

Corporate Gender Culture^a

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Abstract

We apply computational linguistic models to Australian publicly listed firms' reports to a gender-equality statutory agency to construct the first systematic measure of 'corporate gender culture'—firms' practices pertaining to the treatment of women across a range of dimensions, from recruitment and promotion to maternity leave and sexual harassment. While different practices are associated with female representation at different levels of the hierarchy (employees, managers, executives, board), the practice most robustly associated with firm performance consists in human capital formation opportunities open to all. We use a unique historical experiment that durably shaped gender norms in Australia to establish that: (i) corporate gender culture is shaped by local societal gender norms; and (ii) the relationship between corporate gender culture and firm performance is likely causal. Upon examining the impact of the introduction of government-funded parental leave in 2011, we observe that culture evolves slowly, but policy can shape gender diversity and corporate gender culture.

Keywords: Gender corporate culture, firm performance, gender diversity, computational linguistics.

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“There’s #MeToo and #NoMore. Now it’s time for #HowMuch.” (Davidson, 2018).

1. Introduction

#MeToo revelations from Hollywood to Silicon Valley highlight not just the pain of victims of harassment, but also the loss of human capital that results from poor management practices with respect to gender (e.g. Anyangwe, 2018, Davidson, 2018). In their letter asking the Government Accountability Office to investigate the economic effects of workplace harassment, Senators Gillibrand, Feinstein, Murray, and Warren (2018) argue “the true cost of sexual harassment includes indirect costs such as decreased productivity, increased turnover, and reputational harm”. Yet, the apparent persistence of poor practices suggests that firms have trouble linking the inclusiveness of the corporate environment to the attraction and retention of human capital. One must wonder why.

How do firms think about gender diversity? What kind of cultural norms and day-to-day practices, if any, prevail in firms to manage gender diversity? Which of these improve female representation and firm performance? How do these norms and practices evolve over time? Although the answers to these questions are important for both firms and policy-makers, there is no systematic evidence that can inform our thinking on workplace diversity. We fill this gap in the literature.

We construct the first comprehensive measures of workplace cultural norms with respect to gender. We apply Latent Dirichlet Allocation (LDA), a machine learning technique used for topic modeling, to unique Australian data consisting of mandatory reports to a statutory gender-equality agency, the Workplace Gender Equality Agency (WGEA). Between 2001 and 2012,¹ firms were required to provide the WGEA with information on their ‘workplace profile’, which consists of the breakdown of female employment across different hierarchical levels (regular employees, managers, executives) and a free-form report on the ‘practices’ related to the employment of ‘all staff and women’ that ‘contributed to equal opportunity’ in seven HR dimensions, from recruitment, promotion, and training, to sex-based harassment, and pregnancy.² Firms also had to describe issues related to women

¹ The reporting regime changed in 2012. It became standardized and the scope of reporting shrunk. As a result, company reports contain much fewer details about specific practices after 2012. We compare our data to the post-2012 quantitative data in Appendix A and we validate the quality of our measures.

² See Appendix A for an example of instructions and firm report.

employment and report which actions they took to address these. By focusing on public firms, we can link the data from these reports to firm financial performance data as well as to the ratio of women on boards, which we obtain from secondary sources. Our sample covers 51% of the 200 largest non-bank institutions³ by market capitalization included in the S&P/ASX200 index of stocks on the Australia Securities Exchange.⁴ Because firms report annually, we are able to construct a panel to study how practices evolve.

LDA is useful for extracting topics from documents whose content is not known, or organised around a well-known structure, as in the case of the free-form reports to the WGEA. One limitation of LDA is that it requires the number of topics to be specified ex-ante. Following Jegadeesh and Wu (2017), we use a Hierarchical Dirichlet Process (HDP) to identify the optimal number of topics in each of the seven reporting categories. We identify three topics in each category and three topics in the category of ‘actions taken’. The output of our LDA analysis is a (constrained) set of 21 topics and the frequencies associated with these topics, for all firm-years in our sample (see Table 1 for a description of the firms in our sample and Table 2 for a description of the topics).

We interpret these topics as the dimensions of Corporate Gender Culture (hereafter, CGC). Corporate culture is commonly described as a set of values shared throughout the firm (O’Reilly and Chatman 1996). It is also considered as a pattern of basic assumptions and practices that have worked well enough in relation to external adaptation and internal integration to be considered as “the correct way” (Schein 1985: 9). We define CGC as the subset of these values and practices that relate specifically to the employment of women within the firm.

We find that the cultural dimensions that correlate with female representation vary across different levels of the hierarchy (employees, managers, executives, board). For example, practices related to hiring, training, or sex-based harassment are systematically correlated with female employment but only in entry-level positions and lower-levels of management (e.g. managers). By contrast, the only practice that robustly associates with the proportion of women in executive positions or on companies’ boards consists of training and development opportunities open to all staff,

³ Banks are not required to fill with the WGEA and therefore do not appear in our sample.

⁴ The S&P/ASX200 accounts for 82% of Australia’s share market capitalization as of March 2017 (<https://www.asx200list.com/>, accessed 19/02/2019).

i.e. inclusive human capital development opportunities within the firm. Incidentally, this dimension is also the one dimension that most robustly associates with firm performance.

Sectoral differences matter in expected ways. Firms in the energy, manufacturing, materials, and IT sectors display cultural dimensions that are systematically associated with less gender diversity, compared with firms in consumer service, health care, or finance. Once sectoral differences are factored in, the ratio of research and development expenditures to sales (R&D) is the firm-level characteristic most robustly associated with CGC.

Although we find a significant and robust correlation between specific dimensions of CGC, particularly related to training and development, and firm performance, this correlation could be due to reverse causality, in the sense that firms that perform better could be the ones best able to ‘afford’ such open training programs. The correlation could also be due to omitted variable bias, if, for example, better managed firms both perform better and are more likely to favour such training programs. To address these identification issues, we follow an instrumental variable strategy based on a unique natural experiment in Australia that durably affected values and norms about gender roles (Grosjean and Khattar, 2019). We show: (i) how CGC is shaped by local societal values and norms about gender roles; and (ii) that it causally impacts firm performance.

Finally, we examine the process of cultural change in firms. Following the canonical models of cultural transmission (e.g. Cavalli-Sforza and Feldman 1973, Bisin and Verdier, 2001), we model the transmission of CGC as a mechanism shaped by within-firm processes (transmission of the ‘culture’ of a given firm e.g. through selection, training and induction of employees) as well as influences from outside the firm (e.g. from other firms, the media, broader societal pressure, and regulatory incentives). Accordingly, we examine both within-firm changes in culture, as well as the response of firm culture to external influences, in particular, policy changes.

We first document the endogenous evolutionary process of CGC within firms by examining a dynamic panel model of the distribution of cultural dimensions over time within a firm, and how it responds to specific actions taken by the firm to address gender diversity issues. We find that CGC is very sticky. The coefficient of firm-specific cultural transmission from one year to the next is around 0.4-0.5. (i.e. an increase by one unit of the frequency of a specific cultural dimension in a given year is

associated with a 40-50% increase in the frequency of that dimension in the same firm the following year). However, actions taken by firms matter for this evolutionary process, although they do so for some dimensions of culture more than others. For example, the culture around sex-based harassment appears much more resistant to change than practices of work organisation.

Second, we document how external stakeholders can affect firm gender diversity and gender culture. In particular, we leverage the introduction of government-funded parental leave in 2011 to shed light on how policy can affect gender diversity and shape CGC. Prior to this policy, parental leave policy was negotiated on a firm-by-firm basis. We show how the introduction of this policy resulted in rises in female employment, particularly in higher ranks of the hierarchy, but only for firms that initially lagged behind in overall female employment. The introduction of a government-mandated (and funded) maternal leave also resulted in rising importance given to the topic of “employing women with children”. These results are consistent with the absence of mandated parental leave benefits leading to a negative selection of women in firms that were not female friendly, especially along the dimension of pregnancy and parental leave.

Our paper touches on three main research areas: the role of management practices and corporate culture more generally, the role of gender norms in explaining economic outcomes, and the debate on corporate social performance.

We extend existing literature on corporate culture by providing the first systematic characterisation of CGC: how firms understand gender diversity, what they do about it, and why and how it matters. Previous characterizations of corporate culture focused on a set of given dimensions that are more clearly instrumental to firm performance (such as integrity, adaptability, collaboration, customer-oriented, detail-oriented, results-oriented) and focussed on singling out which matters more for firm value (see e.g. Guiso et al. 2005, Graham et al. 2018a, Graham et al. 2018b, Li et al. 2018). Despite mounting evidence that gender diversity influences firm performance (see e.g. Adams 2016, Adams and Ferreira 2009, Adams and Funk 2012, Dezsö and Ross 2012, Griffin et al. 2018) none of the literature before us has considered explicitly the gender dimension of corporate culture. We fill this gap in the literature by providing the first systematic measure of CGC and establishing the mechanism through which it can affect firm performance. We also contribute to the literature by focusing on the

dynamics of corporate culture and how it evolves under the influence of a firm's and external stakeholders' actions.

There is a noteworthy difference between our definition and operationalisation of corporate culture compared with previous literature. Most of the previous theoretical and empirical literature conceptualised corporate culture as an object that executives should manipulate in order to maximise firm value, namely by reducing the need for monetary compensation of employees (Bewley 1999, Akerlof and Kranton 2005). By contrast, we highlight how ambient societal norms seep into organizations and shape firms' corporate culture. In that sense, our paper is closer to Hofstede (1980) and Bloom et al. (2012), which show how national culture shapes management style. We view our approach as complementary to this literature on corporate culture and to the literature on CEO style (Bertrand and Schoar 2003, Graham, Harvey, and Puri 2013, Nguyen 2019). This complementarity may be particularly relevant, insofar as for culture to be effectively shaped by CEOs, it must be congruent with the values and norms of employees (Graham et al. 2018b). Nguyen (2019), for example, shows that innovation increases when the ethnic backgrounds and cultural values of CEOs and innovators are more similar. Crémer (1993) explicitly defines corporate culture as shared knowledge.

By showing how gender norms shape firm culture and, through this channel, affect firm performance, our work provides micro-foundations for the macroeconomic relationship between gender norms and economic outcomes (see e.g. Alesina et al. 2013, Ostry et al. 2018). We also contribute to the literature on female representation and firm performance (see e.g. Adams 2016, Adams and Ferreira 2009, Adams and Funk 2012, Dezsö and Ross 2012, Griffin et al. 2018) by taking a broader view of female representation across all levels of the hierarchy and by establishing a causal effect of female friendliness of corporate culture on firm financial performance.

The remainder of the paper is organized as follows. Section 2 describes our data and methodology. Section 3 characterizes the dimensions of CGC. Section 4 relates CGC to gender diversity and to firm performance and Section 5 provides evidence on the causal mechanism. Section 6 studies the process of cultural change, and Section 7 concludes.

2. Data and Methodology

In this section, we describe the sources of data and the methodology used to create our measures of CGC.

2.1. Data

Our data on female employee representation and workplace practices in firms come from compliance reports submitted to the WGEA. Organizations are required to submit annual reports detailing issues and workplace practices related to female employment to the WGEA under the Workplace Act (Act). Reporting organizations include public and private firms, universities, and foundations among others. According to the Act, all non-public sector employers employing more than 100 employees should submit a report on seven workplace practices. These practices consist of: 1) recruitment and selection, 2) promotion, transfer, and termination, 3) training and development, 4) work organization, 5) conditions of service, 6) sex-based harassment, and 7) pregnancy, potential pregnancy, and breastfeeding. The WGEA also asks organizations to report on the issues prioritized based on the information provided in the seven practices and any actions taken to remedy the issues prioritized. Finally, the WGEA also asks organizations to provide workplace profile data such as the number of women and men in different positions including regular employees, managers, and executives.

Submitted reports are retrospective and cover the one-year period from 1 April of the previous year to the 31 March of the reporting year. Compliance reports starting from 2002 (and for some firms starting from 2001) are available for download on the WGEA's website. We download all available reports on the website and obtain 26,943 compliance reports for the 2001-2012 period.

Under the Act, relevant organizations are required to register with the WGEA. Organizations are deemed to be non-compliant with the Act if they are registered with the WGEA but do not submit a report or submit a non-compliance report without providing any explanation as to the reason for non-compliance. The Agency annually discloses a list of non-compliant organizations on its website. We count a total of 188 non-compliances by registered organizations between 2001 and 2012. Organizations that fail to submit a report can be named in a report submitted to Parliament and may be unable to apply for government tenders and obtain industry assistance. Organizations can also apply for waivers, or be exempt from reporting if they are named as "Employer of Choice for Women". Appendix A provides more detail on the procedures firms have to follow to obtain waivers or exemptions, and on the number of firms concerned over the reporting period.

As noted above, not all reporting organizations are public firms. However, our analysis requires that we have financial data on reporting firms. We obtain a list of public firms (both active public and delisted firms) on the Australian Stock Exchange (ASX) from Thomson-Reuters DataStream. There are 4,178 firms on the list, corresponding to 25,425 firm-year observations between 2001 and 2012 after taking into account delistings. After matching ASX firms to reporting organizations, we obtain a match for 2,111 firm-year observations with reports between 2001 and 2012. Table 1 illustrates that we have on average 178 firms in each year which are spread across 10 different sectors. As mentioned in Introduction, our sample covers 51% of the relevant 200 largest public firms by market capitalization included in the S&P/ASX200, the most widely used index of stocks on the Australia Securities Exchange.

--Insert Table 1 about here--

From all 2,111 reports, we extract data on employment practices and employee numbers. We create three employment categories based on the extracted employee numbers. These categories are: executives, managers, and regular employees. We supplement these categories with the percentage of female directors on boards that we obtain from Boardex. From the reports, we also extract the text for each employment practice and use it in our topic modelling analysis, which we describe below. Although the Agency asks firms to provide detailed information on their workplace profile and employment matters, not all firms are completely forthcoming with their disclosure. For example, sometimes disclosure on some employee practices are missing from the reports. Although some data is missing, we use all reports that have some data on workplace profile and employment practices.

Financial data comes from two sources. We use the Compustat Global database to create the financial variables that we use in the analysis. For missing observations or for additional variables that do not exist in Compustat Global, we use financial data from Morningstar via the Securities Industry Research Centre of Asia-Pacific (SIRCA). We also use two different sources to find data on the governance practices of the firms in our sample. Our main source of governance data is SIRCA's governance database and we supplement this with data from Boardex for missing observations or to create additional variables that are not available in SIRCA. We define all the variables that we use in the study in Appendix A.

2.2. Methodology

When asked about, for example, their recruitment and selection practices, firms talk about various related issues ranging from attracting graduates to how their workforce is traditionally male dominated. This multidimensional nature of the reports poses a challenge for us and makes it difficult to analyse the data. To overcome this problem, we turn to topic modelling and borrow techniques from computer science to transform our text-based data into a format that can be used in our analysis.

We use Latent Discriminant Analysis (LDA), known also as topic modelling, to identify the topics in the submitted reports. LDA is a machine-learning based technique that provides an approach to extract topics from documents whose content is not known beforehand. As no prior knowledge of content is required, LDA identifies the topics in examined documents. One of the main assumptions of LDA is that a given document contains multiple topics. LDA groups words that appear around each other and a topic is then a collection of words that tend to appear together in a particular context. The ultimate objective of LDA is to estimate which words are important for which topic and which topics are important for a particular text. Thus, given a set of documents, LDA not only provides a way to learn about the topics present in a given text, but also words that are associated with those topics to help one understand what each topic refers to.

A drawback of LDA is that the researcher needs to specify the number of topics he/she thinks is present in the documents analysed. This, however, creates an issue. If the number of topics chosen by the researcher is high, then it is possible that topics created by LDA will overlap, or some subtopics may be created (rather than main topics) by the algorithm. Alternatively, if the number of topics is low, then some key topics may be erroneously omitted from the analysis. To overcome this problem, we follow Jegadeesh and Wu (2017) and use a Hierarchical Dirichlet Process (HDP) to find the number of optimal topics. HDP is a more advanced version of LDA and enables the algorithm to determine the number of topics. Since the number of topics generated by HDP is a function of the number of documents, as in Jegadeesh and Wu, we run this process on 5% of the total number of reports in our sample. Using this approach, we find the optimal number of topics as three for each Human Resources practice.

Knowing the number of topics to be three using the HDP approach, we use the Python code provided by Stephen Hansen to run LDA across our reports to extract the

topics.⁵ We run the topic modelling code on the first seven practices across all years using all reports. For the last two practices, we run the code on each practice separately for each year.

To run the Python code, we follow standard procedures to pre-process the text for LDA. For example, contractions are transformed into their underlying words (for example, “won’t” becomes “will not”). All words are converted into lowercase words and punctuations and numbers are separated from words. We remove all non-alphanumeric tokens of less than two characters to focus on words and we remove any stop words in our reports. After this step, using the code, we group words that are thematically the same by reducing words to their root form. In order to identify words that are not informative in identifying the content of a document, for example, because they appear infrequently in the documents, we rank words by their frequency-inverse document frequency (tf-idf) score. We chose a cut-off point n where all stems with a tf-idf score less than or equal to the n th ranked stem are dropped. In our case, n is generally around 2,000. Once this step is completed, we move on to estimate the topics by specifying the number of topics as three and start sampling. We specify three parameters for sampling. The first parameter is the number of iterations we want the chain to burn in before we begin to sample. The second parameter is the thinning interval which is the number of iterations to let the chain run between samples. Specifying a thinning interval reduces autocorrelation between samples. The third and final parameter is the number of samples to take. We specify all of these parameters as 1,000, 50, and 20, and keep the last four samples. The code then produces a list of three topics for each category and associated top 20 stems (words) for each topic (words are ranked according to their probability).

In the final step, we interpret what each topic means by examining the words associated with the topics. The last two authors of this paper independently coded each topic string, to cross validate the final interpretation, which was validated by the first author. For example, out of 20 words, the top five stems (words) for the second topic of first practice (recruitment and selection) are “develop”, “program”, “graduat”, “promot”, and “success”. After examining all 20 words, we interpret this topic as “attracting graduates”. Appendix A contains more information on the output of the algorithm and the manual coding of the topic description.

⁵ The topic modelling code could be found at <https://github.com/sekhansen/text-mining-tutorial>.

3. How do firms understand gender diversity? Descriptive evidence on CGC

This section provides a description of the gender diversity workplace practices, or ‘corporate gender culture’ (CGC) along with several dimensions of Human Resources management. We also contrast how CGC systematically varies across firms with different characteristics and in different sectors.

3.1. Corporate Gender Culture

Table 2 describes all the topics which were identified by our algorithm and then manually coded, for each of the seven dimensions of gender corporate culture. Each topic refers to a specific workplace practice (e.g. flexible work conditions or providing a facility for breastfeeding mothers) and/or value or belief held by the firm in regard to issues of gender diversity (e.g. equal pay). Our algorithm coded the frequency at which each topic is mentioned in a report. This does not necessarily correspond to whether a firm has effectively put in place a given practice but rather to the importance given to each practice or value by a firm in a given year.

