**The Gender Gap in Issue Attention within a Legislative Setting. An Application to the Italian Parliament (1948-2020)**

**Online Appendix**

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**A Standing Committees in the Italian Chamber of Deputies**

*Description of the Committees Functions as defined by the Rules of Procedure of the Chamber of Deputies - rule 22 and by the circular issued for this purpose by the President of the Chamber of Deputies* on the 16th of October 1996 (https://www.camera.it/leg18/737)

**Internal affairs**: constitutional affairs; regulation of the sources of law; general organization of the State; order, legal and economic status of public managers; regional and local government regulations; matters relating to citizenship; immigration; regulation of information and security services; public order; religious affairs.

**Justice**: ordinary, administrative and military justice and tax litigation; civil procedure and criminal codes; judicial police functions; crime; preventive measures; judicial system; family law; civil status system.

**Foreign affairs**: foreign affairs; European Union: revision of treaties, relations with third countries and political relations between member states; emigration.

**Defense**: defense; order of the armed forces; legal and economic status of military personnel; endowment of personnel and means of the armed forces.

**Economy and Finance**: budget; treasury; planning; financial policy; monetary policy; privatization policy; finance and taxation; credit, including the public banking sector; stock exchange; insurance; regulation of the activities of commercial companies; regulation of assets belonging to the State and local authorities.

**Education and Culture:** culture; science; education, including the regulation of university teachers; copyright; scientific research; entertainment; sports; publishing; information, including radio and television; and measures to safeguard the cultural heritage.

**Environment:** environment; territory; public works, including road infrastructures; civil protection and interventions following natural disasters; parks and natural reserves; protection of woods and forests; landscape protection; safeguarding of environmental elements (soil, air, water).

**Agriculture:** Agriculture; forest resources; hunting; animal husbandry and wildlife; fishing.

**Transport:** Transportation; communications system; rail, air, and naval infrastructure; shipbuilding; post office; telecommunications.

**Productive Activities:** productive activities, including the regulation of quarries and peat bogs; commerce, including foreign trade; consumer protection; tourism; crafts; industrial policy; patents, trademarks and industrial property; applied research; energy; productive cooperation.

**Labour and Social Policy:** social affairs; policies for the protection of the family, children and the elderly; socially useful activities carried out by private non-profit entities; health; socio-health problems; issues related to the social implications of new medical and biological technologies; assistance.

Table 1A: Historical Evolution of Committees Functions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1948 | 1949 | 1966 | | 1971 | 1996 |
| Internal Affairs – Political and Administrative & Worship Affairs –Entertainment – Sports –  Press |  | Constitutional Affairs – State Organization – Regions – Public employment discipline | |  | Constitutional Affairs, Presidency of the Council and Internal Affairs |
|  |  | Presidency of the Council Affairs – Internal and Worship Affairs – Public Entities | |  | ABSORBED |
| Foreign Relations, including Economic – Colonies |  | Foreign Relations – Emigration | |  | Foreign and EU Affairs |
| Law– Judicial Procedure and Judicial Order – Justice Affairs– Permissions to proceed |  | Justice | |  |  |
| Finance & Treasury |  | Budget and State Investments | Budgeting and Programming – State Holdings | | Finance |
|  |  |  |  | | Budgeting, Treasury and Programming |
| Defense |  |  | |  |  |
| Education & Fine Arts |  |  | |  | Culture, Science & Education |
| Public Works |  |  | |  | Environment, Territory and Public Works |
| Transport– Communication– Merchant navy |  | Transport & Civil Aviation – Merchant navy – Postal & telecommunication | |  | Transport, Postal & Telecomunication |
| Agriculture & Forest– Food |  | Agriculture & Forest | |  | Agriculture |
| Industry and Trade – Tourism |  | Industry and Trade – Craftsmanship – International Trade | |  | Productive Activities, Trade & Tourism |
| Labor – Emigration – Cooperation – Social Security and Welfare – Post-War Assistance – Hygiene & Public Health |  | Labor – Welfare and Social Security – Cooperation | |  | Public and Private Sector Work |
|  |  | Hygiene & Public Health | |  | Social Affairs |
|  |  |  | |  | European Union Policies |

Table 1A sketches the historic evolution of the Italian Chamber of Deputies’ Committees, from name changes to mergers, separations, or emergence of new commissions. Dates at the top correspond to changes in the Chamber of Deputies’ regulations. If said change did not affect a commission’s name or function, we leave the cell blank. If instead the change affected a commission’s name and/or function, we indicate the new name/function in the corresponding cell. Colored bands group together splinter commissions that have a common origin.

From the table we can observe that although the total number of standing committees is 14, some of them either originated from a single committee or remained combined into a single committee for most of the time considered in the analysis. The Constitutional Affairs and Internal Affairs committees originated from the same 1948 committee on Internal, Political and Administrative Affairs, so we merge them into the Internal Affairs committee; the EU Affairs committee did not exist before 1996, so we merge it into the Foreign Affairs committee; Labour and Social Policy remained part of the same committee from 1948 to 1966, so we keep them merged into the Labour and Social Policy committee.

