits that could be derived from bringing the governors and the governed closer together. To further check the robustness of our results, we change the indicator of women's empowerment to assess our results and fully appreciate the status of women at the state level in India. Indeed, women empowerment can be analyzed *per se*, it must consider the situation of men. All the matters about emancipation and empowerment are relative. By the way, we use a relative measure to assess the effects of state autonomy on women empowerment.

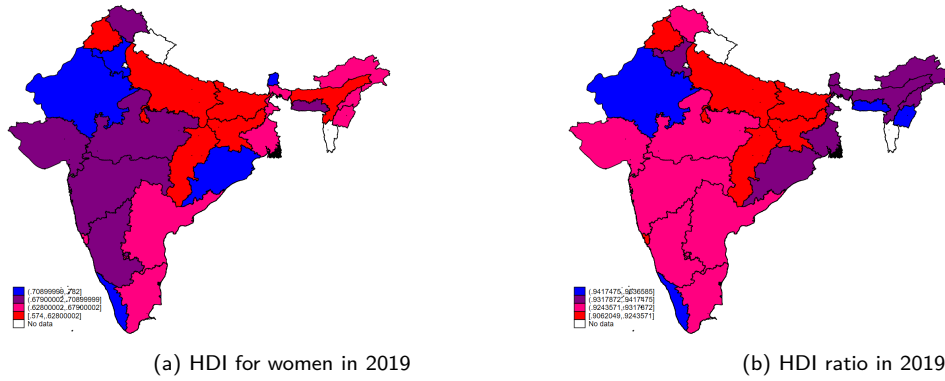
#### 4.4) Gender inequality

There is no common definition of women's empowerment. In fact, the word "empowerment" does not exist in most languages. Although the phrase "women's empowerment" is used pervasively in the Gender Equality & Women's Empowerment space (and beyond), it is generally in the context of issues such as economic empowerment, political participation, and girls' education. According to the World Bank, empowerment is the process of increasing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. Empowerment is a process. Through the process, an individual becomes an agent of change. More simply put, it's the "can do" factor, going from "I can't" to "I can." So in order to fully apprehend this complexity, we decided to use some alternative indicators of women status which can correspond to the global concept of empowerment. We keep the same methodology, but we used other alternatives to the only one women HDI like the ratio between women and men HDI ( $HDI\_female_{it} / HDI\_male_{it}$ ). It's difficult, and it will be incomplete to think of women empowerment only from the women point of view. The empowerment implies to consider both situations and consider women emancipation comparatively to the man situation. With this ratio, if the HDI of men increases faster than the women HDI, the ratio will decrease. At the same time, if the HDI of women HDI decreases faster than men HDI, our ratio will decrease too. So, the ratio will be a way to assess the joint evolution of both genders HDI and allow us to compare them. The next graphics summarize the HDI for women and the ratio of HDI for each state in 2019 in order to visualize the differences in the distribution of the HDI between states. A low HDI score for women may reflect a conservative poor state where the score for men is not higher. Using the ratio of HDI scores allows us to consider the situation of men in terms of HDI in order to better understand gender inequalities.

$$HDIratio_{it} = \beta_1(local\_Taxes_{it} = affiliation_{it}) + \alpha_1 \log(GDP\_pc)_{it} + \alpha_2 X_{it} + \mu_i + \epsilon_{it} \quad (2)$$

The next graphs show the importance of considering women empowerment comparatively to the men's situation. Indeed, some states with a low level of women HDI also have a low HDI