We validate in Appendix A the quality of our WGEA data and show, for example, that the topics identified by our methodology in relation to hiring and pregnancy correlate strongly with, respectively, the adoption of anti-discrimination plans or the provision of maternity leave measured by the outcome of firm-level negotiation with trade unions and employees (Enterprise Bargaining Agreement, or EBA). We also discuss the advantages of the WGEA data with respect to this potential source of data, which only contains very limited information on practices related to the employment of women.

--Insert Table 2 about here--

3.2. CGC across firms, within firms, and over time

Our algorithm computes the frequency of each topic, or cultural dimension, within a given category, requiring by construction that the frequencies sum to one for each firm in each year. Descriptive statistics on the first moment for each topic across the universe of firms are therefore not the most useful statistic, since they always approximate 1/3. It is instead more helpful to study the density distribution of each dimension. We present a series of histograms in Appendix Figure B1. We present the

histogram distribution of each dimension, and we group dimensions by category of Human Resource management.

There is substantial variation in the topic frequency distribution across different dimensions of CGC. For example, for recruitment, the frequency distribution of the dimension related to the difficulty of filling specific positions (such as technical positions and engineering) has the fattest tails, suggesting that this dimension is commonly shared across firms. By contrast, frequency distributions of dimensions related to sex-based harassment have thinner tails, meaning that these dimensions show more idiosyncrasies across firms and years. Across all dimensions of CGC, “Changing workplace culture, educating employees” in relation to sexual harassment is the most idiosyncratically distributed across all firm-year observations.

Since our data consists of the frequency of each dimension across firms and years, we are able to evaluate how much of the overall variation in CGC is due to cross-firm variation or variation within firm over time. To do so, we perform a decomposition of variance analysis for each dimension. We find that cross-firm variation contributes to the lion share (about two thirds) of the overall variation in gender corporate culture across all categories. This suggests that most of the variation in CGC is due to variation across firms, rather than variation within firms over time. An implication is that CGC may change slowly within firms, a result in line with the literature on the slow-changing nature of culture (Roland, 2004) and the persistence of cultural norms over long periods of time (e.g. Alesina et al. 2013, Voigtländer and Voth 2012). We come back to the issue of cultural change in Section 6.

We examine cross-sectional cultural trends over time. To do so, we focus on the variation in the frequency of each dimension averaged across all firms over the reporting period. We present graphs for the evolution of each dimension of CGC in Figure B3 in the Appendix. There are clear cultural trends over time. For example, the issue of changing workplace culture in relation to sex-based harassment became more prevalent over time; while other issues see their prominence fade, most notably providing education for male workers only or difficulties related to hiring women because of the need to fill specific engineering and technical positions. It thus seems that corporate gender cultural trends reflect broader societal trends, which have become more incompatible with the traditional view of technical skills as an obstacle to female representation and have given more prominence to the issue of sexual harassment in recent years. While cultural change over time appears smooth in most cases, more

abrupt changes are sometimes observed. In particular, the focus on “employing women with children” exhibit a sharp increase after 2010, as does “roster to accommodate carers' responsibilities and leave requests”. Incidentally, as we will discuss in the last section, this change corresponds to the introduction of the first government-sponsored maternity leave scheme in Australia after 2010. These trends may thus reflect broader societal trends as well as changes in the regulatory environment. A more detailed analysis of this is the focus of Section 6.

3.3. Gender diversity across the hierarchy

--Insert Table 3 about here--

We present descriptive statistics for female representation at different levels of the hierarchy and for other variables used in the analysis in Table 3. The average share of female employees decreases monotonically as one rises in the hierarchy. While women represent 38% of the workforce, they only represent 26-28% of female supervisors or managers, 16% of female executives, and less than 10% of board members. The spread of the distribution of the share of female workers is similarly inversely proportional to the level in the hierarchy, meaning that while it is common for most firms to employ women as regular workers, it becomes much less common to employ women at higher levels of the hierarchy, and even less so as one rises from managers to executives and board members. In Figure B4 in Appendix, we provide histograms of the distribution of the female share of employment overall (“ratio of female employees”) and across different levels of the hierarchy. Not only does the mean shift to the left as one rises in the hierarchy, but the distribution also becomes a lot more skewed. Very few firms exhibit more than 50% of female managers, and the share of firms with more than 50% of female executives or directors is negligible. Looking at the density at 0, very few firms (around 0.09%) have no female employees at all. By contrast, 36% of all firms have no female executives, and 48% of them have no female directors at all.

We also examine trends in gender diversity in firms over time. Figure B5 plots the distribution over our sample period in the shares of female employment at different levels of the hierarchy. There is no clear temporal trend in the share of female ‘other workers’, which hovers around 40% over the sampling period. Since this category

constitutes the majority of female employment, the share of overall female employees follows a similar pattern. By contrast, the shares of female representation at higher levels of the hierarchy have increased over time, but progress is unequal across categories. For example, the share of female managers went from around 25% at the start of our period to around 30% in 2012, a 20% increase. The share of female executives has increased at a much higher rate (181%), but from a much lower base (7.8%) and stands at 22% in 2012. The share of women on boards has doubled, from less than 5.55% to 11.12%.⁶

3.3. How do gender diversity and CGC relate to firm characteristics?

We examine in Table 4 the correlation between firm characteristics and dimensions of CGC. Table 4 reports the result of simple regressions of each topic on firm characteristics, such as log of assets, capital expenditure ratio, R&D expenditure ratio, and firm age since listing. Since topics are not independent from one another within a firm, we present the Bonferroni-adjusted critical P-values for multiple hypothesis tests in the bottom of the Table. We control for industry dummies from the Australian and New Zealand Standard Industrial Classification (ANZSIC) in order to examine the variation of gender corporate cultural dimensions across industries. We also examine how firm characteristics and industrial specialisation correlate with female representation across the hierarchy. It is important to stress that no causal interpretation can be attached to these simple regressions, which only inform about correlations between, on the one hand, firm characteristics and, on the other hand, gender corporate culture and gender diversity.

--Insert Table 4 about here--

Industrial specialisation is the most robust correlate of gender diversity and of CGC. Firms in the energy, manufacturing, materials, IT, and telecommunication sectors systematically display lower levels of female representation across every level of the hierarchy compared with firms in consumer service, health care, and finance. The magnitude of the estimated coefficient on industry dummies relative to sample means

⁶ This does not necessarily mean that there are more female directors overall, as directors can hold more than one position and most of these women are “outside” directors, i.e. not employed by the firm.

is typically much larger for higher levels of management rather than the share of overall employees. In other words, different industries vary significantly in terms of gender diversity, and the underrepresentation of women in male-dominated industries gets worse at the management level.⁷

Industrial specialisation is also a robust correlate of CGC. Firms in more male-dominated industries (energy, manufacturing) are also more systematically likely to cite difficulties related to hiring women in technical or engineering positions and are more willing to offer education and training opportunities to male employees only. At the same time, they are less likely to see the need to develop procedures to fill vacancies or to develop effective HR or induction policies rather than to resort to ad-hoc hiring and policies and they are less likely to develop programs to train and assist the workforce.

As to firm-level characteristics, the ratio of R&D expenditure is the most robust predictor of gender diversity and CGC. Firms that spend more on R&D tend to display gender cultural dimensions that are more open to equal opportunities, to the need to develop the human capital of all staff, and to the need to rely on procedures rather than ad-hoc management to deal with gender diversity. Of course, the correlation could be spurious in the sense that better managed firms may have both higher R&D expenditures and these specific gender corporate cultural dimensions. Nevertheless, the sign of the correlation is still informative on how specific cultural dimensions systematically co-vary with a higher focus on innovation. In the next sections, we explore more directly how specific dimensions of CGC systematically vary with firm performance, and we explore the issue of causation vs. correlation.

4. How does CGC relate to gender diversity and firm performance?

In this section, we illustrate how CGC relates to actual gender diversity and to overall firm performance. Our empirical strategy proceeds in several steps. First, we study which dimensions of CGC most systematically correlate with actual gender diversity and with firm performance. We find that CGC broadly correlates with female representation in the workplace, but the strength of the correlation, and which particular dimension matters, vary across hierarchical levels. Second, we single out the cultural

⁷ For women on boards, the picture is slightly different. Most notably, although firms in the IT sector fare worse in terms of women employment (including managers), they do not systematically differ from firms in consumer service in terms of female representation on boards. By contrast, women are systematically underrepresented on the boards of firms in the manufacturing and materials sectors.

dimension that correlates most strongly with gender diversity and with firm performance. We find that the dimension that most consistently matters for female representation at higher levels of the hierarchy and for performance consists of mentoring and leadership training open to all employees. We also establish that this specific dimension accounts for any observed correlation between firm performance and gender diversity and correlates with performance directly, well above and beyond its association with gender diversity.

4.1. Does CGC predict gender diversity and firm performance?

4.1.1. Empirical specification

In our first step, we estimate which cultural dimensions correlate with actual gender diversity in firms and with firm performance. Because the distributions of the frequencies of different topics are not independent within a firm, it is problematic to study the influence of each topic separately. While adjustments for multiple hypothesis testing could be implemented, there would still be as many tests as different topics and the results would not be very tractable. Instead, we focus on a specification in which we include all cultural dimensions together and we estimate the following:

$$Y_{ijt} = \beta_{10} + \beta_{11} \sum_{h=1}^H Topic_{hijt} + \beta_{12} X_{ijt} + \delta_j + \delta_t + \varepsilon_{ijt} \quad (1)$$

$$Y_{ijt} = \beta_{20} + \beta_{21} \sum_{h=1}^H Topic_{hijt} + \beta_{22} X_{ijt} + \delta_i + \delta_j + \delta_t + \varepsilon_{ijt} \quad (2)$$

Y_{ijt} is a measure of gender diversity (i.e. female representation at each level of the hierarchy) or performance for each firm i in sector j at time t . $Topic_{hijt}$ is the frequency of each topic (or dimension of CGC) h in firm i , sector j , at time t . Since firm characteristics could influence both CGC and gender diversity as well as performance, we include a set of controls for time-varying firm characteristics X_{ijt} , such as log assets (a proxy for firm size), market leverage, ratio of R&D expenditures, age since listing and board size. To account for systematic differences across industries that could influence CGC, gender diversity and firm performance, we include a set of industry dummies δ_j . In all regressions, we control for a set of year dummies δ_t . Hence, in (1), we are leveraging the variation across firms within an industry and within a specific year, controlling for major firm characteristics. To adjust for potential autocorrelation

of the error term within firms across time, we adjust standard errors for clustering at the firm level throughout.

Even though we control for firm characteristics and sector and year fixed effects in (1), the results cannot be interpreted as causal. In particular, we face the issues of omitted variable bias and reverse causality. An obvious omitted variable consists of the quality of management. Better-managed firms could display a specific culture, perform better and hire more women. Although CGC is indicative of the quality of management, it does not capture all the dimensions of management quality. To deal with this issue, we leverage the panel dimension of our sample by controlling for firm fixed effects δ_i in (2), which capture any firm-level unobserved heterogeneity, any other element of corporate culture or management quality not related to gender. Therefore in (2), β_{21} is identified from changes in the relationship between, on the one hand, CGC and, on the other hand, performance or gender diversity within firms, over time. Note that we keep industry fixed effects as well, since firms may change industry over the reporting period. This is a quite demanding specification, especially in the light of the fact that most of the variation in CGC comes from cross-firm variation, as discussed in Section 3.

While the inclusion of firm fixed effects, together with time varying firm characteristics, captures the influence of any unobservable firm characteristics that could be correlated with CGC and with gender diversity or performance, it is worth noting that it does not address the issue of reverse causality. Even with firm fixed effects, it could still be the case that better performance in a given year, or the employment of more women, particularly at higher levels of the hierarchy, could systematically lead firms to adopt different cultural dimensions. We address this issue in the next Section.

4.1.2. Empirical results: CGC and gender diversity in firms

Due to the high-dimensionality of the dimensions of CGC, we choose to report the post-LASSO estimation results of (1) and (2). Figure 1 and 2 plot the post-LASSO OLS coefficients of (1) and (2) using measures of gender diversity at different levels of the hierarchy. Full regression results underlying these Figures (LASSO and post-LASSO) are in Appendix C (Tables C1 and C2).

--Insert Figures 1 and 2 about here--

We have already discussed our choice of including all cultural dimensions together in the estimation of (1) and (2). The advantage of these specifications is to avoid issues arising from multiple hypothesis testing, which would arise if we were to run separate regressions for each cultural dimension identified by our computational linguistic algorithm. The drawback is that the interpretation of the results is not straightforward. The reason for this is that by design of our computational linguistic algorithm, the frequencies of all three topics within a category sum to 1. The coefficients associated with a given topic in a given category can thus be estimated only against a specific alternative, which is dropped from the regression due to multicollinearity issues. We present in Appendix B the results of separate regressions of our outcome variables on each dimension separately. The broad pictures are similar.

The dimensions of CGC that matter for actual gender diversity differ across the hierarchy. In particular, dimensions related to hiring matter to explain the share of women employed as regular workers or managers but have little – to no – bearing on the share of female executives or directors. This holds with or without firm fixed effects. The topics that most consistently matter to explain female representation at all levels of the hierarchy and especially at higher levels are related to training and development. In particular, the estimated coefficient for “mentoring and leadership coaching for all” is always positive and its magnitude is much higher than any coefficient associated with any other cultural dimension, or even any other firm characteristics (see Table C2) to explain the share of women on boards. This holds both across or within firms.

Although none of these correlations should be interpreted as causal, they still suggest a number of interesting patterns. First, they paint the first systematic picture of which dimensions of CGC are robustly associated with gender diversity across a universe of different firms. We notably find that idiosyncratic flagship policies such as flexible time or facilities for breastfeeding mothers, which often attract media and policy buzz⁸, actually matter very little. Second, an important message is that different practices matter for different dimensions of gender diversity and in particular for *quantity* vs. *quality* of female employment. While dimensions related to recruitment,

⁸ A search for ‘flexitime’ on nytimes.com returns 482 New York Times articles. A search for ‘breastfeeding facility’ returned 154 articles. (New York Times website accessed 20 February 2019.)

work organisation as well as sex-based harassment matter for female representation overall and at low-to-middle management level, the dimension that matters most consistently for female representation in top management consists of human capital development opportunities offered to all. It is also the case that this is the only dimension that is robustly associated with variation in gender diversity within firms.

Of course, the direction of the causality between gender corporate practices and gender diversity is unclear. Firms with higher female representation could systematically select different cultural dimensions. More women would have more power to shape policies that could favour women or make their lives in the firm easier, for example by accommodating maternity leave, providing facilities for breastfeeding mothers, and putting a lid on sex-based harassment. However, to the extent that this was the case, one would expect top management to shape gender cultural dimensions to a much larger extent than simple employees or low-to-mid management. In this respect, results are particularly interesting insofar as, apart from training opportunities, none of the other dimensions of CGC correlates with the share of women in top management.

Having established the contrasting relationship between dimensions of CGC and female representation across the hierarchy, we now turn to the question of whether, and in what dimensions, CGC matters for firm performance.

4.1.3. Empirical results: CGC and firm performance

We report the results of post-LASSO OLS regressions based on (1) and (2) for firm performance in Figures 3 and 4. Full regression results (LASSO and post-LASSO) are in Appendix C (Tables C3 and C4).

--Insert Figures 3 and 4 about here--

The relationship between CGC and firm performance across firms mirrors the conclusion we have just reached: the dimension of CGC that matters most for firm performance is the same as the one that matters most for gender diversity, particularly at higher levels of the hierarchy: training and development opportunities offered to all. Further, we show in Section C5 of Appendix C that this dimension of CGC matters for firm performance, well *above and beyond* its association with female representation in management or at executive levels. First, we show in Table C5A that the relationship

between our dimension of CGC of interest and firm performance is statistically and economically significant⁹; and that it is robust to controlling for the shares of women among managers, executives, or board members. By contrast, we find only weak evidence that the share of women managers is significantly associated with financial performance; and this relationship is not robust to controlling for our proxy of CGC. Second, the results of Sobel-Goodman mediation tests (displayed in Table C5B) suggest that, on average, only 3.93% of the relationship between our dimension of CGC of interest and firm financial performance is mediated by female representation in management, or at executive or board levels. The remaining 96.07% constitute a “direct association,” of CGC with firm financial performance i.e., independent of firms’ gender diversity.

Nevertheless, these results are only indicative of correlations. Several factors impede the interpretation of any correlational result of this sort as a causal effect. First of all, the direction of the causality is unclear. While specific cultural dimensions could lead to higher firm performance, it is also likely that better performing firms adopt specific dimensions, notably because they can afford to do so. Some of the dimensions we study, such as providing a facility for breastfeeding mothers or providing employee-sponsored maternity leave, are costly, and only better performing firms may be able to afford them. Moreover, there is an omitted variable bias. Better-managed firms could both display specific cultural dimensions and perform better. We address the issue of causality in the next Section.

5. Is the effect of CGC on firm performance causal?

We have shown in the last section that the dimension that most consistently matters for female representation at higher levels of the hierarchy and for performance consists of mentoring and leadership training open to all employees. In this section, we focus on this dimension and we show that its relationship to firm performance is causal. To do so, we first discuss how societal gender norms influence corporate culture. We then use an instrumental variable estimation that relies on a historical natural experiment that created a shift in societal norms about gender roles and in particular about the role of women in the workplace (Grosjean and Khattar 2019).

⁹ A one standard deviation increase in the frequency of Mentoring and Coaching for All is associated with a 0.06 standard deviation increase in EBIT to assets and a 0.13 standard deviation increase in Tobin’s Q (see Columns 4 and 11 in Table C5A).

5.1. Where does CGC come from? The influence of societal gender norms

Where does CGC come from? We propose here that CGC is, at least partly, shaped by ambient societal gender norms and values. This conjecture contrasts with most of the previous literature, which instead has focused on the role of the CEO in shaping corporate culture. In relation to gender issues within the firm, although not specifically corporate culture, Duchin et al. (2018) find higher gender pay gaps in firms whose CEOs grew up in male-dominated families or went to all-boys schools. However, other papers, in particular Hofstede and Bloom et al. (2012) suggest that corporate culture is shaped by societal culture. The two approaches are complementary, to the extent that CEOs' values must be congruent with employees' (Graham et al. 2018b).

Here, we focus on how ambient, social gender norms shape CGC. Employees, not only CEOs but other executives, managers, and regular employees bring into the firm their values, which are influenced by ambient societal values in the area where they live, which is usually where the firm is located or within commuting distance. To provide a more formal validation of this proposition, we correlate our dimension of CGC of interest to societal norms held about gender roles in the postcode in which the head office of the company is located. We use the location of each company's head office obtained from Morningstar Australia's DatAnalysis Premium database. Information on the postcode of the head office is available for 95% of the observations in our sample. One limitation of this approach is that a firm may have branches and subsidiaries located in other areas. Unfortunately, we do not have systematic information on the location of branches and subsidiaries. However, we do not think that this is a major limitation of our approach, for two main reasons. First, the firm's CGC is much more likely to be influenced by the values of the employees who work in the headquarters rather than by employees of branches and subsidiaries. Second, to the extent that the head office location would not fully capture all the societal values that could influence CGC, this would create noise and bias our results against finding any significant relationship between CGC and societal values held in the postcode of the location of the firm's head office. Similarly, not all employees of the head office may live in the same location. Again, this would create noise and bias our results downwards.