**B Topics Labels and Keywords – Full list**

Table 2A: Topics labels and keywords

|  |  |
| --- | --- |
| Topic label | Keywords |
| *Internal affairs* | costituzione, costituzioni costituzionale,  costituzionali, interni, interno,  diritto, diritti, legislazione, legislazioni,  legislativo, legislativi, legislativa,  legislative, legge, leggi,  amministrazione, amministrazioni,  amministrativo, amministrativi,  amministrativa, amministrative,  corte, ordinamento, ordinamenti,  giuridico, giuridici, giuridica, giuridiche,  dirigente, dirigenti, pubblico,  pubblici, pubblica, pubbliche, regione,  regioni, regionale, regionali, ente, enti,  locale, locali, cittadinanza, cittadinanze,  immigrazione, immigrazioni, immigratorio, immigratori, immigratorie, immigratoria,  sicurezza, polizia, polizie, culto, culti |
| *Justice* | giustizia, giustizie, giustiziale, giustiziali, giudice, giudici, giudicessa, giudicesse, giudiziale, giudiziali, magistrato, magistrati, magistrata, magistrate, magistratura, magistrature, processo, processi, processuale, processuali, procedimento, procedimenti, procedimentale, procedimentali, contenzioso, contenziosi, contenziosa, contenziose, procedura, procedure, procedurale, procedurali, codice, civile, civili, penale, penali, criminalità, criminale, criminali, prevenzione, diritto, diritti, ordinamento, ordinamenti |
| *Foreign affairs* | estero, esteri, estera, estere, affari, stato, stati, paese, paesi, unione, comunità, europa, europe, europea, europee, europei, europeo, accordo, accordi, trattato, trattati, norma, norme, normativa, normative, membro, membri, emigrazione, emigrazioni, emigratorio, emigratori, emigratoria, emigratorie, partenariato, partenariati, diplomazia, diplomazie, diplomatico, diplomatici, diplomatica, diplomatiche, relazione, relazioni, internazionale, internazionali, comunitario, comunitari, comunitaria, comunitarie, ambasciatore, ambasciatori, ambasciatrice, ambasciatrici, ambasciatorio, ambasciatoria, ambasciatorie, console, consoli, consolare, consolari |
| *Defense* | difesa, difese, difensivo, difensivi, difensiva, difensive, forze, forza, arma, armi, soldato, soldati, soldatessa, soldatesse, esercito, eserciti, militare, militari, marina, marine, aeronautica, aeronautiche, aeronautico, aeronautici, carabiniere, carabinieri, guardia, guardie |
| *Economy and finance* | bilancio, bilanci, tesoro, programmazione, economia, economie, economico, economici, economica, economiche, finanza, finanze, finanziario, finanziari, finanziaria, finanziarie, moneta, monete, monetario, monetari, monetaria, monetarie, budget, spesa, spese, privatizzazione, privatizzazioni, tributo, tributi, tributario, tributaria, tributari, tributarie, tassa, tasse, fisco, fiscale, fiscali, banca, banche, bancario, bancari, bancaria, bancarie, borsa, borse, borsistico, borsistica, borsistiche, borsistici, assicurazione, assicurazioni, assicurativo, assicurativi, assicurativa, assicurative, commercio, commerci, commerciale, commerciali, demanio, demaniale, demaniali, patrimonio, patrimoni, patrimoniale, patrimoniali |
| *Education and culture* | cultura, culture, culturale, culturali, scienza, scienze, scientifico, scientifici, scientifica, scientifiche, scuola, scuole, scolastico, scolastica, scolastici, scolastiche, università, universitari, universitario, universitaria, universitarie, ricerca, docente, docenti, professore, professori, professoressa, professoresse, insegnante, insegnanti, spettacolo, spettacoli, sport, sportivo, sportivi, sportiva, sportive, editoria, editorie, editoriale, editoriali, informazione, bene |
| *Environment* | ambiente, ambienti, ambientale, ambientali, territorio, territori, territoriale, territoriali, protezione, protezioni, calamità, calamitoso, calamitosi, calamitosa, calamitose, natura, nature, naturale, naturali, parco, parchi, riserva, riserve, suolo, suoli, aria, acqua, acque, acquatico, acquatici, acquatica, acquatiche, bosco, boschi, boschifero, boschiferi, boschifera, boschifere, foresta, foreste, forestale, forestali, paesaggio, paesaggi, paesaggistico, paesaggistica, paesaggistiche, paesaggistici, tutela, tutele, salvaguardia  salvaguardie |
| *Agriculture* | agricoltura, agricolture, agricolo, agricoli, agricola, agricole, caccia, cacce, venatorio, venatoria, venatori, venatorie, pesca, ittico, ittici, ittiche, zootecnia, fauna, faune, faunistico, faunistici, faunistiche, selvatico, selvatica, selvatici, selvatiche, foresta, foreste, forestale, forestali |
| *Transport* | trasporto, trasporti, posta, poste, postale, postali, telecomunicazione, telecomunicazioni, telecomunicativo, telecomunicativa, telecomunicativi, telecomunicative, comunicazione, comunicazioni, comunicativo, comunicativi, comunicativa, comunicative, infrastruttura, infrastrutture, infrastrutturale, infrastrutturali, ferrovia, ferrovie, ferroviario, ferroviari, ferroviaria, ferroviarie, strada, strade, stradale, stradali, autostrada, autostrade, autostradale, autostradali, aereo, aerei, nave, navi, navale, navali, tratta, tratte, rotta, rotte, cantiere, cantieri, cantieristico, cantieristica, cantieristici, cantieristiche |
| *Productive activities* | attività, produttivo, produttivi, produzione, produzioni, cava, cave, torbiera, torbiere, commercio, commerci, commerciale,  commerciali, consumatore, consumatori, turismo, turistico, turistici, turistiche, artigianato, artigianati, artigianale, artigianali, industrie, industria, industriale, industriali, brevetto,  brevetti, marchio, marchi |
| *Labour and social policy* | lavoro, lavori, lavorativo, lavorativa, lavorativi, lavorative, previdenza, previdenze, previdenziale, previdenziali, pensione, pensioni, pensionistico, pensionistici, pensionistica, pensionistiche, pensionato, pensionate, pensionata, pensionati, reddito, redditi, reddituale, reddituali, contratto, contratti, contrattuale, contrattuali, ammortizzatore, ammortizzatori, welfare, professionale, professionali, professione, professioni, attivo, attivi, passivo, passivi, sindacato, sindacati, sindacale, sindacali, disoccupazione, disoccupazioni, disoccupato, disoccupati, disoccupate, disoccupata, integrazione, integrazioni, indennità, sociale, sociali, tutela, tutele, tutelare, tutelari, famiglia, famiglie, familiare, familiari, famigliare, famigliari, infanzia, infanzie, bambino, bambina, bambini, bambine, anziano, anziani, anziana, anziane, vecchio, vecchia, vecchie,  vecchi, malato, malata, malati, malate, disabile, disabili, assistenza, assistenze, assistenziale, assistenziali, sanità, supporto, supporti, aiuto, aiuti, protezione, protezioni, sanitario, sanitaria, sanitarie,  sanitari, sociosanitario, sociosanitaria, sociosanitarie, sociosanitari |

*Note: The table reports the 11 labeled topics together with the complete list of keywords selected for each topic.***C Key-ATM Topic Model - Technical Summary**

*Topic model technical description*

To operationalize our main dependent variable, i.e. MPs’ attention across politically relevant issues, we use the keyword-assisted topic model recently proposed by Eshima et al. (2023)—KeyATM. KeyATM proved to generate topics that are easier to interpret and more stable across different numbers of topics than those produced by the more conventional topic models (Eshima et al., 2023: 1-2). The model considers two types of topics: keyword-topics, which are of primary interest to researchers and are labeled ex-ante; and non-keywords topics, which are labeled ex-post and used to explore the possibility that the corpus contains topics the researchers did not envision. The model draws a latent topic from the topic distribution. If the sampled topic is one of the non-keyword topics, then it draws the mth word in document 𝑖 from the corresponding word distribution of the topic, and it follows a Latent Dirichlet Allocation approach. If, instead, the sampled topic is a keyword-topic, it first draws a Bernoulli random variable with success probability *k* for word *w* in document *i*: if this random variable is equal to 1, then word *w* is drawn from the set of keywords for the topic that we defined ex-ante; if this random variable is equal to 0, then it samples the word from the standard topic-word distribution of the topic. Given that we are interested in investigating how our topics’ saliency varies over time, we run a dynamic version of the keyATM, which uses time stamps for the prior for document-topic distribution through Hidden Markov Model (Eshima et al., 2023). Finally, we include non-key topics in our model to explore the possibility that the speeches contained topics non strictly related to the committees’ functions. The next section describes in greater details the procedure employed to select to number of non-keywords topics.

*Topic model selection: number of non-keywords topics*

When estimating semi-supervised topic models, one of the crucial issues is identifying the number of non-keyword topics to be included in the analysis. One of the advantages of the model proposed by Eshima et al. (2023) is that the results for the keyword-topics are generally robust to the number of off-keywords topics (if they are present). Having said that, we have investigated the fit of the semi-supervised algorithm for different number of no-keyword topics (i.e., 1, 2, 3, 5 and 7), focusing on both perplexity and topic coherence and exclusivity. Perplexity metric assesses a topic model’s ability to predict a test set after having been trained on a training set. The perplexity metric is calculated by splitting the original corpus into two parts – a training set and a test set. The basic idea is to hold out some fraction of the words in a set of documents, train the model and use the document-level latent variables to evaluate the probability of the held-out portion (i.e., previously unseen document). The lower the value of the perplexity, the better is the fit of the model. It has been noted however that under some given circumstances, perplexity is not strongly correlated to human judgment (Chang et al. 2009). Roberts et al. (2014) suggest in this respect also to focus on the semantical interpretability of the topics produced by a model. A semantically interpretable topic has two qualities: it is coherent in the sense that high-probability words for the topic tend to co-occur; and it is exclusive in the sense that the top words for that topic are unlikely to appear within top words of other topics. Models that produce more semantically interpretable topics can be considered "better" than the others. In this respect, we should focus on those models that lie on the semantic coherence-exclusivity ‘frontier’, that is, where no model strictly dominates another in terms of semantic coherence and exclusivity. Of course, given that we are dealing with a semi-supervised topic model, we estimate the average level of coherence and exclusivity only for the keyword topics, given that, ceteris paribus, the no-keyword topics should always present a lower level of topic coherence by construction. In this respect, Figure 1A below shows that the model with 2 no-keywords topic presents both the lowest perplexity, while being the model on the semantic coherence-exclusivity ‘frontier’. We therefore have selected such model for our empirical analysis.