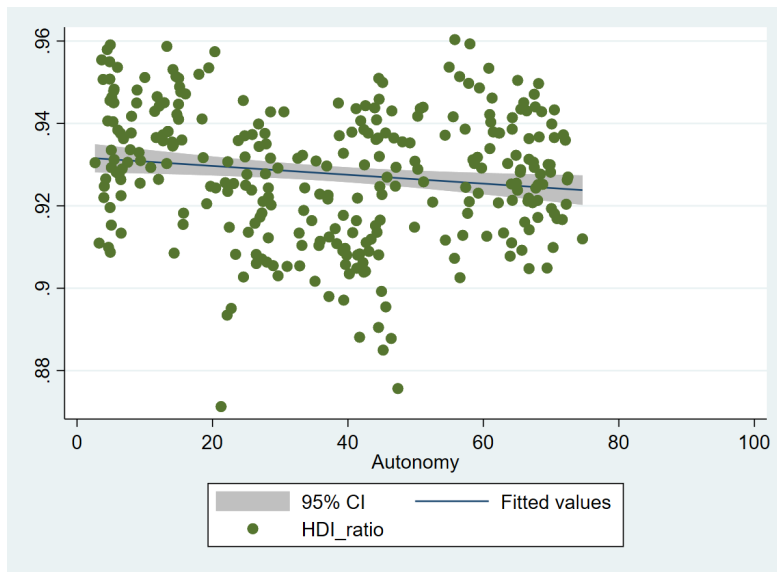
level for men. The women in these states are not always victims of gender inequality, but of other issues which affect both genders. This effect can be visualized by the difference for same states on the two next graphs which represent the HDI ratio and female HDI of Indian states in 2019.



Comparison between HDI for women and HDI ratio

We also add the following graph which shows the correlation between the states autonomy and the HDI ratio level within the states. The graph seems to illustrate a light and negative effect of autonomy on HDI ratio in Indian states. The states autonomy could tend to increase the gender inequality within the states.





States autonomy and HDI ratio

#### 4.5) Results

Table 3: Results on HDI ratio

VARIABLES	(1) ratio	(2) ratio	(3) ratio	(4) ratio	(5) ratio	(6) ratio	(7) ratio	(8) ratio
log(autonomy)	-0.032** (0.014)	-0.033** (0.014)	-0.027** (0.013)	-0.027** (0.013)	-0.026** (0.012)	-0.026** (0.012)	-0.029** (0.013)	-0.031** (0.015)
log(density)	0.005 (0.008)	0.004 (0.008)	0.001 (0.007)	0.001 (0.007)	0.003 (0.006)	0.004 (0.006)	0.004 (0.006)	0.004 (0.006)
log(GDP per capita)	0.008** (0.003)	0.008** (0.003)	0.007*** (0.003)	0.007*** (0.003)	0.007*** (0.002)	0.007*** (0.003)	0.012** (0.005)	0.008* (0.005)
trend	0.001*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.003*** (0.001)	0.003*** (0.001)	0.002*** (0.001)	0.003*** (0.001)
GB		-0.001 (0.003)	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)	0.000 (0.002)
log(electricity)			0.006* (0.003)	0.006* (0.003)	0.006* (0.003)	0.006* (0.003)	0.006 (0.004)	0.007* (0.004)
chief_women				-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
log(central govt expenditures)					-0.014** (0.006)	-0.014** (0.006)	-0.017*** (0.006)	-0.024*** (0.008)
Agri(% state GDP)						-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Services (% state GDP)							0.000 (0.000)	0.000 (0.000)
Industry( % of state GDP)								-0.000 (0.000)
Observations	273	273	272	272	272	272	272	264
R-squared	0.520	0.513	0.617	0.616	0.644	0.635	0.608	0.585
Number of id	28	28	28	28	28	28	28	28