In Column 1 of Table 5, we regress the frequency of our cultural dimension of interest (“Mentoring and coaching for all”) on the average opinions about gender roles at home and in the workplace in the postcode where firms’ head offices are located. We use our standard set of firm-level controls as well as year and industry dummies. We do not use firm fixed effects as we only explore the cross-sectional correlation between societal attitudes and CGC. Standard errors are two-way clustered at the company (162 clusters) and postcode (82 clusters) level.

Opinions about gender roles are measured in a representative household survey (Household, Income and Labour Dynamics in Australia survey: HILDA) by the average response, at the postcode level, to the following question: “*How much do you agree with the following statement: It is better for everyone involved if the man earns the money and the woman takes care of the home and children.*” Response categories range from 1 (strongly disagree) to 7 (strongly agree). A higher value indicates more conservative attitudes towards gender roles. We choose this variable as it precisely captures views about the relative roles of men and women in the workplace and at home. Nevertheless, we check in Appendix A (Section A1.4) that CGC is consistently correlated with alternative measures of gender norms. In particular, we relate our main cultural dimension of interest to the principal component of five variables proxying attitudes towards gender roles in HILDA. We also discuss how the correlation between CGC and societal views is specific to views about gender roles. For example, although societal views about work-life balance or work-family balance are significantly correlated with views about gender roles, our measure of CGC is only significantly correlated with views about gender roles and not with views about work-life balance or work-family balance in general (see Table A1.4.1).

We find in Column 1 of Table 5 a significant correlation between CGC and local social norms about gender roles (p-value = 0.011). A one standard deviation increase in conservative local opinions about gender roles is associated with a 0.10 standard deviation decrease in the frequency of our dimension of CGC of interest. This is comparable in magnitude with a decrease in one standard deviation in company size, as measured by the log of assets.

5.2. Instrumental variable strategy

Grosjean and Khattar (2019) show how the British policy in the 18th and 19th centuries to send convicts to Australia created a variegated pattern across different areas

in the number of men relative to the number of women (sex ratio). They show that to this day, in areas with a higher sex ratio (i.e. more men relative to women) people have more conservative attitudes towards gender roles, women work fewer hours in the labour market, and women are less likely to rise to high level occupations.

We follow Grosjean and Khattar (2019) and instrument our CGC dimension of interest by the sex ratio that prevailed historically in the area in which the firm's head office is now located. To do so, we match the current location of the head office of each company (postcode) to the historical district in which the firm's head office is located and to the sex ratio that prevailed historically in this county.¹⁰¹¹ Since firms' headquarters are located in metropolitan areas, which were already settled at the time of the first Census, we are able to match 100% of all the firms

An issue with relying on the historical data is that historical areas are less granular than current postcodes.¹² To address this issue, we adjust standard errors for clustering at the historical county level, as well as the firm level. Moreover, only two states (NSW and Tasmania) harboured convicts. Overall, there were 91 counties, and only 37 of these harboured convicts. Since firms are headquartered only in a subset of metropolitan areas, only 15 out of the 91 historical counties and only 5 where convicts were present contain firms' headquarters today. We are therefore unable to rely on the subsample of convict areas due to the small sample issue. Our instrument therefore consists of the historical sex ratio in the population (which consisted of convicts, ex-convicts, free migrants, and people born in the colony) as measured in the first reliable Census in the early to mid-19th century. To address inference concerns associated with the small number of historical clusters (15), we correct p-values using the wild cluster

¹⁰ As in Grosjean and Khattar (2019), we rely on the measure of the sex ratio in the first reliable Census in each state. These are: the 1836 New South Wales Census (which also included the Australian Capital Territory at the time), 1842 Tasmanian Census, 1844 South Australian Census, 1848 Western Australian Census, 1854 Victorian Census, and 1861 Queensland Census. There was a Census in New South Wales in 1833 but it is very aggregated and is therefore not practical for our purpose. Since convict transportation was the exogenous driver of the sex ratio, and because convict transportation gradually eased throughout the 19th century, relying on the first Census enables us to rely as much as possible on the exogenous drivers of the sex ratio.

¹¹ We refer the reader to Grosjean and Khattar (2019) for all the details pertaining to the data and historical background.

¹² Another potential caveat could be due to the fact that not all areas of Australia which are populated today were settled at the time of the first Census. However, this is not an issue here. Indeed, the first Censuses cover 60% of the present-day population and includes all major metropolitan areas where the majority of firms are located. Only 195 firm-year observations out of our 3,675 observations (i.e. around 5%) are not matched to a historical area.

bootstrap method based on 1,000 replications (Cameron et al. 2008, Cameron and Miller 2015).

Relying on the sex ratio in the population rather than among convicts only is problematic insofar as free migrants and people born in the colony, as opposed to convicts, were free to move. However, the evidence in Grosjean and Khattar (2019) suggests that self-selection was not a major issue. The estimates obtained when relying on the population or on the subset of convicts are very close. Furthermore, we have here a much more homogenous sample of metropolitan areas, which reduces the potential for unobserved heterogeneity. More generally, violation of the exclusion restriction would occur if the sex ratio in the early to mid-19th century was determined by factors that would directly influence firm financial performance today. Considering the wide range of historical and present-day controls, this is unlikely to be the case.

We control in all specifications for the total historical population and for the total number of convicts. These controls absorb the effect of historical population density, which could have a persistent effect on present-day population density because of agglomeration effects and could influence firm performance. Controlling for the total number of convicts also addresses the potential concern that the presence of convicts itself could have a long-term influence on factors that could also influence firm performance (through, e.g. human capital¹³). As in Grosjean and Khattar (2019), we also control flexibly for geography to account for spatial differences in geographic endowment and climatic conditions.¹⁴ Last, we control for all usual firm-level controls (size, leverage, R&D expenditure ratio, age since listing, board size) and industry fixed effects.

For the interpretation of our results, we have to consider two potential mechanisms. The historical sex ratio may influence CGC directly through its influence on the societal gender norms that shape CGC. But it could also influence CGC indirectly by its influence on female work and occupational choice and hence on gender diversity within the firm. We are unable to disentangle empirically between these two mechanisms, since female occupational choice is also influenced by the historical sex ratio, as shown by Grosjean and Khattar (2019) and therefore constitutes a bad control.

¹³ This is highly unlikely. Grosjean and Khattar (2019) discuss historical evidence that highlights the fact that transported convicts were representative of Victorian society. If anything, the labour skills and literacy levels of convict men and women were often superior to their host populations in England and Ireland (Nicholas, 1988).

¹⁴ We do not control for an urban dummy as all firms are headquartered in an urban area.

However, we have already discussed that most of the association between CGC and performance is direct; and that any relationship between gender diversity and performance in our sample is explained by CGC (see Section C5 in Appendix). We verify that in the subsample of historical districts with historical controls, the reduced form relationship between financial performance and CGC is positive and statistically significant (see Table C6). By contrast, the reduced form relationship between financial performance and female representation (at whatever level of the hierarchy) is sometimes negative and never statistically significant (Table C6). We therefore believe that most of the evidence that follows pertains to a direct effect of CGC on firm performance.

5.3. Instrumental variable estimation and results

We implement our instrumental variable strategy in a two-stage least squares framework. In the first stage, we predict the frequency of the CGC dimension of interest (*Mentoring*) in firm i as a function of the sex ratio ($HistoSR_c$) that prevailed historically in the district d where the firm is presently located, controlling for our usual controls for firm characteristics (X), year (δ_t)¹⁵, industry (δ_j), and state dummies (δ_s), and for the historical controls and time-invariant district-level characteristics (X_c^H) we have just described. The first stage consists of the following specification:

$$Mentoring_{ijcs} = \beta_{30} + \beta_{31}HistoSR_c + \beta_{32}X_{ijcs} + \beta_{33}X_c^H + \delta_j + \delta_t + \delta_s + \varepsilon_{ijcs} \quad (3)$$

In the second stage, we only rely on the variation in the prevalence of *Mentoring* that is predicted by the historical sex ratio and therefore not subject to reverse causality and we examine its predictive power on our firm performance measures (return on asset measures and Tobin's Q), by estimating the following equation:

$$Performance_{ijcs} = \beta_{40} + \beta_{41}\widehat{Mentoring}_{ijcs} + \beta_{42}X_{ijcs} + \beta_{43}X_c^H + \delta_j + \delta_t + \delta_s + \varepsilon_{ijcs} \quad (4)$$

We adjust standard errors for two-way clustering at the company and historical district level. We also correct for the small number of district-clusters with a wild cluster bootstrap, as recommended by Cameron et al. (2008) and Cameron and Miller (2015).

¹⁵ Since our instrumental variable is time-invariant, we estimate in effect pooled OLS, controlling for year dummies.

The results of this instrumentation strategy are displayed in Columns 2 to 5 of Table 5. In the first stage (column 2), we observe that the frequency of “Mentoring and coaching for all staff (inc. leadership coaching)” is negatively and significantly associated with the historical sex ratio. This is as expected. Companies that are located in an area where the number of men was high relative to the number of women, are less likely to preoccupy themselves with inclusive training and mentoring (as opposed to the excluded topics, which include “education for males only”). This result is consistent with Grosjean and Khattar (2019), which find a negative effect of historical sex ratios on progressive gender norms. The predictive power of the first stage is satisfactory. The coefficient associated with the historical sex ratio is statistically significant at the 1% level, with a Wild bootstrap corrected P-value of 0.02. The F-stat is around 9-10.

In the second stage, the coefficient associated with the frequency of “Mentoring and coaching for all staff (inc. leadership coaching)” is positively and significantly (at the 5% level, including when correcting for the small number of clusters) associated with the performance measures of return on assets and EBIT to assets. The relationship with Tobin’s Q is not statistically significant. The magnitude of the coefficient suggests that an increase in one standard deviation in the predicted frequency of the CGC dimension of interest is associated with an increase in the return on assets by 0.414 standard deviation and an increase in the EBIT to assets by 0.380 standard deviation.

Overall, these results suggest that the positive relationship between the dimension of CGC that relate to mentoring and coaching of all employees has a positive and economically significant impact on firm financial performance.

6. Cultural change

We have so far discussed qualitative evidence on specific dimensions of CGC and provided an analysis of how CGC varies across firms and industries. We have also discussed how CGC is associated with actual measures of gender diversity and how it influences firm performance. In this section, we address the question of cultural change, both under internal and external processes.

6.1. Endogenous cultural change

In this section, we turn to the issue of endogenous cultural change. Does firms’ CGC change over time? In which dimension do we see greater, or faster, change?

To study the evolution of CGC over time within a firm, we exploit the panel dimensions of our measure of CGC and we estimate a dynamic panel model with firm fixed effects over our sample period (2001-2012). Within each firm, to study to what extent culture persists or changes over time, we regress the frequency of a cultural dimension in a given year on its lagged frequency. In addition, we exploit another unique aspect of our firm reports, which we have not used so far. In addition to the seven HR practices that firms report on and that we have analysed so far, firms are asked to report which action, if any, they have implemented to address issues of gender diversity. We coded these actions using our topic modelling algorithm, following the procedure described in Section 2, which returned three topics of actions over the period.¹⁶ We then manually classified these topics of actions and linked them to the cultural dimensions identified in the seven dimensions of HR practices. These three topics could be linked to the following three dimensions in a straightforward way: (i) Mentoring and coaching for all staff (inc. leadership coaching), (ii) Flexible work conditions, and (iii) Procedures to handle complaints of sex-based harassment.

To estimate the dynamic process of cultural evolution, and whether the actions that firms take are able to affect this evolution, we estimate the following dynamic panel model:

$$Topic_{ijt} = \alpha + \gamma Topic_{ijt-1} + \sum_{n=1}^2 \omega_n ActionTaken_{ijt-n} + \delta_j + \delta_t + Trend + \varepsilon_{ijt} \quad (5)$$

Where $Topic_{ijt}$ corresponds to the frequency associated with each dimension i out of the three dimensions of actions ((i) to (iii)) in firm j at time t . We only consider models with firm fixed effects δ_j as we are interested in the evolution of culture within firms over time (we have already discussed the evolution of cultural dimensions across firms over time in Section 3). We consider two lags of actions taken related to topic i . We test whether higher order lags of either the dependent variable or of actions taken should be included, and we systematically find that higher order lags are insignificant.

¹⁶ We also ran our algorithm year by year and obtained three topics of action per year. However, the topics returned are quite similar to the three overall topics for the whole period. The most frequent topics of action over the years correspond to the three overall topics and constitute the vast majority of all topics: 25% of all topics across all years relate to (i) Mentoring and coaching for all staff (inc. leadership coaching), 22.22% to (ii) Flexible work conditions, and 13.89% to (iii) Procedures to handle complaints (of sex-based harassment). Due to the lack of power for the other topics of action, we focus on the three main ones across all years.

We expect cultural dimensions to be persistent over time, so that γ should be positive. By contrast, we expect that the actions taken by a firm on a specific issue of gender diversity should reduce the prevalence of this issue in the future for the firm. In other words, we expect the coefficients ω_n associated with the lags of actions taken to be negative. We estimate the model with the Arellano-Bond GMM (AB) estimator and with the Arellano-Bover/Blundell-Bond GMM (AB/BB) estimator, which uses not only the second lag (as in the AB estimator) but also all higher order lags of the dependent variable as excluded instruments. We include a set of year dummies and a trend. Estimation results are reported in Table 6.

--Insert Table 6 about here--

The first take-away from Table 6 is that culture is highly persistent. The first lag of each cultural dimension is a robust predictor of the frequency of a cultural dimension in a given firm in the next year, in almost all cases. The magnitude of the persistence varies slightly from one dimension to the next and is particularly large for “mentoring and coaching available to all staff”. For this dimension, an increase in one unit in the frequency (i.e. from 0 to 1) in one year is associated with a 58% increase in the frequency in the next year.

The second take-away from Table 6 is that, despite its strong persistence, CGC is malleable to specific actions taken by firms. Yet, the magnitude of this change is negligible in comparison to cultural hysteresis. The magnitude of the coefficients associated with actions taken, when they are significant, is only about 12.5-20% of the magnitude of the coefficient associated with the lagged dependent variable.

Moreover, the ability of firms to shape their culture, and the speed at which they can do so, varies across different dimensions of CGC. In particular, changing culture of sex-based harassment may be particularly challenging compared to, for example, conditions of service. Indeed, while the lags of action taken are robustly associated with the frequency of “Mentoring and coaching for all staff” or with “Flexible work conditions”, actions taken in relation to procedures to handle complaints of sex-based harassment are not robustly associated with the future frequency of this issue. Moreover, conditions of service (flexible work conditions) seem to respond to actions faster than training and development (mentoring and coaching for all staff). Only the second lag of actions related to “Mentoring and coaching for all staff” is statistically

significant (Column 1 and 2), while the first lag of actions taken related to Flexible work conditions is statistically significant (Column 3 and 4).

6.2. Exogenous change: mandated government-funded maternity leave

There have been considerable societal and political pressures to increase gender diversity in organisations and firms.¹⁷ ‘Improving’ work culture is often seen as a solution to achieve this objective. Indeed, a hostile, even sexist, work environment is often pointed to as an underlying reason to explain women under-representation in the workplace, and particularly among male-dominated higher levels of management. In this regard, the lack of women in higher levels of management and the female-unfriendliness of workplace cultures may feed on one another: women do not progress to top management because the culture is hostile or negative towards women, and the culture remains hostile or negative towards women because not enough women are in top management positions.

However, evaluating the effectiveness of different policies aimed at making the workplace more female friendly and improving female representation in top-management at the same time is very difficult due to the lack of systematic evidence on ‘work culture’, and the lack of disaggregated data on women at different levels of management within a firm.¹⁸

In this paper, we are able to leverage our direct measure of the ‘female-friendliness’ of work culture and our measures of female representation at different hierarchical levels to evaluate the influence of a major policy change in Australia, with the introduction of the first government-funded paid parental leave in 2011.

The first government-funded paid parental leave scheme came into effect in Australia on the first of January 2011. Prior to this scheme, the only available form of paid parental leave consisted in employee-sponsored leave. As of 2009, only slightly over half of the organisations reporting to the WGEA (which include any organisation with more than 100 employees, including public sector organisations) provided paid parental leave to eligible, not casual, employees, for an average duration of 9.7 weeks

¹⁷ A New York Times article search for “gender diversity + firms” returned 409 articles between January 1, 2010 and May 10, 2018.

¹⁸ Noteworthy exceptions include Giuliano et al. (2005), Blau and DeVaro (2007), Smith et al. (2013) and Kunze and Miller (forthcoming) which have breakdowns of female employment across the hierarchy. However, no paper before us has data on CGC.

(WGEA, 2013).¹⁹ The government-funded paid parental leave scheme provides up to 18 weeks at the rate of the National Minimum Wage to eligible recipients. Eligibility is subject to a means-test (less than \$150,000 of income in preceding financial year) and to work requirement in the period leading up to the leave.²⁰ Only a child primary carer is eligible for the scheme. According to the OECD Family Database, 99.5% of the users of this parental leave in 2013 were women.²¹ This female-focus of the policy justifies our focus on female employment and CGC as outcomes of interest. The government-funded parental leave pay is provided by the government to the employer, who then provides the payment to the eligible employee. As such, the introduction of this scheme is expected to substantially decrease the cost to firms of hiring women in their childbearing age, because it directly subsidises parental leave and because it decreases the separation probability of female employees when they become mothers, which is costly to employers. We, therefore, expect that the introduction of the government-funded parental leave should increase the share of female employees.

The literature so far has mostly focused on the effect of parental leave policies on employment rates and on the wage gap. The conclusions of this literature have remained inconclusive. Ruhm (1998) finds that a short period of leave such as the one introduced by the Australian government in 2011 leads to a small rise in overall female employment rates, with little effect on wages, while longer leaves lead to a negligible additional impact on employment, but sizeable negative impacts on female wages. Olivetti and Petrongolo (2017) study the evolution of family policies over time in high-income countries and find that moderate job-protected leave entitlements (up to one year) are associated with higher female employment. These effects are driven mostly by low-skilled women, while high-skilled women see possible detrimental effects. Other papers directly examine the effect of childbirth and consistently find negative

¹⁹ This may overestimate how many employees actually had access to maternity leave prior to 2011. We accessed firm- and branch-level Enterprise Bargaining Agreements from the Workplace Agreements Database. Enterprise Bargaining Agreements (EBA) set the conditions of employment and are negotiated at the level of the individual organisations, usually, between employer, employees and trade unions. EBAs are legally binding once established. More detail on this data and how we match it to our WGEA sample is included in Appendix A. Only 32% of branches or firms had a provision for maternal leave. Among those, the average duration of the maternal leave was 8.17 weeks. We discuss this evidence in Section A1.2 in Appendix A.

²⁰ The recipient must have worked more than one day a week for 10 months of more of the 13 months prior to the required leave and must not work during the leave.

²¹ Incidentally, the share of male users, at 0.5% is the lowest share in all OECD countries.

effects of childbirth on female employment and wages.²² We contribute to this literature by examining the impact of parental leave entitlements on female employment at different levels of the hierarchy within a firm. We also provide the first evidence on how the introduction of government mandated policies can change the cultural attitudes towards women in firms.