Figure 1A: Perplexity & Topic Coherence and Exclusivity

Chart, line chart

Description automatically generated

Note: The left plot shows the different levels of perplexity for models employing 1-7 non-key topics. The right plot shows Topic Coherence and Exclusivity for models employing 1-7 non-key topics.

*References*

Chang, Jonathan, Jordan Boyd-Graber, Sean Gerrish, Chong Wang and David M. Blei (2009). Reading Tea Leaves: How Humans Interpret Topic Models. *NIPS*

Eshima, Shusei, Kosuke Imai, and Tomoya Sasaki. 2023. ‘Keyword-Assisted Topic Models.’ *American Journal of Political Science*, https://doi.org/10.1111/ajps.12779.

Roberts, Margaret E., Brandon M. Stewart, Dustin Tingley, Christopher Luca, Jetson Leder-Luis, Shana Kushner Gadarian, Bethany Albertson, David G. Rand (2014). Structural Topic Models for Open-Ended Survey Response, *American Journal of Political Science*, 58(4), 1064-1082

**D Topic Model Validation**

*Internal Validity: Highest Weighted Terms*

To get a sense of our semi-supervised topic model’s internal validity, we list the 20 terms with the highest membership weighting for each topic as well as the over-time variation in each topic’s saliency. Looking at Table 3A we notice that most of the topics present top terms that are consistent with the topic label, as well as a few of the *ex-ante defined* keywords. For instance, the topic *Internal Affairs* includes 15 keywords out of 20 topic terms, with the remaining five top words being highly consistent with the topic label (“law”, “constitution” etc.). Topics like *Agriculture* and *Labour and Social Policy,* although they do not exhibit many keywords among their top 20 terms, they present highly consistent words: e.g. “farmer”, “agrarian” and “workers”, “employees”. The topic *Transport* stands out negatively, with many of the top-words being merely procedural terms (e.g. “ministro”, “risposta”, “chiede”).

Table 3A: Highest Weighted Terms

|  |  |
| --- | --- |
| Topic label | Keywords |
| *Internal Affairs* | legge, **governo, esame**,costituzione, **decreto**, **tratta**, **parlamento, materia, norme, costituzionale**, regioni, **sede**, **proposta**, **comma**, **riforma**, **discussione**, **consiglio**, **riguarda**,amministrazione, **norma** |
| *Justice* | **giustizia**, **penale**, **codice**, **magistratura**,reati, polizia, **giudice**,reato, **magistrati**,pena, **processo**, corte, giudiziaria, **diritto**, ordine, fatti, confronti, sicurezza, **civile**, liberta |
| *Foreign Affairs* | **paese**,governo, politica, italia, **europea**, **paesi**, **europa**,lavoro, parlamento **internazionale**,politiche, **unione**, forza, rispetto, grande, credo, mondo, **europeo**, **accordo**,italiana |
| *Defense* | politica, italia, governo, italiano, partito, democrazia, **forze,** guerra, difesa**,** cristiana, sinistra, libertà, popolo, italiana, costituzione, consiglio, pace, uomini, centro, militare |
| *Economy and Finance* | miliardi, **bilancio,** legge, governo, spesa, **finanziaria,** anno, decreto, spese, **fiscale**,imposta, milioni, aumento, economica, mila, pubblica, lire, finanze, **tesoro**, **finanza** |
| *Education and Culture* | **scuola**, universita, istruzione, scuole, studenti, cultura, **ricerca**, pubblica, anni, insegnanti, scolastico, anno, insegnamento, giovani, societa, culturale, **scolastica**, **docenti**, italiana, studio |
| *Environment* | governo, decreto, italia, rispetto, euro, risorse, **territorio**, cittadini, anni, imprese, attivita, interventi, settore, sistema, nazionale, tema, lega, importante, tutela, nord, |
| *Agriculture* | agricoltura, lire, proprieta, produzione, milioni, contadini, terra, paese, prezzo, prodotti, mila, coltivatori, italia, proprietari, agrari, produttori, **agricola**, **agricoli**, ministro, agraria |
| *Transport* | ministro, lavori, ministero, conoscere, regione, pubblici, sapere, chiede, comune, ministri, opere, provincia, città, amministrazione zona, **trasporti**, risposta, comuni, servizio, napoli |
| *Productive Activities* | politica, sviluppo, paese, problema, piano, problemi, settore, situazione, economico, economica, mezzogiorno, **industria**, **produzione**, economia, attivita, sociale, paesi nazionale, discussioni, governo |
| *Labour and Social Policy* | **lavoro**, legge, lavoratori, **sociale**, **assistenza**, personale, servizio, sanità, ministero, ministro, anni, diritto, dipendenti, **sindacali**, **pensione**, **previdenza**, mila, categoria, **famiglia**,trattamento |
| *Non-key 1* | ione, esame, misto, amente, legge, decreto, amento, comma, governo, discussione, iamo, rappresen, perla, lega, legislatura, costi, verdi, temente, nazionale, maggioranza |
| *Non-key 2* | governo, ministro, maggioranza, problema, punto, credo, parlamento, momento, cose, anni, politica, vero, fronte, bene, partito, dobbiamo, questione, situazione, vorrei, possiamo |

*The table contains the full list of estimated topics together with the 20 highest weighted terms per topic. If a high frequency word is also a topic keyword, we report it in bold.*

*External Validity: Comparison with Expert-Based Manual Content Analysis*

To evaluate the external validity of our semi-supervised topic model we estimate the correlation between our topics and the corresponding ones included in the Italian Legislative Speech Dataset (ILSD) (Ceron et al. 2019; Curini, 2011). For doing that, we take the average value of the salience of each topic over a legislature for both measurements and we correlate them. ILSD is based on a manual content analysis of all the investiture speeches preceding the vote of confidence in the Italian Chamber of Deputies from 1946 to 2018. The coding scheme employed is analogous to that of the Comparative Manifesto Project. Specifically, for each legislative speech preceding a vote of investiture (one for each party), several quasi-sentences are identified and assigned to several pre-established categories that form the classification scheme. Before presenting our validation results, we evaluate strengths and weaknesses of the method here employed to estimate external validity. On the one hand, gold-standard evaluations of computer-aided classifications based on human coding of documents follows best practices in the field (Grimmer and Stewart 2013). Still, finding expert-based classifications that have a perfect topic-to-topic correspondence with your own computer-based measure is not always easy. To validate our topic model, we have selected topics in the ILSD that are analogous to the topics we have defined. Still, not for all the topics we did find an “ideal match”.