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The results for the effects of states autonomy on the joint evolution of both HDI are significant and negative. This means that Indian fiscal federalism tends to be more favorable to men than women. However this negative effect has a low size effect (around 0.02 points for a HDI ratio which is between 0 and 1). The results can be explained by the fact that federalism ensures a better provision of basic public services such as education and health services. These provisions are not gender targeted. So the benefits for women vary according to the customs and conservative characteristics of the states. So, Indian federalism provides better access to education, health care and economic opportunities for women even if they are not the main target of the state's policies. Indian federalism and states fiscal autonomy don't tend to reduce gender gap from the point of view of state HDI. We also find significant and positive results for the states autonomy since the implementation of GST (Goods and Services Taxes) in 2017. The short time since the implementation makes this result meaningless. The intergovernmental transfers reform which gave a more important role to the Financial Commission (FC) by simplifying the transfers system and ensuring enough funding for the poorest states improve the women's situation in these states. The spatial interaction variable that measures the ratio between female and male HDI levels remains significant and positive at the 1% threshold. This implies a positive competition between the different states and their neighbours. An improvement of this ratio in one state will have a positive effect on the evolution of the ratio in its neighbours. The strategic interactions between states, particularly in terms of mimetism, persist even when we look at the joint evolution of the HDI ratios by gender. The level of GDP per capita and electricity supply have a positive effect on the new indicator. These indicators therefore affect women more favourably in terms of education, financial empowerment and emancipation as explained in the work of [Jensen and Oster \(2009\)](#); [Araújo and Gatto \(2022\)](#) and [Hirschle \(2013\)](#). Despite the relatively low effect, electricity supply benefits more to men than women and can contribute to reducing the gender gap in terms of HDI for the Indian States.

Our empirical analysis allows us to conclude that Indian federalism provides better access to education, health care and economic opportunities for women while men seem to be the main beneficiaries of these policies.

## 5) Robustness check

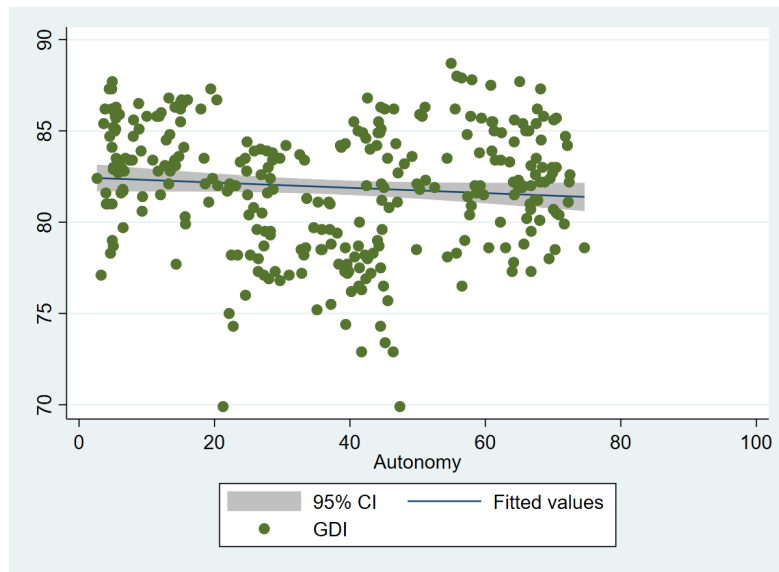
### 5.1) Alternative measure for gender inequality

In order to test the robustness of our results on gender inequality, we use another gender gap index. It's the Gender Development Index (GDI) used by [Johns et al. \(2022\)](#) and [Nurwanti et al. \(2021\)](#) for example. As explained by the UNDP, the GDI measures gender inequalities in achievement in three basic dimensions of human development: health, measured by female and male life expectancy at birth; education, measured by female and male expected years of schooling for children and female and male mean years of schooling for adults ages 25 years and older; and command over economic resources, measured by female and male estimated earned income. We use the data of the Global Data Lab which follows the same estimation process for subnational units (the Indian states in our case).

The HDI ratio used to assess the effect of states autonomy seems to be a good measure of gender inequality, but it could be biased by the fact that some values can be missing for one variable (subnational HDI for men for example) and be present for the other (subnational HDI for women). These missing values could be due to an unobserved event or reason and could lead us to a selection bias which could false our results. To tackle this issue, and check the robustness of our first results, the use of subnational GDI which is not affected by this situation because of its construction seems to be a good alternative.

$$GDI_{it} = \beta_1(local\_Taxes_{it} = affiliation_{it}) + \alpha_1 log(GDP\_pc)_{it} + \alpha_2 X_{it} + \mu_i + \epsilon_{it} \quad (3)$$

The next graph show the correlation between the states autonomy and the GDI level within the states. The graph seems to illustrate a light and negative effect of autonomy on GDI. The states autonomy could tends to increase the gender inequality within the states.