To estimate the influence of the introduction of the first government-funded parental leave on female representation at different levels of the hierarchy and on CGC, we estimate the following specification:

$$Y_{ijt} = \gamma_0 + \gamma_1 PostPolicy_t + \gamma_2 X_{ijt} + Trend + \delta_i + \delta_j + \delta_t + \varepsilon_{ijt} \quad (6)$$

Where Y_{jt} consists in measures of female representation at different levels of the hierarchy or CGC dimension i in firm j at time t . $PostPolicy_t$ is a dummy variable taking value 1 after the policy change in 2011. We control for our usual set of time-varying firm characteristics. We only consider the most restrictive specification with firm fixed effects δ_i . Standard errors are clustered throughout at the firm level.

Specification (6) corresponds to a simple-difference specification, and γ_1 captures the change within-firm in gender diversity across the hierarchy and in CGC, after the introduction of the government-funded maternity leave scheme. Since the change affected all firms Australia-wide, it is difficult to find a control group which would not be affected by the policy and to implement a difference-in-differences estimator. As such, the coefficient associated with the $PostPolicy$ dummy could capture the influence of broader macro-trends on our outcomes of interest. To address this limitation, we implement a couple of empirical strategies. First, we control for year dummies, as well as a linear trend ($Trend$). Second, we restrict our attention to a few years immediately before and immediately after the policy change to reduce unobserved heterogeneity due to changes of our variables of interest over time. We restrict the estimation period to 2009-2012, i.e. 2 years before and after the policy change. Both specifications bring similar results. In robustness analysis reported in Appendix D, we also consider placebo outcomes and a series of placebo treatments. The results of these confirm that none of the breaks we report in our results occur for

²² See e.g. Lalive and Zweimüller (2009), Lalive, Schlosser, Steinhauer and Zweimüller (2014), Kleven, Landais, and Sogaard (2018), Kuziemko, Pan, Shen, and Washington (2018).

outcomes that should be unaffected by the parental leave policy and for no time period before 2011.

In a second step, we contrast the evolution of gender diversity across the hierarchy and of CGC after the introduction of the government-sponsored parental leave across firms which differed in their initial level of female representation. We estimate the following equation:

$$Y_{ijt} = \gamma_0 + \gamma_1 PostPolicy_t * AbMedFem_{ij} + \gamma_2 X_{ijt} + \delta_i + \delta_j + \delta_t + \varepsilon_{ijt} \quad (7)$$

Where $AbMedFem_{ij}$ indicates whether a firm j is (strictly) above the median firm in terms of female employment in 2009. We restrict the estimation period to 2009-2012.²³ We do not include $AbMedFem_{ij}$ as a regressor in the specification since it is a time-invariant firm characteristic and is absorbed in the firm fixed effect δ_j .

This second specification is akin to a difference-in-differences (DID) specification and enables us to relax the identification assumption needed for a consistent estimation of the coefficient associated with $PostPolicy_t$ in (6). We no longer need to assume that there is no trend or shock that affects female employment or CGC other than the introduction of the government-sponsored maternity leave scheme. Instead, the identification assumption for a consistent estimation of the effect of the introduction of the government-sponsored parental leave in (7) is that there is no idiosyncratic shock or trend which affects firms that had low or high female overall representation in 2009 differently after the introduction of the government maternity leave. We verify that there is no difference in trends between these two types of firms before the introduction of the policy in Figures D2 and D4.

We first deal with gender diversity outcomes within firms, and we report estimation results in Table 7. Estimation results for the simple difference (6) are reported in Columns 1 to 8, and estimation results for the DID specification (6) are in Columns 9 to 12.

--Insert Table 7 about here--

Across the board, female employment shares rose after the introduction of the government-funded parental leave scheme. The increase is borderline statistically

²³ Results with not restricting the estimation period but including a trend are similar.

significant for women employed as regular employees, but it is statistically significant at the 1% to 5% level for women employed in higher ranks in the hierarchy. The share of female executives rose by around 6.5-8.2 percentage points after the introduction of the government-funded maternity leave scheme, and the share of women on board by 3.6-3.3 percentage points.

It may seem surprising at first that the relationships are strongest for higher ranks in the hierarchy in light of previous findings in the literature that parental leave entitlements seem to benefit low-skilled women more. Moreover, since the funding by the government (18 weeks at minimum wage) is fixed, one may have expected a regressive relationship between the subsidy and the shares of female employment, which should have increased more at lower levels where the size of the subsidy relative to what the firm would have to pay to fund a similar period of absence is larger. However, there is another potential effect of the government-funded policy, in addition to the subsidy effect. The government-funded policy decreases the separation probability of female employees when they become mothers. Such a separation is costly to employers, and this cost increases at higher levels of the hierarchy ranks, since employees at higher ranks may have more firm-specific human capital.

This effect may be particularly relevant in the case of Australia, where the outside options of unemployment or leaving the labour force when women become mothers are widely taken. The employment rates of mothers in Australia is well below the OECD average (Baxter, 2013). One reason for this may have been the unavailability of parental leave prior to 2011, forcing women into separation from work at the birth of a child. Only 6% of mothers not working in 2010 (prior to the introduction of the parental leave scheme) stated being on maternity leave as a reason for not working (Baxter, 2013), even though 42% of non-employed women declared wanting a job and 25% of them have a university education. In those conditions, it thus appears that the availability of parental leave would enable more women to not separate from their occupation and that this separation effect might dominate the subsidy effect in the relationship between government-sponsored maternity leave and gender diversity in firms.

Moreover, the evolution of female employment after the introduction of the government-funded maternity leave scheme is sharply contrasted across firms that differed in their initial level of female employment in 2009. Any increase in female employment after the introduction of the government-funded maternity leave scheme

is observed only in firms that employed fewer women relative to their total labour force than the median firm in 2009. For these firms, the ratios of women employed as regular employees, managers, or the ratio of women on the board increase by around 5 to 5.5% after the introduction of the maternity leave scheme. The increase in the ratio of female executives is of even larger magnitude, around 7.6%. By contrast, firms that employed more women than the median firm in 2009 experience no significant change in the ratios of women regular employees, managers, or executive, and, if anything, a slight decrease in the share of women on boards.

We also examine how CGC changed after the introduction of this policy. We focus on the dimensions of culture related to “Pregnancy and breastfeeding”. The estimation results of (6) and (7) are reported in Table 8.

--Insert Table 8 about here--

We see a marked change in the frequency of dimensions related to “Pregnancy and breastfeeding” after the introduction of the government-funded maternity leave. While the topic of providing facilities for breastfeeding becomes less frequent after the introduction of the parental leave – possibly because mothers are now at home with their child rather than having to express milk in the workplace – the topic of employing women with children becomes more frequent, which is in line with our results on female employment. However, we do not observe any significant heterogeneous effects across firms that differed in their initial share of female employment in 2009, suggesting that the effect is homogenous across firms.

A potential limitation of the identification strategies that these results rely on consists of the confounding effects of trends in the outcomes we have studied. Although our empirical strategy directly addresses this by including controls for trends and restricting our estimation window, we provide in Appendix D additional tests that do indeed confirm that the changes we observe after the introduction of the parental leave in 2011 are indeed due to this policy change. First of all, we study whether we can obtain similar temporal breaks in the pattern of female employment or gender corporate cultural dimensions. To do so, we re-estimate equations (6) and, when relevant, (7) but reallocate the *PostPolicy* dummy to each of the other possible years in the estimation period. In other words, we consider fake treatments that happen in every other possible year. The results of these placebo tests are in Figures D1 to D4 of Appendix D. We

only present the results of specification in which we restrict our attention to a 4-year estimation window after the (placebo or real) treatment. For female employment, it is very clear from the single difference (Figure D1) and DID specifications (Figure D2) that the only treatment that leads to a significant increase in female employment (D1) and particularly in firms that had low shares of female employment prior to the introduction of the (placebo or real) treatment (D2) is the actual policy treatment in 2011. For all other years, we do not see any significant positive deviation from the trend.²⁴ Similarly, none of the (fake) treatments is significant in any other years but the actual year in which the policy change took place for the gender corporate cultural dimensions related to pregnancy and breastfeeding (Figure D3).

A potential criticism still is that what these tests may reveal is that 2011 was a special year, and that our outcomes of interest changed due to some larger shock or to another policy change in that same year. To address this concern, we provide in Table D1 the results of a placebo test in which we examine other outcomes that should be unaffected by the introduction of parental leave. It is not straightforward to think of employment outcomes that should be unaffected, as female employment shares are mirrored by male employment shares, and the ratio of women working part or full time may also be affected by choices related to parental leave. However, and especially because so few men take parental leave, there is very little reason to think that the ratio of male working part-time as a proportion of the male workforce should be affected. We also examine to what extent the firm profitability changed after the introduction of the policy. Even though one might imagine that firm profitability is affected by the introduction of parental leave, the effect is ambiguous (Del Rey, Racionero and Silva 2018). A bigger concern may instead be that 2011 was a shock to the profitability of firms unrelated to the introduction of parental leave, which led firms to substitute female employment. This justifies our examining how firm profitability changed at the same time the parental leave was introduced. The results of regressions identical to (6) and (7) with these other outcomes are presented in Table D1. We only present the results of our preferred specification in which we restrict the estimation period to 2 years before and after the policy change. We do not observe any significant change after the introduction of the policy in terms of the ratio of males working part-time or

²⁴ There is a small and marginally significant decrease in the share of female “other workers” and female on boards when the placebo treatment is allocated to 2010, but the magnitude of this deviation is no way near in par with the (positive) deviation in 2011.

in most profitability measures, apart from a marginally significant decrease in Tobin's Q. Similarly, we do not observe any significant difference post-policy across firms that differed in their initial level of female employment, even for Tobin's Q. Overall, these results suggest that there was not any significant shock other than the introduction of the maternity leave in 2011 that could explain the rise in female employment and the change in CGC that we have documented.

To conclude, we observe that the introduction of the first government-funded parental leave policy, taken almost exclusively as maternal leave, is associated with a rise in female employment, particularly at higher levels of the hierarchy, and with a change in CGC towards a greater preoccupation with hiring women with children.

7. Conclusion

We apply computational linguistic models to Australian publicly listed firms' reports to a gender-equality statutory agency to construct the first systematic measures of 'corporate gender culture'—firms' practices pertaining to the treatment of women across a range of dimensions, from recruitment and promotion to maternity leave and sexual harassment policy. While different practices are associated with female representation at different levels of the hierarchy (employees, managers, executives, board), the only practice robustly associated with firm performance is equal mentorship and leadership opportunities, i.e. human capital formation opportunities open to all. We use a unique natural experiment that shaped gender norms in Australia to establish that the relationship between corporate gender culture and firm performance is likely causal. Upon examining the impact of the introduction of government-funded parental leave in 2011, we observe that culture evolves slowly, but policy can shape gender diversity and corporate gender culture.

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Figure 1. Gender corporate culture and gender diversity across the hierarchy across firms

We report the results of post-LASSO OLS regressions with industry and year fixed effects. Non-reported coefficients were estimated at 0 by the first step LASSO regression (10 folds, 100 lambda tested). Each panel is a separate regression (4 in total). The level of observation is a firm*year. Each regression controls for industry and year dummies, and for the following time varying firm characteristics: log assets, market leverage, ratio of R&D expenditures, and board size, as well as for age since listing (time invariant), when these controls are not estimated to have a 0 coefficient in the initial LASSO regression. Each dot is the coefficient associated with a given gender corporate cultural dimension and horizontal segments represent 10% confidence intervals. Standard errors are adjusted for clustering at the firm level.

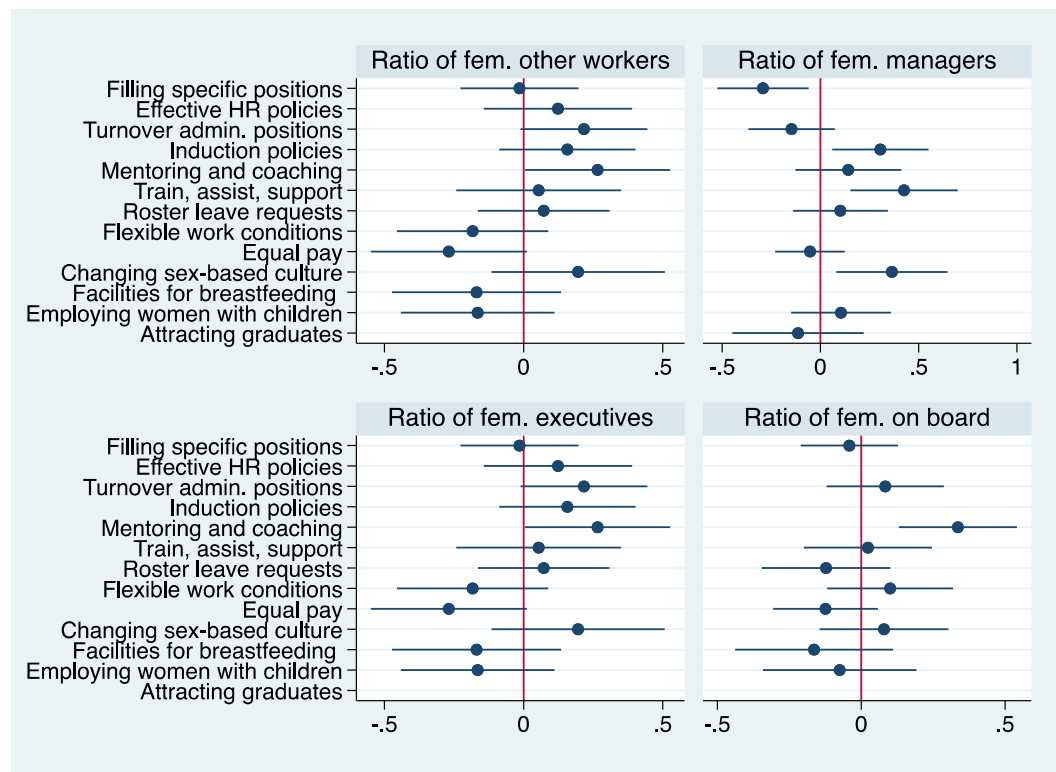


Figure 2. Gender corporate culture and gender diversity across the hierarchy – firm fixed effects

We report the results of post-LASSO OLS regressions with firm, industry and year fixed effects. Non-reported coefficients were estimated at 0 by the first step LASSO regression (10 folds, 100 lambda tested). Each panel is a separate regression (4 in total). The level of observation is a firm*year. Each regression controls for year dummies and for firm fixed effects (industry dummies redundant), and for the following time varying firm characteristics: log assets, market leverage, ratio of R&D expenditures, age since listing, and board size, when these controls are not estimated to have a 0 coefficient in the initial LASSO regression. Each dot is the coefficient associated with a given gender corporate cultural dimension and horizontal segments represent 10% confidence intervals. Standard errors are adjusted for clustering at the firm level.

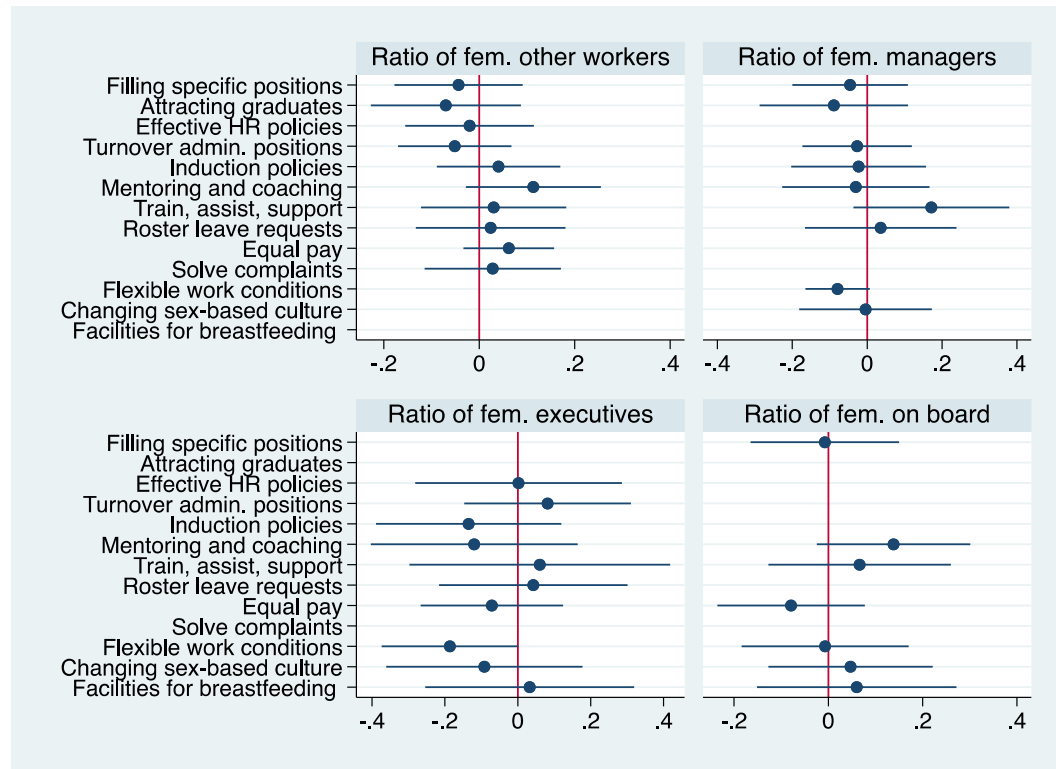


Figure 3: Gender corporate culture and firm performance across firms

We report the results of post-LASSO OLS regressions with industry and year fixed effects. Non-reported coefficients were estimated at 0 by the first step LASSO regression (10 folds, 100 lambda tested). Each panel is a separate regression (4 in total). The level of observation is a firm*year. Each regression controls for industry and year dummies, and for the following time varying firm characteristics: log assets, market leverage, ratio of R&D expenditures, and board size, as well as for age since listing (time invariant), when these controls are not estimated to have a 0 coefficient in the initial LASSO regression. Each dot is the coefficient associated with a given gender corporate cultural dimension and horizontal segments represent 10% confidence intervals. Standard errors are adjusted for clustering at the firm level.