Table 4A shows correspondences between ILSD’ topics and our Key-ATM’ topics. As one can notice, correspondence works well with many topics but not all of them. In particular, there is no topic-combination in ILSD that perfectly matches our *Education and Culture* topic. While ILSD includes a Culture-topic (423), the Education-related topics (421,422) includes mainly budget-related quasi-sentences (expansive vs restrictive spending policies). As for the topic *Productive Activities* we did not find any ideal match in ILSD. We thus opted for showing correlation between the topics *Productive Activities & Economy and Finance* and ILSD-topics related to the Economy. Regarding *Foreign Affairs,* instead, we consider the ILSD-Europe Union related categories (positive and negative sentiment).

Looking both at Table 4A and Figure 2A we detect a fairly good correlation for most of the topics. Indeed correlation values range from 0.5 (Labour and Social Policy) to 0.9 (Environment), (average correlation is 0.565). For Education and Culture the correlation is basically 0. We attribute this latter sub-optimal validation result to a discrepancy between our Education and Culture topic and the ILSD’s Education Expansion vs Limitation categories, which mainly focuses on budget-related quasi-sentences and neglects culture-related ones. Again, the topic *Transport* stands out negatively, exhibiting a negative correlation.

Figure 2A: Correlation plot KeyATM topics vs ILSD categories



Table 4A: KeyATM topics and ILSD categories - Correspondences and Correlations

|  |  |  |  |
| --- | --- | --- | --- |
| Correlation | Thetas | ILSD topic/topics | ILSD code/codes |
| 0.8206 | *Agriculture* | Agriculture and Farmers | **Pol Area 4: Economic Policy**  424 |
| 0.5755 | *Defense* | Military:Positive, Military:Negative | **Pol Area 1: Foreign Policy** 104,105 |
|  |  |  |  |
| -0.0409 | *Education and Culture* | Education Expansion/Limitation, Culture | **Pol Area 4: Economic Policy**  421,422,423 |
| 0.9080 | *Environment* | Environmental Protection | **Pol Area 5: Economic Policy**  501 |
| 0.6150 | *Foreign Affairs* | EU Community:Positive/Negative | **Pol Area 1: Foreign Policy** 107, 108, |
| 0.5400 | *Internal Affairs* | Constitutionalism:Positive/Negative, Governmental and Administrative Efficiency, Decentralisation, Centralization, Multiculturalism:Positive/Negative | **Pol Area 8: Institutions** 801, 802, 803  **Pol Area 3: Centralization of decision-making**  301, 302  **Pol Area 6: Social Policy**  607, 608 |
| 0.6613 | *Justice* | Freedom and Human Rights, Law and Order: Positive, Law and Order:Negative, Independence , Responsibility , Political Corruption | **Pol Area 6: Social Policy**  206  **Pol Area 2: Democracy**  609  **Policy Area 7: Justice**  701,702  **Pol Area 8: Institutions**  804 |
| 0.4678 | *Labor and Social Policy* | Social Justice – fair distribution, Welfare State Expansion, Welfare State Limitation, Labour Groups:Positive, Labour Groups:Negative, Corporatism, Non-economic Demographic Groups | **Pol Area 4: Economic Policy**  412, 413, 414, 415, 416, 417 418, 426 |
| 0.5118 | *Productive Activities and Economy & Finance* | Economic Planning, Protectionism:Positive, Protectionism:Negative, Keynesian Demand Management, Controlled Economy, Economic Orthodoxy, Economic Orthodoxy, Economic Goals, Anti-Growth Economy, Productivity | **Pol Area 4: Economic Policy**  404, 405, 406, 407, 408, 409, 410, 420  **Pol Area 5: Environmental Protec**  502,503 |
| -0.3319 | *Transport* | Technology and Infrastructure | **Pol Area 4: Economic Policy**  419 |

*Face Validity: Over-time variation in Topic Saliency*

As for face validity, Figure 3A shows the over-time evolution of each topic’s saliency. Most of the topics exhibit a temporal variation in line with what we might expect. The saliency of the topic *Agriculture* decreases over time in line with the changes occurred in the Italian economy and productive system. *Defense*’s saliency decreases over time, which appears to be nicely balanced by the increasing trend of the topic *Foreign Affairs* that includes EU Affairs. *Environment*’s saliency increases over-time as we would expect, while the saliency of topics like *Economy* and *Finance*, *Internal Affairs*, *Justice*, *Education and Culture*, *Labor* and *Social Policy,* usually considered fundamental subjects of the parliamentary debate, remain quite constant over time. The topic *Productive Activities* exhibits a downward trend that could likely be due to an increase in the saliency of complementary discussions more closely connected to the Third Sector. On the contrary, the topic *Transport* exhibits a more erratic trend with bumps and jumps that are not easily justifiable on the ground of historical evolution.

Figure 3A: Topic Saliency – Over Time Variation

Graphical user interface, chart, line chart

Description automatically generated

**E Summary Statistics**

Table 5A: Summary statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | count | mean | sd | min | max |
| Internal Affairs | 33350 | .1867515 | .1495155 | .0000504 | .9456513 |
| Justice | 33350 | .0382241 | .0781756 | .0000237 | .7189021 |
| Foreign Policies | 33350 | .1040222 | .1289432 | .0000118 | .8572096 |
| Defense | 33350 | .0595161 | .091484 | .0000499 | .7831757 |
| Economy & Finance | 33350 | .0556953 | .0870985 | .0000281 | .8357733 |
| Agriculture | 33350 | .0387132 | .0787831 | .0000184 | .9636421 |
| Productive Activities | 33350 | .092154 | .1200702 | .0000197 | .7519398 |
| Environment | 33350 | .090441 | .1287683 | .0000108 | .8291655 |
| Education & Culture | 33350 | .0252824 | .0605968 | .0000184 | .6188926 |
| Labor & Social Policy | 33350 | .0584967 | .0847734 | .0000363 | .8506355 |
| Female | 33350 | .1141229 | .3179653 | 0 | 1 |
| Women group | 33350 | .1155248 | .1071236 | 0 | .4349776 |
| Left | 33350 | .4103748 | .4919091 | 0 | 1 |
| Seniority | 33350 | 1.766747 | 1.197097 | 1 | 12 |
| Internal Affairs Comm | 33350 | .1591604 | .3658311 | 0 | 1 |
| Justice Comm | 33350 | .111964 | .3153269 | 0 | 1 |
| Foreign Policies Comm | 33350 | .1238681 | .3294359 | 0 | 1 |
| Defense Comm | 33350 | .0981109 | .2974691 | 0 | 1 |
| Economy & Finance Comm | 33350 | .1771514 | .3818025 | 0 | 1 |
| Agriculture Comm | 33350 | .0873463 | .2823461 | 0 | 1 |
| Productive Activities Comm | 33350 | .0972414 | .2962906 | 0 | 1 |
| Environment Comm | 33350 | .0990705 | .2987611 | 0 | 1 |
| Education & Culture Comm | 33350 | .1038081 | .305016 | 0 | 1 |
| Labor & Social Policy Comm | 33350 | .170075 | .3757043 | 0 | 1 |
|  |  |  |  |  |  |