States autonomy and GDI

### 5.1).1 Results

Table 4: Results on GDI

VARIABLES	(1) GDI	(2) GDI	(3) GDI	(4) GDI	(5) GDI	(6) GDI	(7) GDI	(8) GDI
log(autonomy)	-5.721** (2.496)	-5.472** (2.515)	-4.262** (2.025)	-4.151** (2.011)	-4.105** (1.987)	-4.098** (1.876)	-4.263** (1.983)	-4.649** (2.122)
log(density)	1.010 (1.379)	1.013 (1.337)	0.168 (1.042)	0.090 (1.049)	-0.132 (0.961)	-0.131 (0.920)	-0.134 (0.932)	-0.004 (0.955)
log(GDP per capita)	2.366*** (0.569)	2.336*** (0.554)	2.287*** (0.424)	2.236*** (0.429)	2.231*** (0.424)	2.227*** (0.430)	2.600*** (0.815)	1.910** (0.835)
trend	0.196*** (0.057)	0.187*** (0.053)	0.105 (0.065)	0.108* (0.064)	0.011 (0.128)	0.010 (0.125)	0.002 (0.129)	0.195 (0.166)
GB		0.305 (0.569)	0.318 (0.467)	0.322 (0.463)	0.225 (0.457)	0.226 (0.461)	0.212 (0.475)	0.255 (0.479)
log(electricity)			1.522** (0.687)	1.531** (0.679)	1.543** (0.658)	1.543** (0.656)	1.519** (0.661)	1.717** (0.687)
chief_women				0.298 (0.191)	0.283 (0.199)	0.285 (0.206)	0.295 (0.207)	0.251 (0.222)
log(central govt expenditures)					0.954 (1.030)	0.950 (1.050)	0.679 (1.151)	-0.566 (1.329)
Agri(% of state GDP)						-0.001 (0.043)	0.002 (0.045)	-0.006 (0.045)
Service(% of state GDP)							0.008 (0.013)	0.006 (0.013)
Industry(% of state GDP)								-0.029* (0.017)
Observations	252	252	251	251	251	251	251	243
R-squared	0.602	0.625	0.722	0.730	0.735	0.735	0.725	0.709
Number of id	26	26	26	26	26	26	26	26

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The results tend to confirm the negative impact of states fiscal autonomy on gender inequality. These results go in the same way as those of [Lessmann \(2012\)](#) and [Liu et al. \(2017\)](#) which indicate a negative impact of fiscal decentralization on inequality. [Sacchi and Salotti \(2014\)](#) also shows that fiscal decentralization increases income inequality at household level. The decentralization process benefits more to some parts of the population, usually, the richest one from an income point of view. From the gender point of view, federalism tends to benefit men more. Indeed, they are usually more rich and more educated than women due to some cultural bargain which is in their favor. The sharing of power between central and subnational governments increases all kinds of inequality in the society. By allowing people mobility by the vote with their feet ([Tiebout \(1956\)](#)), decentralization affects income inequality as explained by [Sacchi and Salotti \(2014\)](#) and increases regional disparities. Indeed, the richest ones will migrate to live together and avoid paying taxes which will fund social expenditures for the poorest. The regions or states with less important tax bases will be unable to fund social policies to help the most vulnerables. The middle class of poor regions will leave to avoid these taxes, and benefit from public policies which match better with their preferences.