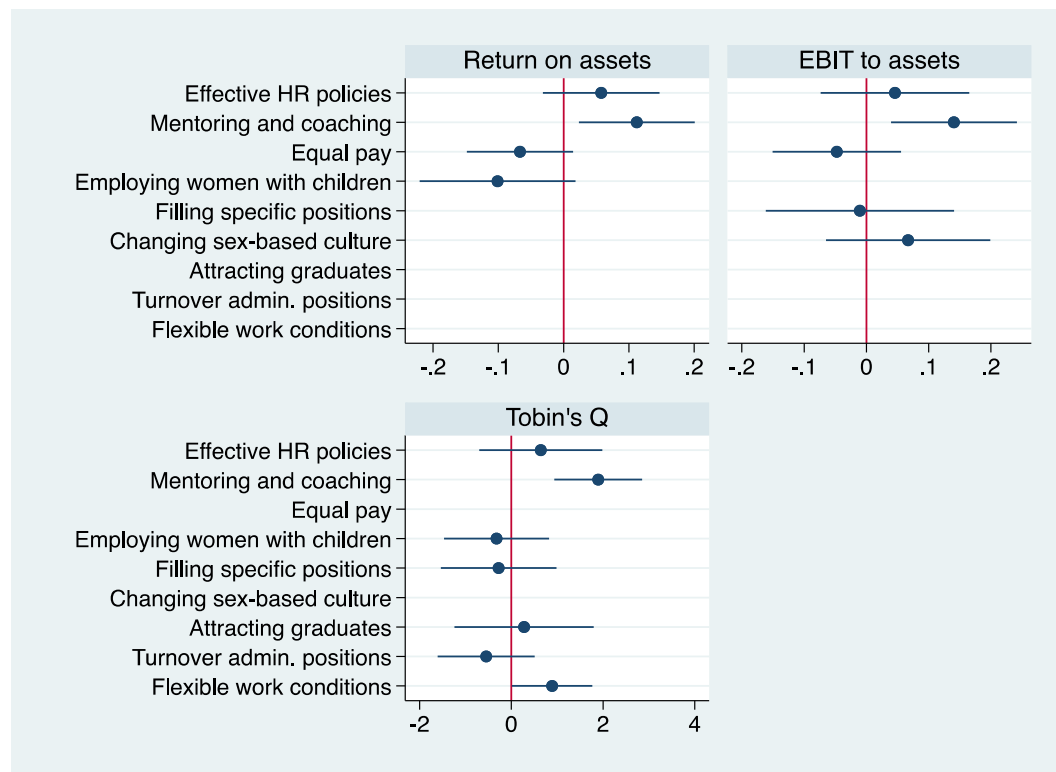


Figure 4: Gender corporate culture and firm performance within firms

We report the results of post-LASSO OLS regressions with firm, industry and year fixed effects. Non-reported coefficients were estimated at 0 by the first step LASSO regression (10 folds, 100 lambda tested). Each panel is a separate regression (4 in total). The level of observation is a firm*year. Each regression controls for year dummies and for firm fixed effects (industry dummies redundant), and for the following time varying firm characteristics: log assets, market leverage, ratio of R&D expenditures, age since listing, and board size, when these controls are not estimated to have a 0 coefficient in the initial LASSO regression. Each dot is the coefficient associated with a given gender corporate cultural dimension and horizontal segments represent 10% confidence intervals. Standard errors are adjusted for clustering at the firm level.

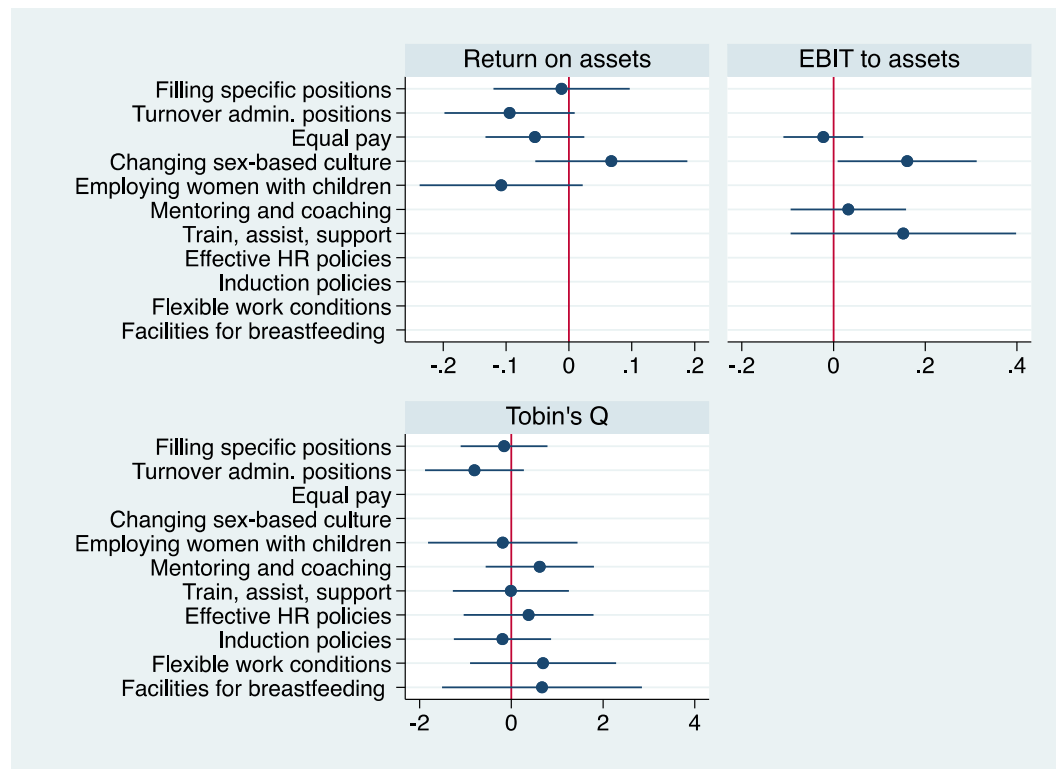


Table 1: Firms in our sample

In this table, for each of the Australian and New Zealand Standard Industrial Classification (ANZSIC) sectors, we present the average number of firms with workplace practice reports and the number of firm-year observations where we have a report in this table over the sample period. Our sample period is 2001-2012. Workplace practice reports are obtained from the Workplace Gender Equality Agency.

Sector	Average number of firms across years	Firm-year observations
Consumer service	29	346
Consumer staples	15	183
Energy	6	75
Finance	19	228
Health care	11	128
Information Technology	15	162
Manufacturing	49	582
Materials	29	353
Telecommunications	3	38
Utilities	2	16
Overall	178	2,111

Table 2. Dimensions of Corporate Gender Culture

We use Latent Discriminant Analysis (LDA) together with Hierarchical Dirichlet Process (HDP), to identify the topics in the submitted reports. Using our approach, we find the optimal number of topics for each workplace practice category to be three. Our approach identifies words that are associated with the topics. We interpret what each topic means by examining the words identified by our algorithm and show the topics for each workplace practice category below. The mean is always 1/3 by construction of the topic models, and is not reported below.

Category	#	Topic description	Obs.	Std. Dev.	Min	Max
1. Recruitment & Selection	0	Filling specific positions, such as engineering, technical positions	1,585	0.09	0.07	0.67
	1	Developing graduate programs, attracting graduates	1,585	0.07	0.11	0.83
	2	Procedures to fill vacancies	1,585	0.09	0.10	0.73
2. Promotion, Transfer & Termination	0	Developing effective HR policies	1,562	0.08	0.13	0.71
	1	Understanding employee turnover	1,562	0.08	0.12	0.63
	2	Dealing with turnover of administrative positions	1,562	0.08	0.14	0.72
3. Training & Development	0	Education and qualification opportunities for male employees	1,578	0.08	0.09	0.66
	1	Induction policies	1,578	0.08	0.12	0.71
	2	Mentoring and coaching for all staff (inc. leadership coaching)	1,578	0.08	0.14	0.78
4. Work Organisation	0	Developing programs to train, assist, support the workforce	1,555	0.08	0.17	0.77
	1	Increasing permanent part of the workforce	1,555	0.08	0.04	0.68
	2	Creating a roster to accommodate carers' responsibilities and leave requests	1,555	0.08	0.11	0.59
5. Conditions of Service	0	Making sure direct managers are aware of company's policy	1,550	0.08	0.12	0.63
	1	Flexible work conditions	1,550	0.11	0.09	0.78
	2	Offering better remuneration to female employees; Equal pay issues	1,550	0.10	0.09	0.70
6. Sex-based Harassment	0	Procedures to handle complaints	1,564	0.06	0.09	0.57
	1	Procedures to solve complaints	1,564	0.07	0.14	0.66
	2	Changing workplace culture, educating employees	1,564	0.06	0.16	0.70
7. Pregnancy, Potential Pregnancy & Breastfeeding	0	Facilities for breastfeeding mothers	1,536	0.06	0.11	0.60
	1	Support and communication of opportunities available to staff	1,536	0.06	0.17	0.63
	2	Employing women with children, employee turnover due to having a child	1,536	0.06	0.17	0.66

Table 3. Other Descriptive Statistics

In this table, we present descriptive statistics for our sample. Female representation ratios are taken from the reports except the ratio of females of the board, which is taken from SIRCA and Boardex. The topic related ratios are computed after running our topic modelling algorithm. The control variables are calculated using data from Compustat Global, SIRCA, and Boardex. The number of observations vary across variables because not all firms report on the full breakdown of female employment in the reports to WGEA.

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>Financial performance</i>					
Return on assets	1,978	0.08	0.16	-3.03	0.58
EBIT to assets	1,536	0.08	0.15	-1.74	0.58
Tobin's Q	1,523	1.65	1.39	0.29	24.78
<i>Female representation</i>					
Female employee ratio	2,111	0.38	0.22	0	0.99
Female 'other workers' ratio	2,110	0.4	0.23	0	1
Female manager ratio	2,063	0.28	0.21	0	1
Female executive ratio	1,801	0.15	0.17	0	1
Ratio of females on board	1,182	0.09	0.1	0	0.63
<i>Control variables</i>					
Log assets	1,541	5.95	1.88	0.08	11.77
Leverage	1,509	0.23	0.20	0	0.93
R&D expenditures ratio	1,541	0.01	0.03	0	0.36
Age since listing	2,101	21.88	13.77	2	110
Board size	1,801	7.47	2.40	1	18

Table 4: Correlations between gender diversity, corporate gender culture, and firm characteristics

This table reports OLS estimates. All regressions are with a constant and year dummies. The level of observation is a firm report. The excluded industry is the consumer service industry. P-values are reported in parentheses and have been corrected for heteroskedasticity and for clustering at the firm level. The Bonferroni adjusted p-value is based on an uncorrected critical p-value of 0.10. ***, **, *, and + indicate statistical significance at the 1%, 5%, 10%, and 15% level, respectively.

Variable	(1) Female employee ratio	(2) Female 'other workers' ratio	(3) Female manager ratio	(4) Female executive ratio	(5) Ratio female directors	(6) Filling specific position	(7) Attracting graduates	(8) Procedures to fill vacancies	(9) Developing effective HR policies	(10) Understandin g employee turnover	(11) Dealing with turnover of administrative positions	(12) Education and qualification opportunities for male employees	(13) Induction policies
Log assets	-0.00 (0.83)	-0.00 (0.90)	-0.00 (0.73)	0.00 (0.77)	0.02*** (0.00)	-0.01* (0.05)	0.00 (0.38)	0.00 (0.20)	0.01* (0.06)	-0.00 (0.52)	-0.00 (0.30)	-0.01*** (0.00)	-0.00 (0.38)
Book leverage	-0.31*** (0.00)	-0.32*** (0.00)	-0.28*** (0.00)	-0.21*** (0.00)	-0.06 (0.16)	0.08** (0.04)	-0.02 (0.48)	-0.06+ (0.11)	-0.02 (0.65)	0.04+ (0.10)	-0.03 (0.46)	0.03 (0.23)	-0.02 (0.54)
R&D ratio	-0.45* (0.07)	-0.49* (0.05)	-0.23 (0.47)	-0.25 (0.16)	-0.17 (0.34)	-0.22** (0.01)	-0.02 (0.88)	-0.24** (0.04)	0.13 (0.27)	-0.08 (0.25)	-0.05 (0.52)	-0.19* (0.09)	-0.01 (0.96)
Board size	0.00 (0.68)	0.00 (0.53)	0.00 (0.45)	0.00 (0.58)	0.00 (0.27)	0.00 (0.77)	0.00 (0.24)	-0.00 (0.31)	-0.00 (0.89)	0.00 (0.25)	-0.00 (0.43)	-0.00 (0.65)	-0.00* (0.07)
Age	0.00 (0.75)	0.00 (0.76)	-0.00 (0.59)	-0.00 (0.51)	0.00 (0.93)	0.00 (0.24)	0.00 (0.72)	-0.00+ (0.11)	-0.00+ (0.14)	0.00** (0.03)	-0.00 (0.63)	-0.00 (0.55)	-0.00 (0.74)
<i>Sector:</i>													
Consumer staples	-0.15*** (0.01)	-0.14** (0.02)	-0.16*** (0.00)	-0.09* (0.10)	-0.03 (0.34)	0.07*** (0.00)	0.01 (0.68)	-0.07*** (0.00)	-0.06*** (0.00)	0.04*** (0.01)	0.02 (0.27)	0.04*** (0.00)	-0.05*** (0.01)
Energy	-0.36*** (0.00)	-0.37*** (0.00)	-0.32*** (0.00)	-0.18*** (0.00)	-0.05+ (0.11)	0.10** (0.01)	0.00 (0.92)	-0.10*** (0.00)	-0.06** (0.02)	0.04* (0.08)	0.02 (0.53)	0.09*** (0.00)	-0.06*** (0.00)
Finance	-0.04 (0.44)	0.01 (0.82)	-0.09 (0.41)	-0.04 (0.54)	-0.04 (0.35)	0.03 (0.25)	-0.01 (0.36)	-0.02 (0.51)	-0.05** (0.03)	0.02 (0.23)	0.03* (0.08)	0.04* (0.08)	-0.00 (0.93)
Health care	0.01 (0.84)	0.02 (0.74)	-0.05 (0.45)	-0.03 (0.68)	-0.05+ (0.12)	0.04* (0.10)	0.03 (0.54)	-0.07** (0.01)	-0.04+ (0.12)	0.06*** (0.01)	-0.02 (0.38)	0.05*** (0.00)	-0.03* (0.07)
Manufacturing	-0.27*** (0.00)	-0.26*** (0.00)	-0.25*** (0.00)	-0.14*** (0.00)	-0.06** (0.02)	0.05*** (0.00)	-0.00 (0.73)	-0.05*** (0.01)	-0.05** (0.02)	0.03** (0.01)	0.01 (0.49)	0.05*** (0.00)	-0.05*** (0.01)
IT	-0.29*** (0.00)	-0.29*** (0.00)	-0.23*** (0.00)	-0.12*** (0.00)	0.00 (0.90)	0.03 (0.19)	-0.00 (0.90)	-0.03 (0.24)	-0.05** (0.05)	0.06*** (0.00)	-0.01 (0.49)	0.06*** (0.01)	-0.05** (0.03)
Materials	-0.37*** (0.00)	-0.37*** (0.00)	-0.32*** (0.00)	-0.16*** (0.00)	-0.07*** (0.01)	0.03+ (0.14)	0.01 (0.46)	-0.04* (0.05)	-0.05*** (0.01)	0.03* (0.06)	0.02 (0.24)	0.05*** (0.00)	-0.01 (0.48)
Telecom	-0.22*** (0.00)	-0.22*** (0.00)	-0.20*** (0.00)	-0.14*** (0.00)	-0.05+ (0.13)	0.07** (0.01)	0.04** (0.03)	-0.11*** (0.00)	-0.08*** (0.00)	0.10*** (0.00)	-0.02 (0.44)	0.08*** (0.01)	-0.07*** (0.00)
Bonferoni p-val.			NA						0.0047				
Observations	1,388	1,387	1,355	1,174	841	1,061	1,061	1,061	1,039	1,039	1,039	1,048	1,048
R-squared	0.40	0.38	0.32	0.17	0.16	0.16	0.06	0.16	0.08	0.11	0.05	0.19	0.11

Table 4 (cont'd): Correlations between gender diversity, gender corporate culture, and firm characteristics

Variable	(14) Mentoring and coaching for all staff	(15) Developing programs to train, assist, support the workforce	(16) Increasing permanent part of the workforce	(17) Roster to accommodate carers' responsibilities and leave	(18) Making sure managers are aware of company's policy	(19) Flexible work conditions	(20) Equal pay issues	(21) Procedures to handle complaints	(22) Procedures to solve complaints	(23) Changing workplace culture, educating employees	(24) Facilities for breastfeeding mothers	(25) Comm of opportunities available to staff	(26) Employing women with children
Log assets	0.01*** (0.00)	0.00 (0.38)	0.00 (0.58)	-0.01+ (0.11)	-0.00 (0.83)	0.00 (0.37)	-0.00 (0.41)	0.00 (0.92)	-0.00 (0.24)	0.00 (0.33)	-0.00 (0.23)	0.00 (0.26)	-0.00 (0.84)
Book leverage	-0.01 (0.67)	-0.08** (0.04)	0.05* (0.07)	0.03 (0.41)	-0.02 (0.55)	0.01 (0.79)	0.01 (0.82)	0.00 (0.98)	0.03 (0.20)	-0.04 (0.24)	0.04 (0.16)	-0.05* (0.05)	0.01 (0.65)
R&D ratio	0.19** (0.02)	0.06 (0.44)	-0.17** (0.05)	0.12 (0.24)	-0.15 (0.20)	-0.10 (0.56)	0.25 (0.16)	-0.10+ (0.12)	-0.00 (1.00)	0.10 (0.29)	0.15+ (0.11)	-0.06 (0.28)	-0.09 (0.42)
Board size	0.00** (0.03)	0.00 (0.23)	-0.00 (0.42)	-0.00 (0.83)	-0.00 (0.66)	-0.00 (0.35)	0.00+ (0.11)	0.00 (0.48)	-0.00*** (0.00)	0.00** (0.01)	-0.00 (0.32)	0.00 (0.46)	0.00 (0.86)
Age	0.00 (0.38)	0.00 (0.80)	0.00 (0.94)	-0.00 (0.76)	0.00 (0.72)	0.00 (0.79)	-0.00 (0.62)	-0.00 (0.33)	0.00 (0.66)	0.00 (0.50)	-0.00 (0.48)	0.00 (0.88)	0.00 (0.63)
<i>Sector:</i>													
Consumer staples	0.01 (0.45)	-0.03* (0.08)	0.00 (0.78)	0.02+ (0.11)	-0.04+ (0.15)	0.05+ (0.13)	-0.01 (0.72)	0.01 (0.53)	-0.00 (0.71)	-0.01 (0.71)	-0.01 (0.77)	0.02 (0.33)	-0.01 (0.30)
Energy	-0.03+ (0.15)	-0.05* (0.06)	0.01 (0.64)	0.04 (0.25)	-0.05*** (0.01)	-0.04 (0.23)	0.09** (0.02)	0.04 (0.15)	-0.02 (0.36)	-0.02 (0.20)	0.00 (0.85)	-0.01 (0.70)	0.00 (0.87)
Finance	-0.03** (0.01)	0.01 (0.47)	-0.01 (0.60)	-0.01 (0.72)	0.01 (0.45)	-0.02 (0.44)	0.00 (0.88)	0.04** (0.02)	-0.02 (0.18)	-0.02 (0.17)	0.00 (0.93)	-0.02+ (0.14)	0.02 (0.19)
Health care	-0.02 (0.32)	-0.02 (0.55)	0.02 (0.32)	-0.01 (0.83)	-0.03 (0.30)	0.08** (0.02)	-0.05** (0.02)	0.05** (0.04)	-0.03* (0.05)	-0.02 (0.50)	-0.01 (0.34)	-0.00 (0.92)	0.02 (0.51)
Manufacturing	-0.00 (0.93)	-0.03* (0.07)	0.02+ (0.12)	0.01 (0.44)	-0.03** (0.01)	-0.01 (0.46)	0.05*** (0.00)	0.02+ (0.10)	0.00 (0.91)	-0.02+ (0.15)	0.00 (0.92)	-0.01 (0.49)	0.01 (0.55)
IT	-0.01 (0.49)	-0.05* (0.07)	0.02 (0.32)	0.03 (0.22)	-0.04* (0.05)	0.03 (0.35)	0.01 (0.77)	0.04*** (0.01)	-0.02 (0.21)	-0.03 (0.18)	-0.00 (0.85)	0.00 (0.84)	-0.00 (0.98)
Materials	-0.03** (0.03)	-0.05** (0.01)	0.02 (0.30)	0.03** (0.05)	-0.04** (0.04)	0.01 (0.71)	0.03+ (0.10)	0.04*** (0.01)	-0.03* (0.06)	-0.01 (0.42)	0.00 (0.78)	-0.01 (0.56)	0.00 (0.75)
Telecom	-0.01 (0.55)	-0.01 (0.79)	-0.01 (0.59)	0.02 (0.46)	-0.02 (0.20)	0.07+ (0.14)	-0.04 (0.23)	0.06** (0.02)	-0.01 (0.61)	-0.05*** (0.00)	-0.02* (0.07)	0.02 (0.28)	-0.00 (1.00)
Bonferoni p-val.							0.0047						
Observations	1,048	1,035	1,035	1,035	1,033	1,033	1,033	1,035	1,035	1,035	1,019	1,019	1,019
R-squared	0.20	0.08	0.16	0.18	0.07	0.09	0.11	0.08	0.12	0.12	0.10	0.07	0.04