**F Regression Tables**

Table 6A: Gender gap in issues attention in the Italian Parliament

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | |  | |  |  |  |  |  |  |
|  | Internal Affairs | Justice | | Foreign Policies | | Defense | Economy & Finance | Agriculture | Productive Activities | Environment | Education & Culture | Labor & Social Policy |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Female | -0.00874\* | 0.00340 | | 0.00152 | | -0.00714\*\*\* | -0.0130\*\*\* | -0.000544 | -0.00951\*\*\* | 0.0105\*\*\* | 0.0203\*\*\* | 0.0298\*\*\* |
|  | (0.00362) | (0.00245) | | (0.00363) | | (0.00194) | (0.00179) | (0.00116) | (0.00173) | (0.00293) | (0.00206) | (0.00262) |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Seniority | -0.000722 | -0.000652 | | 0.00646\*\*\* | | 0.00832\*\*\* | -0.00230\*\*\* | -0.000302 | -0.00262\*\*\* | -0.00554\*\*\* | -0.00145\*\*\* | -0.00309\*\*\* |
|  | (0.00121) | (0.000672) | | (0.00109) | | (0.000820) | (0.000648) | (0.000332) | (0.000708) | (0.000616) | (0.000336) | (0.000510) |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Internal Affairs Comm | 0.0308\*\*\* |  | |  | |  |  |  |  |  |  |  |
|  | (0.00329) |  | |  | |  |  |  |  |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Left | -0.0225\*\*\* | 0.00122 | | 0.00928\*\*\* | | 0.00544\*\* | -0.00571\*\*\* | -0.00285\* | -0.00178 | -0.0000152 | -0.00498\*\*\* | 0.00271+ |
|  | (0.00272) | (0.00140) | | (0.00195) | | (0.00203) | (0.00158) | (0.00123) | (0.00201) | (0.00144) | (0.000988) | (0.00150) |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Justice Comm |  | 0.0493\*\*\* | |  | |  |  |  |  |  |  |  |
|  |  | (0.00265) | |  | |  |  |  |  |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Foreign Policies Comm |  |  | | 0.0504\*\*\* | |  |  |  |  |  |  |  |
|  |  |  | | (0.00321) | |  |  |  |  |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Defense Comm |  |  | |  | | 0.0200\*\*\* |  |  |  |  |  |  |
|  |  |  | |  | | (0.00266) |  |  |  |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Economy & Finance Comm |  |  | |  | |  | 0.0488\*\*\* |  |  |  |  |  |
|  |  |  | |  | |  | (0.00249) |  |  |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Agriculture Comm |  |  | |  | |  |  | 0.0561\*\*\* |  |  |  |  |
|  |  |  | |  | |  |  | (0.00342) |  |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Productive Activities Comm |  |  | |  | |  |  |  | 0.0316\*\*\* |  |  |  |
|  |  |  | |  | |  |  |  | (0.00274) |  |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Environment Comm |  |  | |  | |  |  |  |  | 0.0164\*\*\* |  |  |
|  |  |  | |  | |  |  |  |  | (0.00238) |  |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Education & Culture Comm |  |  | |  | |  |  |  |  |  | 0.0576\*\*\* |  |
|  |  |  | |  | |  |  |  |  |  | (0.00277) |  |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Labor & Social Policy Comm |  |  | |  | |  |  |  |  |  |  | 0.0471\*\*\* |
|  |  |  | |  | |  |  |  |  |  |  | (0.00210) |
|  |  |  | |  | |  |  |  |  |  |  |  |
| Constant | 0.114\*\*\* | 0.0162\*\*\* | | -0.00110 | | 0.136\*\*\* | 0.0392\*\*\* | 0.140\*\*\* | 0.105\*\*\* | 0.00452\*\*\* | 0.0163\*\*\* | 0.0852\*\*\* |
|  | (0.00632) | (0.00287) | | (0.00239) | | (0.00681) | (0.00320) | (0.00534) | (0.00605) | (0.00107) | (0.00321) | (0.00517) |
|  |  |  | |  | |  |  |  |  |  |  |  |
| r2 | 0.151 | 0.104 | | 0.367 | | 0.194 | 0.0964 | 0.413 | 0.360 | 0.655 | 0.139 | 0.145 |
| N | 33350 | 33350 | | 33350 | | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 |

Standard errors in parentheses

+ p < 0.10, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

*Note: Figure 2 in the paper is based on this table.*

Table 7A: Impact of being a woman conditional on women percentage in parliamentary groups

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  | Internal Affairs | Defense | Economy & Finance | Productive Activities |
| Female | -0.0217\*\* | -0.0119\* | -0.0131\*\*\* | -0.0233\*\*\* |
|  | (0.00668) | (0.00467) | (0.00295) | (0.00427) |
| Women group | -0.0750\*\*\* | -0.0298\* | 0.0160 | -0.0214+ |
|  | (0.0222) | (0.0123) | (0.0126) | (0.0123) |
| Female # Women group | 0.0759\*\* | 0.0285+ | -0.00187 | 0.0715\*\*\* |
|  | (0.0274) | (0.0172) | (0.0136) | (0.0149) |
| Seniority | -0.000847 | 0.00827\*\*\* | -0.00227\*\*\* | -0.00265\*\*\* |
|  | (0.00122) | (0.000821) | (0.000649) | (0.000709) |
| Internal Affairs Comm | 0.0306\*\*\* |  |  |  |
|  | (0.00329) |  |  |  |
| Left | -0.0181\*\*\* | 0.00720\*\* | -0.00675\*\*\* | -0.000879 |
|  | (0.00300) | (0.00228) | (0.00174) | (0.00233) |
| Justice Comm |  |  |  |  |
|  |  |  |  |  |
| Foreign Policies Comm |  |  |  |  |
|  |  |  |  |  |
| Defense Comm |  | 0.0199\*\*\* |  |  |
|  |  | (0.00266) |  |  |
| Economy & Finance Comm |  |  | 0.0488\*\*\* |  |
|  |  |  | (0.00250) |  |
| Agriculture Comm |  |  |  |  |
|  |  |  |  |  |
| Productive Activities Comm |  |  |  | 0.0314\*\*\* |
|  |  |  |  | (0.00275) |
| Environment Comm |  |  |  |  |
|  |  |  |  |  |
| Education & Culture Comm |  |  |  |  |
|  |  |  |  |  |
| Labor & Social Policy Comm |  |  |  |  |
|  |  |  |  |  |
| Constant | 0.118\*\*\* | 0.137\*\*\* | 0.0384\*\*\* | 0.107\*\*\* |
|  | (0.00641) | (0.00684) | (0.00329) | (0.00607) |
| r2 | 0.151 | 0.194 | 0.0965 | 0.360 |
| N | 33350 | 33350 | 33350 | 33350 |

Standard errors in parentheses

+ p < 0.10, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

*Note: Figure 3 in the paper is based on this table.*

Table 8A: First-difference version of Model 2 – Women only.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | Intern Δ | Product Δ | Defense Δ | Economy Δ |
| Women group Δ | .968\*\*\* | .328\* | .276\* | .18 |
|  | (.338) | (.172) | (.134) | (.19) |
| Internal Affairs Lag | -.186 |  |  |  |
|  | (.187) |  |  |  |
| Divorce Law | .005 | .001 | .007 | .012 |
|  | (.025) | (.033) | (.027) | (.013) |
| Abortion Law | -.002 | .003 | .009 | .014 |
|  | (.04) | (.027) | (.021) | (.019) |
| Group size | -.247 | -.017 | -.008 | -.056 |
|  | (.26) | (.172) | (.162) | (.134) |
| Productive Activities Lag |  | -.013 |  |  |
|  |  | (.138) |  |  |
| Defense Lag |  |  | -.196 |  |
|  |  |  | (.178) |  |
| Economy & Finance Lag |  |  |  | .533 |
|  |  |  |  | (.41) |
| Observations | 100 | 100 | 100 | 100 |
| R-squared | .278 | .071 | .122 | .179 |
| Standard errors are in parentheses | | | | |
| \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 | | | | |
|  | | | | |

*Note: Figure 4 in the paper is based on this table.*

*DV: first-differenced (by-legislature) average saliency of agentic topics in a parliamentary group’s women speeches.  
 IV (main): first-differenced (by-legislature) share of women in a parliamentary group.*