Income inequality affects more the women than men because, it is the usually the results of a lack of opportunity, in education and health ([Gonzales et al. \(2015\)](#)). Income inequality affects mainly the society with high income inequality and specially the poorest women ([Khan \(2011\)](#)) who are the main victims of this inequality. According to [Sanz-Barbero et al. \(2015\)](#), even when the men are victims of unemployment and/or income inequality, this situation represents a threat for women who are victims of Intimate Partner Violence (IPV). So, the women are victims of income inequality, and those inequalities can be increased by the decentralization and power's sharing among the country.

The lack of gender consideration in the implementation of power's sharing process can reduce their access to health, education and economic opportunities through the regional disparities and income inequality channels.

So, as for the inter regional inequality, these processes have to consider gender issues and gender targeted measures (like Gender Budgeting) in order to reduce the rise of inequality due to the process. The GDP per capita and electricity supply positively affect the gender index, and tend to reduce gender inequality at state level in India. The trend variable, included in the

regressions to consider the shocks, or the evolution of mentality across the time has a positive effect on gender development index and seems to reduce gender inequality.

## 6) Conclusion and policy implications

India, considered the world's largest democracy, has been a federal republic since its independence and partition from Pakistan in 1947. Through this work, we have tried to evaluate the effects that Indian federalism through state autonomy can have on women empowerment. To answer this question, we use a two stage least square estimation method with some political factors such as partisan affiliation as an instrument. The results show a positive impact on the emancipation of women from an economic point of view, in terms of education and health measured through their HDI. They also show a positive competition between the different Indian states. This competition tends to have a positive effect on women. By bringing the governors and the governed closer together, and by improving the efficiency ([Heller et al. \(2007\)](#) and [Mitchell and Bossert \(2010\)](#)), access ([Ghuman and Singh \(2013\)](#) and [Kis-Katos and Sjahrir \(2013\)](#)) and quality ([Joshi \(2006\)](#) and [Mehrotra \(2006\)](#)) of basic public services that benefit all, Indian federalism is improving the possibilities for women's Human Development Index. Women benefit from the decentralization effects in terms of improving the public services provision. These results can be explained by the fact that increased state autonomy is associated with an increase in the quality of public goods and services provided at the local level. This increase improves the quality of indicators in terms of education and health and allows for a reduction in the infant mortality rate ([Kumar and Prakash \(2017\)](#)), which has a positive impact on the HDI for women.

However, this improvement is not gender targeted. Thus, the effects of Indian federalism on the gender gap, or the women empowerment, is not favourable to women. Women empowerment must be considered in relation to men's situation. Indeed, the increase of women's rights or situation means nothing if this evolution stays behind the men's one. Although women benefit from state-level policies, they are not the target of these measures. By using two indicators (HDI ratio and GDI) to assess women empowerment, our results suggested a negative impact of the Indian federal system on women empowerment. The federal system in India, like all decentralization, tends to increase the inequalities. As explained by [Sacchi and Salotti \(2014\)](#) also show



that fiscal decentralization increases income inequality at household level. The decentralization process benefits more to some parts of the population, usually, the richest one from an income point of view. From the gender point of view, federalism tends to benefit men more than women. Indeed, they are usually more rich and more educated than women due to some cultural bargain which is in their favour.

Decentralization process, and more generally the transfer of competencies to the local level, is encouraged to allow for better consideration of the preferences of local populations. However, it is necessary to consider the indirect effects that this policy may have on women (in addition to global inequalities). The policy implications of this article are the need to consider the specific characteristics of women in the construction of both public policies and the decentralization process. This would allow for an effective decentralization that would promote women's emancipation and economic empowerment, thus reducing the gender gap. So, as for the inter-regional inequality, these processes must consider gender issues and gender targeted measures (like Gender Budgeting) in order to reduce the rise of gender inequality due to the process. Gender budgeting (GB) can help promote gender equality by applying a gender perspective to fiscal policies and the budget process. GB also implies the implementation of ex-ante and ex-post evaluation tools for tax and expenditure policies to consider the effects of these measures on gender inequalities. This literature on the effects of decentralization and increased autonomy of subnational governments on women's empowerment should be extended to other countries, considering the political and cultural characteristics of these countries.

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