Table 5: Societal values and the impact of CGC on firm performance: OLS and IV results

This table reports the results of OLS and 2SLS regressions. The “historical sex ratio” is the number of men relative to the number of men in the whole population (e.g. convicts, ex-convicts, people born in the colony, and free migrants) as per the first Census in each state. Firm-level controls are: log of assets, leverage, R&D expenditure ratio, firm age since listing, and board size. Historical controls are: total population and convict population. Geographic controls are latitude and longitude of postcode centroid. Robust standard errors adjusted for two-way clustering at company and postcode level in Column 1 and at company and historical county level in remaining columns. Number of clusters as indicated. Wild bootstrap P-value based on wild cluster bootstrap method with 1,000 replications, as recommended by Cameron et al. (2008) and Cameron and Miller (2015). ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Dep var	Mentoring and coaching for all	Mentoring and coaching for all	Return on assets	EBIT to assets	Tobin's Q
Estimation method/stage	OLS	2SLS First stage	2SLS Second stage		
Conservative societal attitudes	-0.010** (0.004)				
Historical sex ratio		-0.012*** (0.003)			
Mentoring and coaching for all			1.142** (0.488)	1.379** (0.564)	-0.490 (4.173)
Firm-level controls	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes	Yes
Historical controls	No	Yes	Yes	Yes	Yes
Geographic controls	No	Yes	Yes	Yes	Yes
Wild bootstrap P-value	NA	0.02	0.016	0.024	0.952
F-stat first stage	NA	NA	7.94	10.28	10.27
Observations	920	1,013	998	1,009	1,013
Number of companies			180		
Number of postcodes			80		
Number of counties			15		
R-squared	0.230	0.211	0.2421	0.122	0.367

Table 6: The Evolution of CGC: Dynamic Panel Results

We present the results of AB (Arellano-Bond) and AB/BB (Arellano–Bover/Blundell–Bond) GMM estimation in this table. “Lag 1 (resp. 2) action taken” refers to the first or second lag of action taken specific to the topic included as a dependent variable. “P-value autocorr. in FD errors” refers to the Arellano-Bond test for zero autocorrelation in first-differenced errors. We only report the P-values for the first 2 orders, as higher order P-values are never significant. Robust P-values are reported in parenthesis. ***, **, *, and + indicate statistical significance at the 1%, 5%, 10%, and 15% level, respectively.

Dimension	(1)	(2)	(3)	(4)	(5)	(6)
	Mentoring and coaching for all staff (inc. leadership coaching)		Flexible work conditions		Procedures to handle complaints (Sex-based harassment)	
Estimator	AB	AB/BB	AB	AB/BB	AB	AB/BB
Lag of dependent variable	0.406*** (0.113)	0.576*** (0.074)	0.104 (0.084)	0.438*** (0.065)	0.201** (0.101)	0.416*** (0.068)
Lag 1 action taken	-0.031 (0.036)	-0.029 (0.038)	-0.089*** (0.033)	-0.095** (0.043)	-0.028 (0.030)	-0.029 (0.034)
Lag 2 action taken	-0.086* (0.045)	-0.094* (0.049)	-0.002 (0.035)	0.043 (0.041)	-0.040+ (0.028)	-0.050* (0.029)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Trend	Yes	Yes	Yes	Yes	Yes	Yes
Observations	636	859	613	834	633	854
Number of firms	163	210	157	207	159	210
P-value autocorr. in FD errors:						
Order 1	0.000		0.000		0.000	
Order 2	0.250		0.561		0.580	

Table 7. Gender diversity across the hierarchy after the introduction of the government-funded parental leave in 2011

We present the results of OLS regression with firm and year fixed effects. “Firm controls” are the usual time-varying firm controls. “Trend” is a linear trend. “> median fem emp 2009” is a dummy variable taking value one for firms that had higher overall share of female employment compared with the median firm in 2009. For Columns 1 to 8, we present the results of two different specifications: the first (odd columns) across the whole estimation period with year fixed effects and a linear trend, and the second (even columns) restricting the estimation to 2 years before and 2 years after the policy change, which was implemented on January 1, 2011 (i.e. 2009-2012). Robust standard errors clustered at the firm level in parenthesis. ***, **, *, and + indicate statistical significance at the 1%, 5%, 10%, and 15% level, respectively.

Estimation period	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Female other employees ratio		Female manager ratio		Female executive ratio		Ratio of female directors		Female other employees ratio	Female manager ratio	Female executive ratio	Ratio of female directors
	All	2009-2012	All	2009-2012	All	2009-2012	All	2009-2012	Difference in Difference 2009-2012			
Post mat. leave	0.036*	0.039*	0.025	0.043+	0.065**	0.085**	0.026***	0.032***	0.055+	0.057+	0.079**	0.054***
	(0.019)	(0.024)	(0.021)	(0.029)	(0.027)	(0.033)	(0.007)	(0.009)	(0.034)	(0.035)	(0.038)	(0.015)
Post mat. leave*> median fem emp 2009									-0.028	-0.022	0.020	-0.034*
									(0.027)	(0.032)	(0.041)	(0.018)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trend	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No
Observations	1,365	372	1,333	369	1,155	350	836	279	354	351	333	266
# of clusters	233	161	233	161	213	153	174	153	148	148	141	142
R-squared	0.913	0.890	0.854	0.844	0.653	0.746	0.799	0.939	0.888	0.842	0.744	0.941

Table 8. Cultural dimensions related to “Pregnancy, potential pregnancy, and breastfeeding” after the introduction of the government-funded parental leave in 2011

We present the results of OLS regression with firm and year fixed effects. “Firm controls” are the usual time-varying firm controls. “Trend” is a linear trend. “> median fem emp 2009” is a dummy variable taking value one for firms that had higher overall share of female employment compared with the median firm in 2009. For Columns 1 to 8, we present the results of two different specifications: the first (odd columns) across the whole estimation period with year fixed effects and a linear trend, and the second (even columns) restricting the estimation to 2 years before and 2 years after the policy change, which was implemented on January 1, 2011 (i.e. 2009-2012). Robust standard errors clustered at the firm level in parenthesis. ***, **, *, and + indicate statistical significance at the 1%, 5%, 10%, and 15% level, respectively.

	(1) Facilities breastfeeding		(2) Comm. leave opp.		(3) Employing women with children		(4) Facilities breastfeeding		(5) Comm. leave opp.		(6) Employing women with children	
Estimation period	All	2009-2012	Simple Difference		Simple Difference		Difference in Difference		Difference in Difference		Difference in Difference	
			All	2009-2012	All	2009-2012						
Post mat. leave	-0.023*** (0.008)	-0.021** (0.008)	0.002 (0.011)	0.004 (0.011)	0.022** (0.010)	0.016+ (0.010)	-0.015 (0.010)	0.006 (0.012)	0.008 (0.013)			
Post mat. leave*> median fem emp 2009							-0.005 (0.014)	-0.007 (0.019)	0.013 (0.019)			
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trend	Yes	No	Yes	No	Yes	No	No	No	No	No	No	No
Observations	952	281	952	281	952	281	243	243	243	243	243	243
Number of clusters	183	125	183	125	183	125	123	123	123	123	123	123
R-squared	0.581	0.792	0.567	0.784	0.586	0.746	0.807	0.785	0.759			

Corporate Gender Culture

Renee Adams, Ali C. Akyol, Pauline Grosjean

Preliminary and incomplete

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Appendix A: Data Appendix

A1. Data sources

A1.1 Workplace Gender Equality Agency

WGEA...

Waivers and Exemptions. Under the old Act of 1999, organizations could have applied to waive the reporting requirements for up to three years under certain circumstances. In order to obtain a waiver, organizations were required to have complied with the Act for three consecutive years and have met two waiving requirements. The first requirement required firms to analyse their workplace to identify the issues for women related to each of the seven employment practices. Under the second requirement, organizations had to show that they had taken all reasonably practicable measures that were identified in the first requirement. Between 2001 and 2012, 1,332 waivers ranging from one to three years were obtained by registered organizations. Waivers were discontinued under the 2012 Act.

Organizations can apply to be named in the annual list of Employer of Choice for Women. According to the WGEA, organizations that would like to brand and position themselves as an “Employer of Choice for Women” may want to apply to be on the list and only compliant organizations or those with waivers (under the old Act) could apply to be on the list. A total of 1,280 non-unique names appeared on the list between 2001 and 2012 and were identified as “Employer of Choice for Women”.

Post-2012 Data

Post-2012, the reporting became a standardised set of Yes/No answers to whether the firm had specific practices in place. This is less useful than a free-form report since it only captures practices and not cultural attitudes, as the free-form reporting enables us to capture. Furthermore, these practices are defined by the regulatory agency and therefore reflect more what regulators care about rather than how firms themselves approach gender diversity, which is the main advantage of our data. Yet, this data is useful to validate the quality of our topic modelling methodology. Below, we relate the topics identified by our methodology in the pre-2012 free-form reports to the hard data on practices in the firm post 2012. We are able to match half of our pre-2012 sample to their post-2012 data (N= 176). We give a few examples below.

The practices in the post-2012 dataset also relate to different dimensions of Human Resources. For example, in the category of hiring, firms were asked to report whether they have a “formal strategy for supporting gender equality in recruitment.” The corresponding topic pre-2012 identified by our methodology consists of "Procedure fill vacancies. We verify that the prevalence of this topic in a firm

pre-2012 significantly correlates with the presence of a stand-alone strategy for supporting gender equality in recruitment post 2012 (correlation coefficient: 0.201, significant at the 5% level).

In the category of Promotion, Transfer and Termination, the topic of CGC: “Effective HR policies” is significantly and positively correlated with the presence of a “formal policy or strategy for supporting gender equality in promotion” (correlation coefficient: 0.199, significant at the 5% level), while “Dealing with turnover of administrative positions” is significantly and negatively correlated (correlation coefficient: -0.244, significant at the 5% level).

In the category of training and development, the topic “Mentoring and coaching for all” is positively and significantly associated with the presence of a “formal policy or strategy for supporting gender equality in talent identification/high potentials” (correlation coefficient: 0.189, significant at the 5% level), while the topic of “Education for males only” is negatively associated with this practice (correlation coefficient: -0.193, significant at the 5% level). As another example, the topic related to maternity policies pre-2012 positively and significantly correlates with the adoption of a “formal policy or strategy to support employees with family and caring responsibilities” post-2012. Overall, we are therefore confident that our topics capture the practices related to female employment. However, we also believe our data captures, beyond just practices, the firm’s cultural norms about female employees.

A.1.2 Boardex

TBA

A1.3. Compustat, etc...

TBA

A.1.4. HILDA data

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a nationally representative household-based panel study of socio-economic conditions and attitudes. It has been collected since 2001. Included questions rotate over years. In particular, questions of interest related to gender norms or work-life balance were only asked in specific waves of the study. For full details on questionnaires and how to access the data: <https://melbourneinstitute.unimelb.edu.au/hilda>.

Correlation between gender corporate culture and societal values held about gender roles.

In Table A1.4.1 below, we correlate our main gender corporate cultural trait of interest to societal norms held about gender roles (columns 1 and 2) in the postcode where each firm’s headquarter is located. Our first measure of gender norms consists of the measure used in the paper, which corresponds to the main measure used in Grosjean and Khattar (2018). For robustness, we correlate our main gender corporate cultural trait of interest to another measure of societal norms about gender roles, which consists of the principal component of the following 5 agreement questions about gender

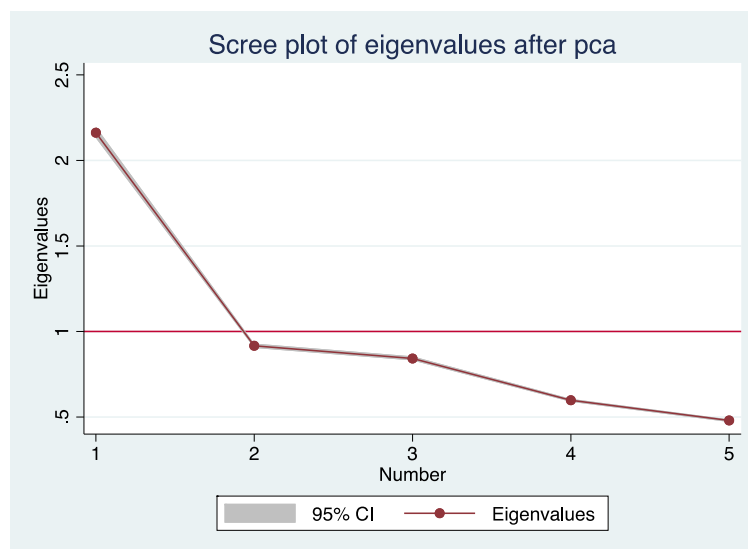
roles. For each statement 1-5, respondents are asked to state to what extent they agree with the statement, on a scale of 1 (strongly disagree) to 7 (strongly agree):

1. “Whatever career a woman may have, her most important role in life is still that of being a mother”
2. “Mothers who don’t really need the money shouldn’t work”
3. “It is better for everyone involved if the man earns the money and the woman takes care of the home and children”
4. “A working mother can establish just as good a relationship with her children as a mother who does not work for pay”
5. “It is not good for a relationship if the woman earns more than the man”

Question 4 was rescaled so that a higher number of the 1-7 scale indicates stronger disagreement with the statement. As such, for each variable, a higher number indicates more conservative norms towards women work.

The figure below shows that the first principal component suffices to capture most of the variation in the answers to these questions.

Figure A1.4.1: Principal component of gender roles



We also correlate our main gender corporate cultural trait of interest to societal norms held work-life balance: PC work-life balance and PC work-family balance (negative) (columns 3 and 4). These measures consist of the principal component of different questions about work-life balance. We differentiate these questions, as the first 3 questions below, used for the construction of PC work life balance (positive) deal with general views about the place of work in life in general, while the remaining X questions, used for the construction of PC work family balance (negative) deal with views about the place of work in family life more specifically. These questions ask, on a scale of 1 to 7 to what extent the respondent agrees with the following statements:

1. “Work-life balance: Work makes me a more rounded person”
2. “Work gives my life more variety”
3. “Work makes me feel competent”
4. “Work-family balance: Time working less enjoyable/more pressured”
5. “Work-family balance: Miss out on home/family activities”
6. “Work-family balance: Family time less enjoyable/more pressured”
7. “Work-family balance: Worry about children while at work”
8. “Work-family balance: Too little time or energy to be aspirational parent”
9. “Work-family balance: Miss out on the rewarding aspects of being parent”

The specifications in Table A1.4.1 below correlate our main dimension of CGC of interest to principal components of views about work-life or work-family balance. These should be interpreted as placebo specifications. While views about gender roles and views about work life balance and work-family balance are correlated with one another (the correlation coefficients between, on the one hand, PC gender roles and, on the other hand, PC work life balance (positive) and PC work family balance (negative) are -0.06 and 0.12, both significant at the 5% level), we do not expect that views about work life balance or work family balance in the *whole* population should directly affect *gender* corporate culture. This is confirmed in the last 2 columns of the Table. The correlations between the frequency of Mentoring and coaching for all and both proxies of views about work life balance are insignificant.

Table A1.4.1: Correlation between CGC and societal values held about gender roles

	(1)	(2)	(3)	(4)
		Mentoring and coaching for all		
Conservative attitudes	-0.010** (0.004)			
PC gender roles		-0.012** (0.005)		
PC work life balance (positive)			0.004 (0.005)	
PC work life balance (negative)				0.004 (0.003)
Firm-level controls	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes
Observations	920	920	924	715
R-squared	0.233	0.234	0.221	0.278

Notes: Results of OLS regressions with industry and year fixed effects. Robust standard errors clustered 2-way by firm and postcode in parenthesis. See notes to Table 5 in paper for variable definition. *** p<0.01, ** p<0.05, * p<0.10, + p<0.15.

A1.2 Enterprise Bargaining Agreements

A1.2.1 Data on Enterprise Bargaining Agreements

Data on enterprise bargaining agreements (hereafter: EBA) was obtained from the Australian Government, Department of Jobs and Small Business in November 2018. Access to the Workplace Agreement Database was granted on November 19, 2018. We extracted the list of agreements (including agreement number), that were approved between 1 January 2000 and 31 December 2012. The data includes how many employees were covered at the time of approval, the date of approval, industry, and all provisions negotiated in the EBA.

A1.2.2. Background on enterprise bargaining in Australia

Enterprise bargaining consists of the negotiation between an employer, their employees and the employee's bargaining representatives (i.e., trade unions) to establish an enterprise agreement. The registered agreement accordingly stipulates the terms and conditions of employment between the employer(s) and employees. Once approved by both employees (by vote) and by the Fair Work Commission, the EBA is legally binding. As the process is voluntary, not all companies have EBAs.

For more detail, see <https://www.fairwork.gov.au/how-we-will-help/templates-and-guides/factsheets/rights-and-obligations/enterprise-bargaining#overview>.

A1.2.3. Descriptive statistics

We only retained available agreements for the publicly listed firms in our sample. In principle, the Workplace Agreement Database contains an exhaustive list of EBAs. EBAs can be negotiated at the headquarter, branch or subsidiary level, so that each company has more than one EBA (including in different states). Also, each company, branch or subsidiary can have more than one EBA in the sample, which contains if they have negotiated multiple agreements over the period. The initial dataset of EBAs consists of 866 observations. We compute the mean of EBA provisions across all branches or subsidiaries of a company and are left with 356 company-year-of-EBA observations. This dataset is an unbalanced panel as some companies may have multiple EBAs over the period while others have one. We therefore take the average across all EBAs and are left with 194 companies observations. The EBAs in our datasets are all available EBAs that were signed during the sample period in which we have WGEA data on CGC (e.g. 2001-2012).