Table 9A: Impact of being a woman conditional on women percentage in parliamentary groups – Robustness test 1975-2020

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Internal Affairs | Defense | Economy & Finance | Productive Activities |
| Female | -0.0194\* | -0.0121\*\*\* | -0.0155\*\*\* | -0.0142\*\*\* |
|  | (0.00924) | (0.00339) | (0.00388) | (0.00323) |
|  |  |  |  |  |
| Women group | -0.0870\*\*\* | 0.0120 | 0.0141 | -0.0326\*\* |
|  | (0.0236) | (0.00989) | (0.0134) | (0.00990) |
|  |  |  |  |  |
| Female # Women group | 0.0676\* | 0.0212 | 0.00531 | 0.0387\*\*\* |
|  | (0.0340) | (0.0130) | (0.0158) | (0.0113) |
|  |  |  |  |  |
| Seniority | -0.00127 | 0.00545\*\*\* | -0.00300\*\*\* | -0.000977+ |
|  | (0.00146) | (0.000664) | (0.000649) | (0.000591) |
|  |  |  |  |  |
| Internal Affairs Comm | 0.0262\*\*\* |  |  |  |
|  | (0.00407) |  |  |  |
|  |  |  |  |  |
| Left | -0.0121\*\* | -0.00270+ | -0.00606\*\* | 0.00603\*\*\* |
|  | (0.00375) | (0.00141) | (0.00214) | (0.00157) |
|  |  |  |  |  |
| Justice Comm |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Foreign Policies Comm |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Defense Comm |  | 0.0147\*\*\* |  |  |
|  |  | (0.00218) |  |  |
|  |  |  |  |  |
| Economy & Finance Comm |  |  | 0.0450\*\*\* |  |
|  |  |  | (0.00299) |  |
|  |  |  |  |  |
| Agriculture Comm |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Productive Activities Comm |  |  |  | 0.0187\*\*\* |
|  |  |  |  | (0.00253) |
|  |  |  |  |  |
| Environment Comm |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Education & Culture Comm |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Labor & Social Policy Comm |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Constant | 0.237\*\*\* | 0.0506\*\*\* | 0.0667\*\*\* | 0.154\*\*\* |
|  | (0.00857) | (0.00421) | (0.00495) | (0.00617) |
|  |  |  |  |  |
| r2 | 0.133 | 0.0716 | 0.0857 | 0.290 |
| N | 21267 | 21267 | 21267 | 21267 |

Standard errors in parentheses

+ p < 0.10, \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

*Note: Figure 5 in the paper is based on this table.*

Table 10A: Impact of being a woman conditional on women percentage in parliamentary groups – Control for time linear trend

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  | Internal Affairs | Defense | Economy & Finance | Productive Activities |
| Female | -0.0125+ | -0.0130\*\* | -0.0132\*\*\* | -0.0417\*\*\* |
|  | (0.00754) | (0.00473) | (0.00298) | (0.00508) |
| Women group | -0.403\*\*\* | 0.0967\*\*\* | -0.0519\*\*\* | -0.109\*\*\* |
|  | (0.0190) | (0.00998) | (0.0103) | (0.0115) |
| Female # Women group | 0.0267 | 0.0339+ | -0.00324 | 0.164\*\*\* |
|  | (0.0312) | (0.0173) | (0.0136) | (0.0178) |
| Seniority | 0.00290\* | 0.00583\*\*\* | -0.00116+ | 0.00328\*\*\* |
|  | (0.00123) | (0.000794) | (0.000654) | (0.000813) |
| Internal Affairs Comm | 0.0293\*\*\* |  |  |  |
|  | (0.00331) |  |  |  |
| Left | 0.00818\*\* | -0.00352 | -0.000197 | 0.01000\*\*\* |
|  | (0.00298) | (0.00215) | (0.00164) | (0.00243) |
| Justice Comm |  |  |  |  |
|  |  |  |  |  |
| Foreign Policies Comm |  |  |  |  |
|  |  |  |  |  |
| Defense Comm |  | 0.0201\*\*\* |  |  |
|  |  | (0.00276) |  |  |
| Economy & Finance Comm |  |  | 0.0481\*\*\* |  |
|  |  |  | (0.00251) |  |
| Agriculture Comm |  |  |  |  |
|  |  |  |  |  |
| Productive Activities Comm |  |  |  | 0.0291\*\*\* |
|  |  |  |  | (0.00301) |
| Environment Comm |  |  |  |  |
|  |  |  |  |  |
| Education & Culture Comm |  |  |  |  |
|  |  |  |  |  |
| Labor & Social Policy Comm |  |  |  |  |
|  |  |  |  |  |
| Constant | -3.509\*\*\* | 3.952\*\*\* | -0.509\*\*\* | 4.941\*\*\* |
|  | (0.178) | (0.138) | (0.0905) | (0.146) |
| r2 | 0.0630 | 0.165 | 0.0734 | 0.259 |
| N | 33350 | 33350 | 33350 | 33350 |

Standard errors in parentheses

+ *p* < 0.10, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

*Note: Figure 6 in the paper is based on this table.*

**G Further Robustness Checks**

Table 11A: Gender gap in issues attention in the Italian Parliament – Control for group size

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |
|  | Internal Affairs | Justice | Foreign Policies | Defense | Economy & Finance | Agriculture | Productive Activities | Environment | Education & Culture | Labor & Social Policy |
|  |  |  |  |  |  |  |  |  |  |  |
| Female | -0.0114\*\* | 0.00384 | 0.00167 | -0.00447\* | -0.0139\*\*\* | -0.00137 | -0.0105\*\*\* | 0.0105\*\*\* | 0.0199\*\*\* | 0.0290\*\*\* |
|  | (0.00358) | (0.00244) | (0.00364) | (0.00185) | (0.00179) | (0.00117) | (0.00172) | (0.00294) | (0.00204) | (0.00260) |
|  |  |  |  |  |  |  |  |  |  |  |
| Seniority | -0.00112 | -0.000587 | 0.00650\*\*\* | 0.00872\*\*\* | -0.00244\*\*\* | -0.000426 | -0.00277\*\*\* | -0.00553\*\*\* | -0.00150\*\*\* | -0.00321\*\*\* |
|  | (0.00120) | (0.000671) | (0.00109) | (0.000812) | (0.000643) | (0.000331) | (0.000706) | (0.000616) | (0.000334) | (0.000510) |
|  |  |  |  |  |  |  |  |  |  |  |
| Internal Affairs Comm | 0.0303\*\*\* |  |  |  |  |  |  |  |  |  |
|  | (0.00325) |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Left | -0.0177\*\*\* | 0.000424 | 0.00900\*\*\* | 0.000518 | -0.00399\* | -0.00133 | 0.0000884 | -0.0000581 | -0.00432\*\*\* | 0.00414\*\* |
|  | (0.00271) | (0.00145) | (0.00207) | (0.00200) | (0.00159) | (0.00117) | (0.00195) | (0.00156) | (0.000984) | (0.00147) |
|  |  |  |  |  |  |  |  |  |  |  |
| Group size | 0.0957\*\*\* | -0.0157\*\* | -0.00558 | -0.0969\*\*\* | 0.0337\*\*\* | 0.0299\*\*\* | 0.0368\*\*\* | -0.000842 | 0.0130\*\*\* | 0.0280\*\*\* |
|  | (0.0107) | (0.00489) | (0.00710) | (0.00879) | (0.00604) | (0.00508) | (0.00804) | (0.00475) | (0.00372) | (0.00552) |
|  |  |  |  |  |  |  |  |  |  |  |
| Justice Comm |  | 0.0493\*\*\* |  |  |  |  |  |  |  |  |
|  |  | (0.00264) |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Foreign Policies Comm |  |  | 0.0501\*\*\* |  |  |  |  |  |  |  |
|  |  |  | (0.00318) |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Defense Comm |  |  |  | 0.0198\*\*\* |  |  |  |  |  |  |
|  |  |  |  | (0.00263) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Economy & Finance Comm |  |  |  |  | 0.0490\*\*\* |  |  |  |  |  |
|  |  |  |  |  | (0.00249) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Agriculture Comm |  |  |  |  |  | 0.0562\*\*\* |  |  |  |  |
|  |  |  |  |  |  | (0.00339) |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Productive Activities Comm |  |  |  |  |  |  | 0.0318\*\*\* |  |  |  |
|  |  |  |  |  |  |  | (0.00273) |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Environment Comm |  |  |  |  |  |  |  | 0.0164\*\*\* |  |  |
|  |  |  |  |  |  |  |  | (0.00237) |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Education & Culture Comm |  |  |  |  |  |  |  |  | 0.0577\*\*\* |  |
|  |  |  |  |  |  |  |  |  | (0.00275) |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Labor & Social Policy Comm |  |  |  |  |  |  |  |  |  | 0.0473\*\*\* |
|  |  |  |  |  |  |  |  |  |  | (0.00208) |
|  |  |  |  |  |  |  |  |  |  |  |
| Constant | 0.0857\*\*\* | 0.0208\*\*\* | 0.000570 | 0.164\*\*\* | 0.0292\*\*\* | 0.131\*\*\* | 0.0943\*\*\* | 0.00476\* | 0.0125\*\*\* | 0.0769\*\*\* |
|  | (0.00684) | (0.00324) | (0.00333) | (0.00726) | (0.00365) | (0.00548) | (0.00641) | (0.00199) | (0.00335) | (0.00540) |
|  |  |  |  |  |  |  |  |  |  |  |
| N | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 | 33350 |
| r2 | 0.157 | 0.105 | 0.367 | 0.211 | 0.0987 | 0.415 | 0.361 | 0.655 | 0.140 | 0.147 |