We merge the cross section of our CGC/gender diversity/firm performance dataset to this cross section of EBAs. We performed a fuzzy match based on company's name or Australian Business Number when available. We are able to match 184 out of the 194 EBAs company observations. We do not obtain an EBA for every firm in our WGEA sample of publicly listed firms, as not all firms are covered by an EBA.

EBAs include a wide range of provisions related to conditions of employment. However, very few relate to the employment of women specifically and to diversity and inclusion in general. We retain provisions of EBAs relevant to the employment of women, such as access to maternity leave,

commitment to pay equity, presence of an anti-discrimination harassment or affirmative action plans, or provision of childcare. We present in Table A1.2.1 descriptive statistics on these provisions.

Table A1.2.1: EBA provisions in the firms in our WGEA sample

Variable	Obs.	Mean	Std. Dev.	Min	Max
Maternity leave (D=1 if maternity leave)	184	0.32	0.47	0	1
Primary caregiver maternity leave (# paid weeks)	180	2.03	3.84	0	14
Primary caregiver maternity leave (# paid weeks - intensive margin)	58	6.29	4.37	0.1	14
Secondary caregiver or paternity leave (# weeks)	184	0.22	0.53	0	4
Anti-discrimination harassment plan	153	0.43	0.42	0	1
Affirmative action plan	184	0.01	0.05	0	0.5
Childcare provision	184	0.01	0.07	0	1
Commitment to pay equality	184	0	0	0	0

Source: Australian Government, Department of Jobs and Small Business.

Very few companies had paid maternity leave. Up to 68% had no provision for paid maternity leave in their EBA in 2010. Among those that did allow for paid maternity leave, the average duration of the leave was 6.29 weeks. In other words, the introduction of the government-funded paid parental leave scheme, which provides up to 18 weeks at the rate of the National Minimum Wage, represented a major policy shift. Paternity leave was 0.22 weeks on average (with 77.72% of firms not offering any kind of paternity leave).

As for other measures of diversity and inclusion provisions, 43% of firms in our sample had an “Anti-discrimination harassment plan”. Only 1% of all EBAs have a provision for an affirmative action plan. Two companies (Amcor Ltd in their 2007 EBA and Wesfarmers Ltd in their 2008 EBA, both also in our WGEA database) have childcare provision written in their EBA. Only 1 EBA in the whole sample of EBAs had an explicit commitment to pay equity (Carter Holt Harvey Limited’s 2008 EBA, but this company is not publicly listed and does not appear in our sample of WGEA firms. Therefore in our matched sample, no firm has commitment to pay equality specified in their EBA. The fact that these provisions which directly measure commitment to diversity and inclusion are so rare imply that EBA data cannot be a useful measure of CGC and highlights the usefulness of the WGEA data.

Notwithstanding the limitations of the EBA data, we nevertheless verify how our measures of CGC correlate with the EBA provisions in relevant dimensions. For example, we correlate the presence of an anti-discrimination harassment plan, which relates to the hiring of women and other minorities, to our CGC topics in the relevant dimension of Human Resources (“Recruitment and Selection”). The topic “Filling specific positions (Engineering, technical”, which itself relates negatively to the employment of women, is negatively and significantly correlated with the presence of an anti-

discrimination harassment plan in the EBA (correlation coefficient: -0.284, significant at the 1% level). By contrast, the topic of “Procedures to fill vacancies” (as opposed to ad-hic processes), as would be expected, correlates positively with the presence of an anti-discrimination harassment plan in the EBA (correlation coefficient: 0.295, significant at the 1% level). As to the dimension of Human Resources related to “Pregnancy”, the topic of “Employing women with children” correlates, as expected, positively and significantly with the provision of maternity leave in the EBA (correlation coefficient: 0.263, significant at the 1% level). It also correlates significantly with the provision of paternity leave (correlation coefficient: 0.250, significant at the 1% level).

A2. Variables Definition

TBC

A3. From firm report to corporate gender culture measures

A3.1. Example of a firm report: Woolworths Limited

<p>STEP 1: WORKPLACE PROFILE</p> <p>STEP 1: WORKPLACE PROFILE</p>	<p><u>Developing a Workplace Program - Step 1</u></p>
<p>Enter data on the composition of your workforce as instructed below :</p> <ol style="list-style-type: none">1. If needed, additional rows can be added to the workplace profile to reflect accurately the additional/different roles within your organisation.2. Your workplace profile data should be no earlier than October prior to the beginning of the reporting period.3. Please insert your Workplace Profile below from:<ol style="list-style-type: none">i) our industry-relevant <u>Microsoft Excel Spreadsheets which you can obtain from our website</u>, orii) from your own table or spreadsheet (refer table below as a guide).4. Please note - confidential salary information will be removed from the public document.5. To enable accurate comparisons, annualise the part-time and casual salaries.	

Occupational Category	Full Time				Part Time				Casual				Grand Totals			
	Women	Men	Total	% Women	Women	Men	Total	% Women	Women	Men	Total	% Women	Women	Men	Total	% Women
a. Senior Executives-Exec proll	237	733	970	24.4%	31	3	34	91.2%	0	0	0	0.0%	268	736	1,004	27%
b. Senior Managers	558	1,862	2,420	23.1%	60	7	67	89.6%	1	4	5	20.0%	619	1,873	2,492	25%
c. Managers	4,786	7,266	12,052	39.7%	370	124	494	74.9%	0	3	3	0.0%	5,156	7,393	12,549	41%
d. Office / Support employees	962	1,083	2,045	47.0%	333	130	463	71.9%	466	444	910	51.2%	1,761	1,657	3,418	52%
e. Store Employees	14,226	12,373	26,599	53.5%	40,121	19,627	59,748	67.2%	28,895	25,681	54,576	52.9%	83,242	57,681	140,923	59%
f. Distribution Employees	620	4,211	4,831	12.8%	408	1,034	1,442	28.3%	390	1,620	2,010	19.4%	1,418	6,865	8,283	17%
g. Tradespeople & Apprentices	262	2,880	3,142	8.3%	64	250	314	20.4%	19	265	284	6.7%	345	3,395	3,740	9%
Total	21,651	30,408	52,059	41.6%	41,387	21,175	62,562	66.2%	29,771	28,017	57,788	51.5%	92,809	79,600	172,409	54%

STEP 2: ANALYSIS

Using as much space as required, describe the analysis you undertook during the reporting year to identify equal opportunity issues for women. **You MUST provide information on the following areas:**

a. How did you **CONSULT** with staff to identify issues for women in your workplace across the seven employment matters listed below (eg conducted surveys, focus groups, EO committee etc)?

- Focus groups were attended by 582 employees from a cross section of organisation functions and divisions. This included 200 men and 382 women, or 317 managerial and 265 non-managerial employees.
- We conducted an open forum on our divisional employee communication and engagement website, known as 'AllYours' over an average period of 6 weeks. The AllYours platform is accessible by over 52,000 employees who are registered users. As part of this forum, we invited employees to share their experiences regarding our performance in selecting, recruiting, promoting and developing women in the workplace.
- The 'Women in Management' Working Group discusses issues relating to career progression and recommends initiatives to promote the career progression of women at Woolworths. The group, established a number of years ago, consists of business and HR professionals and at the conclusion of the reporting period, there were 30 active participants.
- We regularly discuss with our primary unions (SDA – Shop, Distributive and Allied Employees Association and NUW – National Union of Workers) opportunities and idea issues for women at Woolworths across the seven employment matters.

b. What other **means of analysis** did you use to identify issues for women (eg workplace profile, HR statistics re turnover trends, etc)?

- Statistical analysis of the year on year workforce profile(s) – 2010 and 2011:
 - The percentage of women employees in the organisation remains constant at 54.0%.
 - The percentage of women in each employment type (last year to this year) remains relatively constant: full time (42.5% to 41.6%), part time (66.6% to 66.2%) and casual (51.5% to 51.5%).
 - The percentage of women in executive roles has remained constant at 27%
 - The percentage of women in both Manager and Senior Manager roles has remained relatively constant from (41.2% to 41.1%) and (25.5% to 24.8%) respectively.
 - The percentage of women in Office/Support roles has decreased slightly from 52.2% to 51.5%.
 - The percentage of women in the Store Employees group has remained relatively constant (59.3% to 59.1%).
 - The percentage of women in the Distribution employees group has increased (16.1% to 17.1%).
 - The percentage of Tradespeople & Apprentices has slightly decreased (10.2% to 9.2%).
- Qualitative analysis based on outcomes from the focus groups as outlined under the seven employment matters in this section below.

- c. Under the seven Employment matters below:
- i) From the analysis and consultation outlined above, summarise the policies and business practices your organisation has in place for all staff and for women that are either aimed at or have resulted in contributing to equal opportunity and
 - ii) Document what were the ISSUES YOU IDENTIFIED FOR WOMEN in your workplace during the reporting period (if no issues were identified, you will need to demonstrate through your analysis how you arrived at that conclusion)

Employment Matter 1: Recruitment & Selection

(Consider – did you recruit any staff? How did you recruit? Do you include an EO statement in your recruitment advertising? Did you recruit any women and if so did you appoint women to non-traditional roles? etc)

- Woolworths' Recruitment and Selection Policy requires employees who are responsible for the recruitment and selection of staff to comply with the Company's EEO and discrimination policies throughout the recruitment process.
- Woolworths collects diversity information through the online recruitment system.
- Woolworths ensures that there are equal numbers of women and men for all graduate programs. In 2010, 52% of graduate recruits were women.
- Focus group participants felt that Woolworths offers equal opportunities to men and women in terms of recruitment and selection. Recruitment and selection is based on the skills, training, qualifications and experience of candidates rather than on their gender.
- Focus group participants have observed an increase in the number of women in senior roles including roles traditionally dominated by males at a senior level during the reporting period. However, there are opportunities for improvement in the following areas:
 - there are opportunities for the Company to increase the numbers of women in some non-traditional operational roles such as Area Managers and Regional Managers;
 - there is a perception that it can be challenging to attract women to work in traditionally male dominated departments and roles;
 - there is a perception that senior non-traditional roles require additional demands in terms of time and travel and this is perceived as a deterrent to women either by lifestyle choice or necessity of competing commitments; and
 - there is a perception that change in senior roles is occurring gradually but that a cultural shift might be required for this change to be really accelerated.
- A number of focus group participants felt that under the leadership of Michael Luscombe, Chief Executive Officer, a woman would never be overlooked for a role based on her gender or her desire to have a family and that at the Company supported work life balance and flexibility at the CEO level.
- A number of focus group participants felt that the external market perception of Woolworths is that women can progress to the top.

Employment Matter 2: Promotion, Transfer & Termination

(Consider – during the reporting period, did you promote/transfer any staff? To what types of roles? Were any women promoted/ transferred? Did any staff leave your organisation? Did any women leave your organisation? Do you conduct exit interviews? How many men and women had the opportunity to act in higher positions? etc)

- Woolworths has Equal Employment Opportunity and Harassment, Discrimination and Bullying policies aimed at ensuring that employees have a safe and productive work environment by eliminating direct and indirect discrimination and harassment (including sex-based harassment, sexual harassment and bullying).
- Woolworths has an Equal Opportunity for Women in the Workplace Act Commitment Poster posted in lunch rooms in workplaces which sets out the different components of the programs which are created in each reporting period.
- Woolworths measures the internal promotion rate for male and female executives monthly.

- Focus group participants considered that visibility of managerial opportunities across other divisions could be improved.
- A number of focus group participants felt that there is a perception that employees need to spend a set amount of time in a position before progressing and that you need to spend time in store operations and “earn your stripes” before being able to take on a senior role.
- Focus group participants felt that there was no obstacle to women being appointed to senior roles at Woolworths, however, men still dominate the more senior level roles.

Employment Matter 3: Training & Development

(Consider – during the reporting period, did you provide any training or professional development? How many staff participated? What percentage were women? Do you have a formal mentoring and/or succession planning program in place? etc)

- In 2010, Woolworths invested over \$63 million into learning and development training. This spanned core training programs, training for new employees and leadership programs for managers and executives.
- Female participation in leadership programs has grown from 26.4% to consistently over 30%.
- Focus groups reported that training is offered equally to men and women based upon the individuals’ development needs.
- Focus groups noted secondment and relief opportunities are equally available within the business and are perceived to be job related rather than gender based.
- Perception that role specific training is relatively easy to access, however participants suggested that leadership training should be offered at more junior levels.
- Focus groups observed that specific technical training had continued to be effective in providing opportunities for women to move into traditionally male dominated roles e.g. increased females being skilled as meat assistants and bakers in Supermarkets.
- Positive feedback reported following the implementation of a formal mentoring program for high potential employees.
- Focus groups acknowledged a continued need for greater follow-up of agreed development plans, in particular on-the-job learning and formal training programs (e.g. opportunity to participate in reliefs, mentoring and/or coaching).
- Woolworths has a strong culture of performance based succession planning. However, focus groups commented that greater transparency around succession planning and career progression within corporate areas may be of assistance to women in managing their careers.
- Woolworths offers annual formal Individual Performance and Development Plans for all salaried and executive employees. Focus group participants commented that more informal mentoring and career discussions outside of the formal Individual Performance and Development Plans would be useful for career development. As part of this, focus groups suggested that area managers in operations be given more time to spend quality time on development of employees in their areas.
- Focus groups saw more opportunities for development for women through reliefs and secondments, multi-skilling and side-ways development and career paths.

Employment Matter 4: Work Organisation

(Consider – during the reporting period, did you provide flexible work options for staff eg flexible start/finish times, quality part-time, job-sharing, compressed hours, phased retirement etc)

- Flexible working arrangements are offered by Woolworths in the form of part-time, flexible start and finish times, career breaks and job-share arrangements. A job-share policy and pack is available for access by employees through WOWnet, Woolworths' intranet.
- Current workforce break-up is:
 - FT - 31.6%
 - PT - 37.1%
 - Casual - 31.3%
- Woolworths offers unpaid career breaks of 6 months to eligible employees.
- Focus group participants felt the availability of flexible work arrangements is increasingly being promoted and supported by management however the number of opportunities is limited.
- Focus groups observed some areas for improvement in relation to the availability of part-time work.
- Focus groups felt that there is a perception that working long hours is highly valued and demonstrates a greater commitment. They considered that greater flexibility to accommodate lifestyle commitments and family friendly hours will make progression more appealing to women.
- Focus groups suggested a new initiative to allow employees to buy additional leave. They also suggested that the business allows employees the opportunities to take leave at Christmas time.

Employment Matter 5: Conditions of Service

(Consider – during the reporting period, did you review and/or revise any of the conditions of service for staff? Did you undertake a pay equity review? etc)

- Woolworths regularly reviews the terms and conditions on which it employs its employees. This is conducted as part of enterprise agreement negotiations for employees covered by enterprise agreements. Enterprise agreements are made available to employees at the workplace. Terms and conditions for salaried and executive employees are also reviewed periodically. Policies are regularly reviewed by the business and are updated as required. Current policy information is available to staff through the Woolworths intranet, WOWNet. Information about employee benefits is available on the AllYours website.
- Focus group participants generally considered that Woolworths employees are paid equally based on their skill set and role and not on their gender.
- We have commenced gender pay gap reporting for discussion with each of our divisions highlighting any disparities across key roles such as store manager.
- Focus groups acknowledged Woolworths' paid parental leave and career breaks as positive initiatives for women.

Employment Matter 6: Sex-based Harassment

(Consider – during the reporting period, did you communicate your harassment policy to staff? Did you revise your policy and/or procedures to reflect changes in your environment? Are all staff aware of the grievance handling procedures? Were there any complaints? If so, were they successfully handled? etc)

- Woolworths has Equal Employment Opportunity and Harassment, Discrimination and Bullying policies which include steps to be taken by employees if they have a concern or grievance. These are located on the Woolworths intranet and are also posted in lunch rooms in workplaces.
- Woolworths has continued to increase awareness of, and skills in dealing with, sex-based harassment through the use of the 'Bullying & Harassment Guide' for employees and managers.
- The Code of Conduct sets out Woolworths' policies on equal opportunity, harassment and discrimination. The Code of Conduct was revised and re-issued to all employees across the business during the reporting period. Some focus group participants told us that they were aware of the Code of Conduct and Woolworths' policies on equal opportunity, harassment and discrimination but would like more clarity around the legal definition of sex-based harassment.
- Focus groups observed that the business has worked well to stop sex-based harassment in the workplace and there is clear awareness that Woolworths does not tolerate sex-based harassment.
- Focus groups noted that Woolworths fosters respect between employees in the workplace and that EEO training has assisted in how employees treat one another.
- Some focus group participants stated that customers can sometimes be inappropriate in their dealings with employees.

Employment Matter 7: Pregnancy, Potential Pregnancy & Breastfeeding

(Consider – do you have a parental leave policy in place? During the reporting period did you have any staff commence or return from parental leave? Do women returning to work from parental leave have access to breastfeeding facilities; have the opportunity to return on a flexible basis? How many staff resigned on the completion of parental leave? etc)

- Woolworths offers 6 weeks' paid maternity leave and a 2 week return to work bonus for eligible employees. Woolworths also offers 2 years' unpaid parental leave for eligible employees. Focus group participants responded positively to these entitlements.
- We have communicated to our employees and to our applicable unions that we will continue to offer Woolworths paid maternity leave in addition to the new Government paid parental leave.
- We have a comprehensive parental leave pack which is available to all employees who take parental leave. This contains information about applying for parental leave, commencing parental leave, returning to work, staying in touch on parental leave and additional support services.
- Woolworths supports mothers while on leave and through the *Maternity Buddy Program* when they return to the workforce to ensure valued staff members remain engaged and are retained.
- The Norwest support office has a mother's room facility. Store-based employees are able to use the first aid room, private office or training room when available in stores and the parent facilities in shopping centres for private spaces to breastfeed.
- There has been a positive response to the 'Baby Bundle' initiative for employees commencing maternity leave.

STEP 3: ISSUES PRIORITISED

[Developing A Workplace Program - Step 3](#)

From your analysis in Step 2 above, list the **PRIORITY ISSUES** you identified for actioning during the reporting period.

Role models and leadership

We identified that the next lift in the numbers of women in management would need to start with a cultural change at the most senior levels of the organisation and a public statement of our commitment.

The focus during the reporting period was to make some significant high profile female appointments including appointments into positions which have been traditionally dominated by men. We hoped that these women would act as role models to other women in the organisation and herald our commitment to women in management.

As part of this, we decided to focus on mentoring, coaching and networking opportunities for women targeted for senior management positions in Woolworths.

Communication and engagement

We identified that there was a need to increase our communication with, and engagement of, all employees but particularly women through different channels.

These channels included including on-line tools, career discussions, career planning, networking opportunities and senior leadership forums.

In addition to our existing EEO policies, we identified a need to develop a policy confirming our commitment to diversity in the workplace; and to strengthen our existing complaints procedures for discrimination, harassment and bullying in the workplace.

External recruitment of female talent

We prioritised the need to gather information about our external recruitment processes with a view to improve these processes and act on any issues affecting the recruitment of women into management positions with Woolworths.