Standard errors in parentheses

+ *p* < 0.10, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Table 12A: Impact of being a woman conditional on women percentage in parliamentary groups – Control for group size

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
|  | Internal Affairs | Defense | Economy & Finance | Productive Activities | Environment | Education & Culture | Labor & Social Policy |
| Female | -0.0237\*\*\* | -0.0102\* | -0.0137\*\*\* | -0.0241\*\*\* | 0.00533 | 0.0321\*\*\* | 0.0473\*\*\* |
|  | (0.00661) | (0.00435) | (0.00295) | (0.00421) | (0.00419) | (0.00492) | (0.00576) |
| Women group | -0.163\*\*\* | 0.0479\*\*\* | -0.0102 | -0.0539\*\*\* | 0.0646\*\*\* | 0.00324 | 0.0111 |
|  | (0.0236) | (0.0125) | (0.0131) | (0.0120) | (0.0154) | (0.00783) | (0.0100) |
| Female # Women group | 0.0841\*\* | 0.0212 | 0.000570 | 0.0746\*\*\* | 0.0162 | -0.0607\*\*\* | -0.0919\*\*\* |
|  | (0.0272) | (0.0162) | (0.0136) | (0.0146) | (0.0227) | (0.0180) | (0.0211) |
| Seniority | -0.00150 | 0.00885\*\*\* | -0.00246\*\*\* | -0.00289\*\*\* | -0.00536\*\*\* | -0.00152\*\*\* | -0.00321\*\*\* |
|  | (0.00120) | (0.000814) | (0.000645) | (0.000706) | (0.000623) | (0.000336) | (0.000514) |
| Internal Affairs Comm | 0.0298\*\*\* |  |  |  |  |  |  |
|  | (0.00324) |  |  |  |  |  |  |
| Left | -0.00639\* | -0.00315 | -0.00325+ | 0.00344 | -0.00490\*\* | -0.00408\*\*\* | 0.00404\* |
|  | (0.00307) | (0.00234) | (0.00180) | (0.00226) | (0.00181) | (0.00113) | (0.00163) |
| Group size | 0.118\*\*\* | -0.104\*\*\* | 0.0351\*\*\* | 0.0435\*\*\* | -0.0104\* | 0.0134\*\*\* | 0.0278\*\*\* |
|  | (0.0113) | (0.00926) | (0.00637) | (0.00825) | (0.00497) | (0.00387) | (0.00563) |
| Justice Comm |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Foreign Policies Comm |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Defense Comm |  | 0.0199\*\*\* |  |  |  |  |  |
|  |  | (0.00262) |  |  |  |  |  |
| Economy & Finance Comm |  |  | 0.0489\*\*\* |  |  |  |  |
|  |  |  | (0.00249) |  |  |  |  |
| Agriculture Comm |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| Productive Activities Comm |  |  |  | 0.0315\*\*\* |  |  |  |
|  |  |  |  | (0.00273) |  |  |  |
| Environment Comm |  |  |  |  | 0.0167\*\*\* |  |  |
|  |  |  |  |  | (0.00237) |  |  |
| Education & Culture Comm |  |  |  |  |  | 0.0574\*\*\* |  |
|  |  |  |  |  |  | (0.00274) |  |
| Labor & Social Policy Comm |  |  |  |  |  |  | 0.0471\*\*\* |
|  |  |  |  |  |  |  | (0.00209) |
| Constant | 0.0872\*\*\* | 0.165\*\*\* | 0.0292\*\*\* | 0.0954\*\*\* | 0.00479\* | 0.0118\*\*\* | 0.0758\*\*\* |
|  | (0.00684) | (0.00728) | (0.00366) | (0.00642) | (0.00200) | (0.00337) | (0.00539) |
| r2 | 0.160 | 0.212 | 0.0988 | 0.362 | 0.655 | 0.141 | 0.148 |
| N | 33350 |  |  |  |  |  |  |

Standard errors in parentheses

+ *p* < 0.10, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Figure 4A: Marginal effect of Female on topic saliency, conditional on women percentage in parliament

Chart, line chart

Description automatically generated

Note: Kernel distribution shown in blue.

**H Gender Specificity Index**

*Construction of the gender specificity index*

The construction of our gender specificity index entails three steps (see Figure 5A). *First*, we define a reference vocabulary for each topic by extending its set of featuring keywords with additional terms. To select terms that are constantly representative along the whole time, as well as terms that are representative in the limited time frame of one or few legislatures, we split our corpus of parliamentary speeches into legislature-based sub-corpora. Each sub-corpus is used to train a separate embedding model based on the word2vec algorithm (Mikolov et al., 2013), resulting in 18 legislature-based embeddings for each word. Through that, words included in our corpora are represented as positions on a multidimensional vector space, whereby words that are mapped closer to each other are assumed to have similar meanings (Rodriguez et al., 2023). Each topic in each legislature is thus associated with an extended vocabulary that includes the initial set of topic keywords plus those words whose embedding is considered *close* to the topic keywords according to a given threshold (i.e. we take the top-500 closest words with respect to the average of the word embeddings associated with the initial set of topic keywords). A referencevocabulary for each topic for the whole timeframe is finally defined by merging all the available vocabularies by legislature. *Second*, we define how frequently topic vocabularies’ keywords are used by male and female MPs. Given a word in a topic vocabulary and the set of speeches, we calculate a female-counter and a male-counter featuring the number of occurrences of that word within the considered female and male speeches, respectively. For each topic, a female-topic ranking and a male-topic ranking are then defined according to the counters. This allows us to determine the set of words that is gender-specific for each topic, namely the words that are more frequently used by a gender in comparison with the other. Given a topic, a gender-specific word is a topic keyword whose position in female and male rankings differs more than a fixed threshold (i.e., 100 positions). *Finally*, for each topic, we calculate the gender-specificity index as the ratio between the number of gender-specific words and the size of the topic vocabulary. Any increase in the gender-specificity index will then correspond to an increase in the gender-specific language when discussing that topic.

Figure 5A: Gender specificity index - Workflow

Diagram, schematic

Description automatically generated

*Gender language specificity - speeches from 1975 to 2020*

Figure 6A illustrates the results obtained when we replicate the analysis presented in the main text section named *The moderating effect of institutional presence on gender gap in issue attention* for the period 1975-2020. As we can see from the graphs, variation in the language adopted by MPs in their speeches depending on their gender, as the women share in parliamentary groups increases, presents an analogous curvilinear pattern.

Figure 7A shows the fitted relationship between the gender specificity index and the share of women in parliamentary groups, controlling for parliamentary groups fixed-effects. Also in this case we clearly observe a curvilinear relationship, which further increase our confidence in the results obtained in the main analysis.

Figure 6A : Gender language specificity within topics - speeches from 1975 to 2020

Chart, bar chart

Description automatically generated

Figure 7A: Gender language specificity within topics - parliamentary groups fixed-effects.

**Chart

Description automatically generated**

**I Embedding Regressions**

As a robustness check for the gender specificity index analysis proposed in the section named *The moderating effect of institutional presence on gender gap in issue attention*, we hereby propose a second path to investigate H2, which consists in running a series of embedding regression models on a list of target words related to the agentic topics. Following the approach recently advanced in Rodriguez et al. (2023), we generate word-embeddings on the whole corpus of speeches whose texts we use as our pre-trained embeddings. In doing that, we rely on GloVe embeddings (Pennington et al., 2014) to extract an embedding vector of 200 dimensions with a window size of 10.[[1]](#footnote-1)[[2]](#footnote-2)

Given our corpus and its corresponding embeddings, we estimate a set of embedding regressions to explore if an otherwise identical word appears in different ‘semantic contexts’ according to the gender of the speaker using it (our covariate). In an intuitive way, the embedding regressions framework compares the vector of the words surrounding a given target word for different values of a covariate (in our case two values: either male or female) and checks if there is any systematic difference in this regard in terms of the Euclidian distance in the embedding space. Recovering the Distributional Hypothesis that suggests that humans give meaning to words by understanding the other words surrounding them in text, in our case the previous outcome would imply that male and female MPs mean something different when they use an otherwise identical target word.

For each agentic topic, we select one target word, following two rules: a) the word should be highly associated to the topic according to the results of our semi-supervised topic model; b) the word should present a high level of semantic exclusivity, meaning that it is a word that in a non-arbitrary way can be referred to the topic we are interested about.

We thus identify the word ‘*guerra’* (war) for Defense, the word ‘*finanziaria*’ (financial) for Economy and Finance, the word ‘*industria’* (industry) for Productive Activities and the word ‘*costituzionale’* (constitutional) for Internal Affairs.[[3]](#footnote-3) We then estimate the set of embedding regressions for the different target words while considering different sub-corpora according to the share of women in parliamentary groups. Figure 8A shows the magnitude and statistical significance of Female.

*Figure 8A: Gender language specificity within topics considering specific target words*

Chart, bar chart, box and whisker chart

Description automatically generated

\* p < 0.10, \*\* p < 0.05

Two are the main findings of this analysis. First, female MPs tend to discuss about each target word almost always in a significantly different way than their male counterpart. Second, as we move through Women group, the magnitude of the coefficient for Female appears firstly to decrease and then to increase. Again, we observe a curvilinear relationship between language specificity by gender and women share in parliamentary groups. Note that this U-shape persists also when controlling for the parliamentary group to which an MPs belongs, as well as focusing on the sub-period ranging from 1975 to 2020 (see following figures).

The following figures illustrate the results obtained when replicating the previous embedding regression analysis for the period 1975-2020 (Figure 9A) and when controlling for the parliamentary group to which each MP belongs (Figure 10A). As we can see from the graphs, variation in the language adopted by MPs in their speeches depending on their gender, as the women share in parliamentary groups increases, presents an analogous curvilinear pattern.

Figure 9A: Gender language specificity within topics considering specific target words - speeches from 1975 to 2020

***Chart, bar chart, box and whisker chart

Description automatically generated***

\* p < 0.10, \*\* p < 0.05

Figure 10A: Gender language specificity within topics considering specific target words – controlling for parliamentary group

***Chart, box and whisker chart

Description automatically generated***

\* p < 0.10, \*\* p < 0.05

Figure 11A shows the fitted relationship between our embedding regression coefficient and the share of women in parliamentary groups, controlling for parliamentary groups fixed-effects. Also in this case we clearly observe a curvilinear relationship, which further increase our confidence in the results obtained in the main analysis.

Figure 11A: Gender language specificity within topics considering specific target words- parliamentary groups fixed-effects.

***Chart

Description automatically generated***

**J Monte Carlo Simulation**

To further support our results, we run a Monte Carlo simulation. We assume the following:

1. when the percentage of female MPs is lower or equal to 5%, activation thresholds are drawn from a Normal Distribution with mean=0.03 and s.d.=half of the mean (i.e., female MPs on average present a low value with respect to their activation thresholds).
2. When the percentage of female MPs is higher than 5% and lower or equal to 10%, activation thresholds are drawn from a Normal Distribution with mean=0.15 and s.d.=half of the mean (i.e., female MPs on average present an intermediate value with respect to their activation thresholds).
3. Finally, when the percentage of female MPs is higher than 10%, activation thresholds for each of the 5% cohort (i.e., 10-15%, 15-20%. etc.) are drawn from a Normal Distribution with mean=0.25, and s.d.=half of the mean (i.e., female MPs on average present a relatively high value with respect to their activation thresholds).

We then run our Monte Carlo simulation where 100 “virtual” activation thresholds are drawn a thousand times from the same underlying normal distribution for each of the 5% cohort.

Figure 12A correctly reproduces the curvilinear relationship between language gender-polarization and women share in parliamentary groups that we found in the main analysis.

*Figure 12A: Monte Carlo simulation.*

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*References*

Pennington, J., Socher, R., & Manning, C. D. (2014, October). Glove: Global vectors for word representation. In *Proceedings of the 2014 conference on empirical methods in natural language processing (EMNLP)* (pp. 1532-1543).

Rodriguez Pedro L., Spirling Arthur and Brandon M. Stewart (2023). Embedding Regression: Models for Context-Specific Description and Inference, *American Political Science Review*, <https://doi.org/10.1017/S0003055422001228>

1. [↑](#footnote-ref-1)
2. 1 We explore different embedding vectors (with 100, 200 and 300 dimensions) with a window size of 5, 10 and 15. Results reported above remain relatively constant across the different parameter setting. However, the intrinsic evaluation of the embedding vector with 200 dimension and a window size of 10 appear more convincing. [↑](#footnote-ref-2)
3. 2 We also explore several other words, such as ‘forze’ (army) for *Defense*, ‘bilancio’ (budget) for *Economy and Finance*, ‘produzione’ (production) for *Productive Activities*. Results are substantially identical to those reported here. [↑](#footnote-ref-3)