Our graduate program with a strong female representation continued to be a focus.

Development and Education

Our focus on increasing the number of women in leadership programs continued to be a priority issue for this reporting period.

We also focused on looking at other opportunities for networking, mentoring and coaching of female talent.

STEP 4: ACTIONS TAKEN

List the **ACTIONS TAKEN** during the reporting period to address the priority issues identified in Step 3 above.

Women in Management

- In 2010, Woolworths made a statement to our team and the community by becoming an early adopter of the Australian Stock Exchange Corporate Governance guidelines for diversity. As part of this commitment, Woolworths will aim to have a 33% representation of women as Non-executive directors and within our senior leadership team (3 levels reporting up to the CEO) by 2015.
- Each of our divisions has commenced working towards their own specific goals and targets at all levels to continue to develop their female talent in order to deliver on our 33% target. This has included reviewing line managers' history of promoting and developing women and identifying female talent for selection for senior management positions.
- During the reporting period, we continued to make key female appointments into non traditional female roles including:
 - Senior Property Manager;
 - a number of Senior Business Managers (buying appointments);
 - Head of Buying and Marketing Dick Smith;
 - General Manager – Hard Goods Big W;
 - Financial Controller;
 - Chief Operating Officer Home Improvement
 - Regional Manager Big W;
 - Senior Business Manager Supermarkets; and
 - National Logistics Operations Manager – Home Improvement.
- Our success in this area in the reporting period was supported by the following initiatives:
 - our targeted succession planning;
 - career planning key strategic female appointments;
 - mentoring;
 - paid maternity leave; and
 - increased flexibility.
- International Women's Day was celebrated this year by profiling and interviewing a number of inspirational women in management on building a successful career with Woolworths. We received very positive feedback on our AllYours website about this initiative.
- The Women in Management Working Group has continued to monitor, analyse and make recommendations to increase gender diversity within the organisation.

Communication and engagement

AllYours

- In July 2010, we launched the AllYours website which is a new and exciting way for us to communicate with and engage our employees. AllYours gives employees access to extensive information and resources including:
 - exclusive employee benefits including discounts;
 - flexibility and career break information;
 - health and well-being resources and information;

- on-line training and career development information;
- e-payslips; and
- forums and blogs.
- There are currently over 52,000 registered users of AllYours.
- Employees can access AllYours from their home computer or personal device - access is not limited to an employee's working hours. This makes it a wonderful means of keeping employees on parental leave engaged in the business.
- Blogging has proven to be a fantastic communication channel and provides an open, honest and transparent platform for a real conversation. In February 2011, all employees across the business were invited to participate in the CEO's blog. The CEO's blog had a great response with over 100 posts.

Speak Up

- In June 2010, Woolworths launched the Speak Up program. Speak Up is independent service run by a third party allowing staff to report matters about harassment, discrimination and bullying as well as theft, fraud, dishonesty, illegal activity, risk and safety issues and serious breach of company policy including the Code of Conduct on an anonymous basis.
- The Speak Up program has added an additional dimension to our existing anti-discrimination, harassment and bullying framework because it is an avenue for employees of any level in the business to let us know about issues of concern on an anonymous basis.

Diversity Policy

- As part of Woolworths' ongoing commitment to diversity, a diversity policy and strategy was developed and endorsed by the senior management group during the reporting period. The aim of the diversity policy and strategy is to provide a work environment that is inclusive and where all employees are treated with dignity, courtesy and respect. Through the policy, we acknowledge that diversity adds value in bringing different perspectives to the workplace and in reflecting the communities we serve.
- A Diversity Working Group has been formed comprising line and HR managers from all divisions. The purpose of the group is to prioritise actions to harness diversity within Woolworths and ensure that recognising diversity is 'owned' by the business and managed accordingly.

Engagement Survey

- As part of our ongoing commitment to retention, we have invited employees to participate in the CLC Employee Engagement Survey. During the reporting period, 10,752 employees have responded to the online survey tool – now made available through AllYours.
- In 2010, we have seen a positive increase in overall Emotional Commitment, Intent to stay and Discretionary Effort. In particular:
 - Overall positive response to recruitment and on-boarding procedures;
 - 75% acknowledged that their line manager made allowances for personal commitments;
 - High engagement levels and satisfaction with the team and peers; and
 - 80% would recommend the company to family and friends & 75% would consider re-joining the company in the future.
- Rational commitment to the team and the manager are opportunities for improvement.

Exit Interviews

- We have continued to monitor workforce data including exit interview trends to identify the sources of real or perceived barriers and engagement indicators for women within the organisation.
- The exit interview tool ensures employees departing the organisation are confidentially interviewed online with an optional follow-up face to face meeting with HR. This process allows any issues to be highlighted with strategies implemented to ensure Woolworths continues to retain talented women.

External Recruitment of Female Talent

- During the reporting period, we launched a Recruitment, Selection and Induction survey in which we asked questions and invited comments about a candidate's experience of recruitment at Woolworths. Both successful and unsuccessful candidates were invited to participate. Some of the questions we asked were targeted directly at EEO for women. As part of this same project, we have also been interviewing managers who recruit within the business about their awareness of EEO and other important people strategies like the Woolworths Leadership Qualities and Safety Awareness. The aim of this project is to use the data gathered to improve our processes and to act on any issues that may adversely affect women.
- We have identified some areas of the business where women in senior leadership roles are under-represented. As a pilot, we designed an integrated approach to sourcing and attracting women into one of these areas of the business. This included networking, talent mapping, identifying "passive" candidates and using social networking tools. We also briefed the recruitment agencies that we selected about what we were aiming to do, which included equal gender numbers in their short-listed candidates. This resulted in us employing several qualified women, who may not otherwise have been found.
- We have historically had far more men than women who have applied for, and been employed in, graduate positions. We have implemented a gender balance approach starting in 2010 and continuing into 2011.

Development and Education

- During the reporting period, we have actively sought to further the development and education of our female employees, particularly in management positions. Female participation in leadership programs has grown from 26.4% to consistently over 30%. As part of our vision to have a 33% representation of women in non-executive director and senior management roles by 2015, we are aiming to further increase the number of women participants in leadership programs.
- Below are some of the Learning and Development opportunities offered to employees during the reporting period:
 - 12-month Future Leaders Program (approx 34% of participants were women);
 - 18-month Engaging Leaders Program (approx 30% of participants were women);
 - 18-month Human Resources Strategic Development Program (approx 64% of participants were women);
 - 18-month Buying Skills Development Program (approx 31.5% of participants were women);
 - Day-to-Day Management (approx 35% of participants were women);
 - Personal Leadership (approx 33% of participants were women); and
 - Online technical training i.e. basic computer skills, through our AllYours website.
- Women were also offered networking opportunities in the form of Women In Management IT working group and CEO networking sessions. The Women in IT Working Group invites special guest speakers to each monthly meeting including senior executive women and the CEO of Woolworths to present to women from across NSW. The Women in IT Working Group also provides members with an opportunity to network and discuss any issues they may be experiencing.

- Woolworths continues to be a member of the Chief Executive Women's group and 40 female executives attended CEW events last year.
- The senior management team currently mentors 25 high potential employees, 20 (or 80%) of these employees are women.
- During the reporting period, two senior female executives attended a board readiness training program, and one senior female executive attended a leadership best practice program at Harvard University.
- Woolworths Graduate program has provides an opportunity for all employees who have completed a tertiary qualification to commence a career in Buying, Finance, IT, Logistics, Property, Human Resources or Risk and Safety. During the reporting period, 52% of graduate recruits were women.
- The *Executive Transition Program* is designed to accelerate the induction process and ensure the retention of new externally appointed executives into the business continues. Each new executive is assigned a coach for three months to assist with the transition into Woolworths. During this reporting period 33 new executives have taken part in the program. Of those, 12 were women representing 36%.
- In this reporting period, we focussed on career discussions with high potential women employees.
- In a number of divisions, we offered reliefs and cross training across departments to give women employees exposure to traditionally male dominated roles such as night fill, long life, liquor, loss prevention and IT.

STEP 5: EVALUATION OF ACTIONS TAKEN

[Developing A Workplace Program - Step 5](#)

During the reporting period, **HOW EFFECTIVE WERE THE ACTIONS TAKEN** as documented in Step 4 above to address issues for women in your workplace? That is, what worked, and what didn't?

- **This section is required to be submitted** but may be kept confidential (by EOWA removing it from the Public Report once assessed)
- Please indicate if you wish your **Evaluation** to be removed from the Public Report by placing an 'X' in the box to the right



STEP 6: FUTURE ACTIONS

[Developing A Workplace Program - Step 6](#)

To further achieve equal opportunity for women in your workplace, describe the actions you are planning for the next reporting period.

Cultural Change and leadership

- Investigate unconscious bias training to surface and address issues for leaders.
- Mentoring of senior males to assist them to better develop women.
- Executive Leadership Team/Management Board participation in Women in Management Committee.
- Set divisional targets for women in management to be reported on and discussed in management meetings.
- Progress to setting targets for numbers of women in management as part of Woolworths' annual performance and development plan program.

Talent Management

- Use succession planning road shows for proactive identification of female talent especially at developing and future leader levels.
- Continue to review our recruitment, selection and succession planning process to improve opportunities for women.
- Provide identified female talent with targeted development in the form of reliefs and cross-divisional experience, recording and tracking progress.
- Mentoring/coaching and support for future leaders will give them the confidence participate in male dominated forums such as area manager's meetings.
- Consider a requirement for one female leader to be in the selection pool for any management opportunity store manager and above.
- Divisional targets owned and set by divisions but reported on annually/regularly.
- Continue to look at key appointments including the sourcing of external female talent into our business to contribute new and diverse perspectives.

Work environment and flexibility

- Identify and address the real barriers for women in operations at developing and future leader level including.
- Design better collaboration and networking opportunities for women in management roles from store management.
- Communicate recruitment/promotion policies, tools and guidelines widely to the team and provide additional support to line managers to apply these.
- Consider options for increasing flexible work arrangements.
- Continued promotion of the Woolworths parental leave policy including 6 weeks paid maternity leave, a 2 week return-to-work bonus and up to 104 weeks parental leave. Increase communication about existing flexible work arrangements and provide support to managers to implement these.
- Improve use of the job share registry to track employees interested in job share roles, and to enable cross divisional matching of job sharers.
- Implementation of measures to encourage and track individual line manager's successful implementation of flexible work practices in their team.

Career Paths

- Continue to develop and distribute information about career paths and cross divisional opportunities at Woolworths ensuring the organisation is positioned to effectively source female talent.
- Career planning workshops are under development with pilots expected to take place in June 2011. These workshops will assist participants to identify and plan career goals.
- Continued focus on the completion of structured career discussions across the organisation with special emphasis on executive, future leaders and high potential women.
- Conduct career nights and career road show sessions (particularly in operations) giving managers the opportunity to share their experiences on how to provide greater career opportunities.

Education and Development

- Continue to increase the number of women participating in leadership development programs.
- Launch career resilience training for Senior Women and career resilience training for Women in Middle Management roles.
- Review and re-launch training regarding harassment, discrimination and bullying in the workplace.

A.3.2 Computational linguistics methodology

TBC

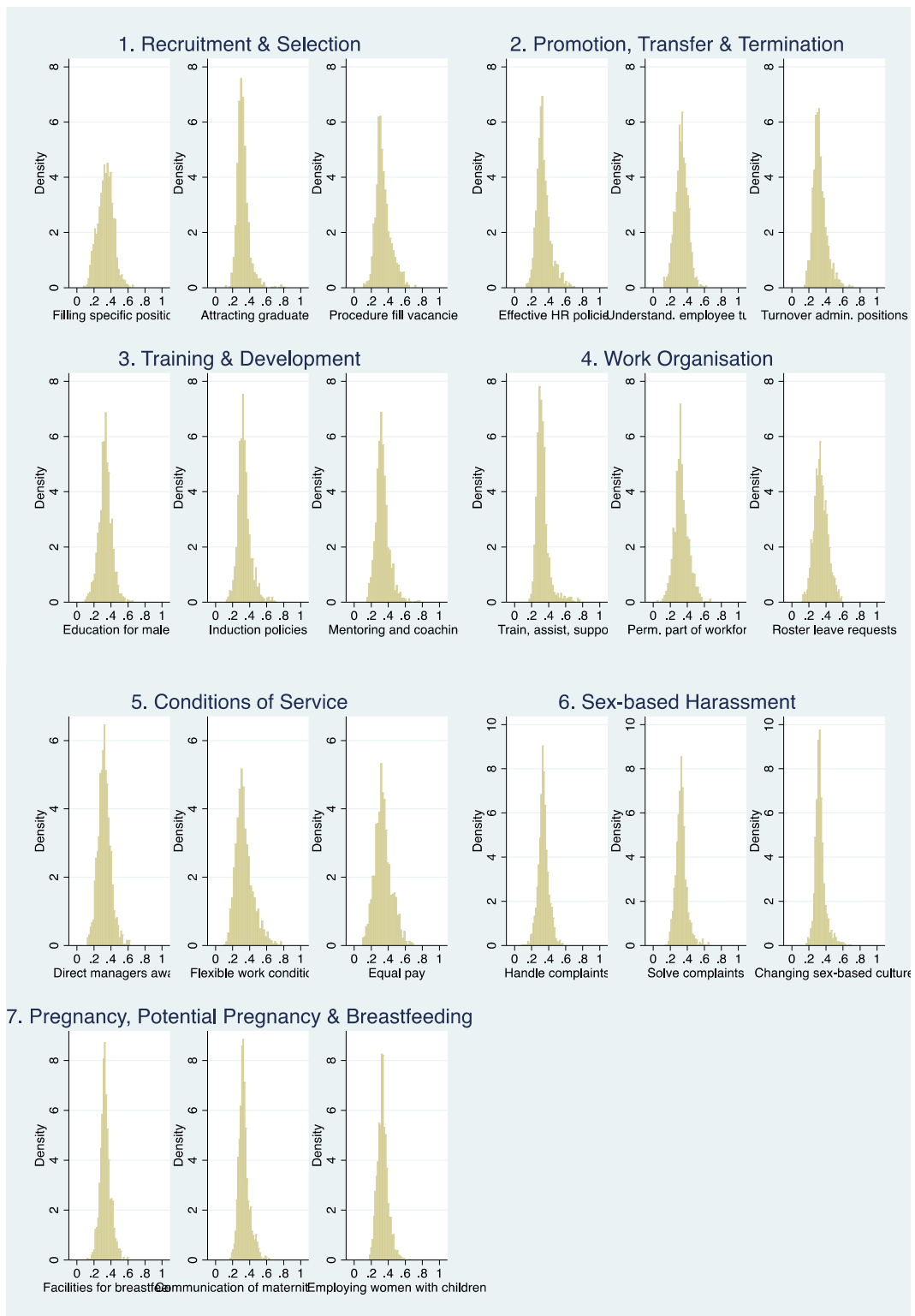
A.3.3. Computational linguistics output and manual coding of practices

The computational linguistic models returned stems of words with frequencies. The work of coding the meaning of the string of stems was done manually by the last 2 authors of this paper, independently of one another, and validated by the first author. The Table below gives an example of the output of the computational linguistics model and the manual coding outcome for the first two practices in the first category of the report:

category	topic no	word1	word2	word3	word4	word5	word6	word7	word8	word9	word10	word11	word12	word13
1	topic0	oper	level	time	last	servic	fill	engin	administr	profession	men	sale	major	due
1		0.019	0.018	0.017	0.016	0.015	0.014	0.014	0.014	0.013	0.012	0.011	0.011	0.011
1	topic1	develop	program	graduat	promot	success	organis	divers	workforc	career	will	offer	current	support
1		0.016	0.015	0.014	0.014	0.013	0.013	0.012	0.012	0.011	0.011	0.01	0.009	0.008
category	topic no	word14	word15	word16	word17	word18	word19	word20	Description of practice					
1	topic0	total	domin	repres	casual	gener	receiv	technic	filling specific positions, such as engineering, technical positions					
1		0.011	0.01	0.01	0.01	0.009	0.009	0.009						
1	topic1	commit	need	group	flexibl	encourag	focu	particip	developing graduate programs, attracting graduates					
1		0.008	0.008	0.008	0.008	0.007	0.007	0.006						

Appendix B: Summary Statistics

B1. Distribution of topics across firms



Notes: The figure represents histograms of the distribution of each topic across firms and years.

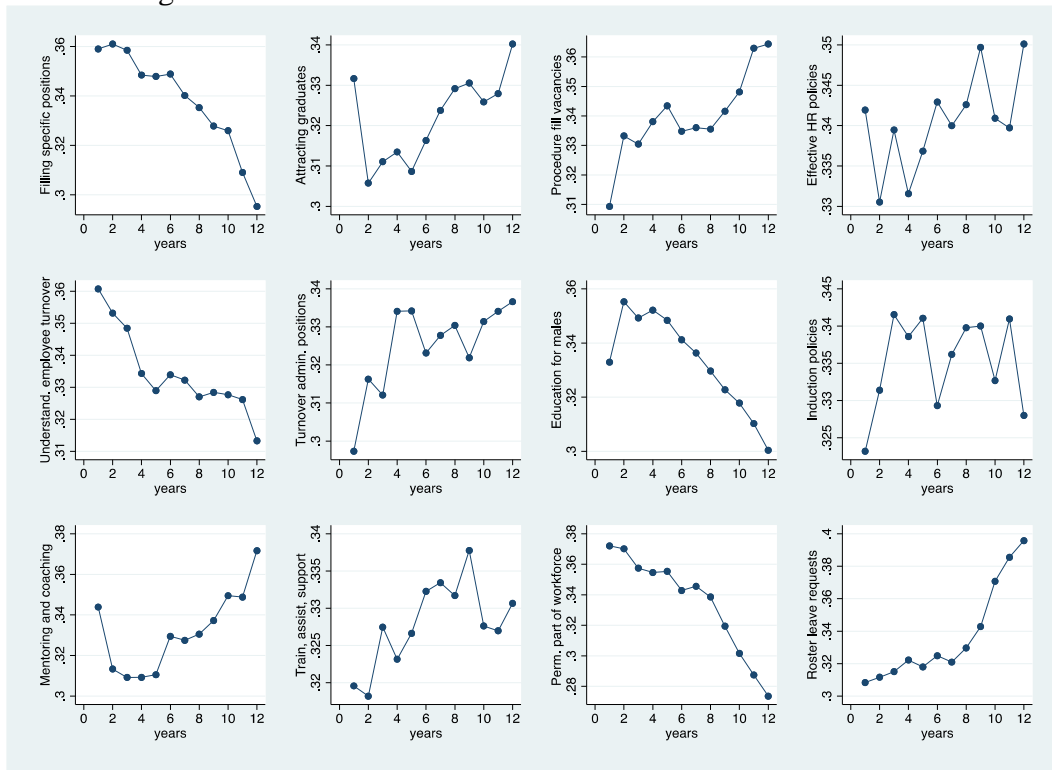
B2. Decomposition of variance across and within firms

This table displays the results of firm fixed effect regressions of each topic / variable on a constant. Each row is a separate regression. The number in the last column is the estimate of 'rho', the fraction of overall variance due to within-firm variation.

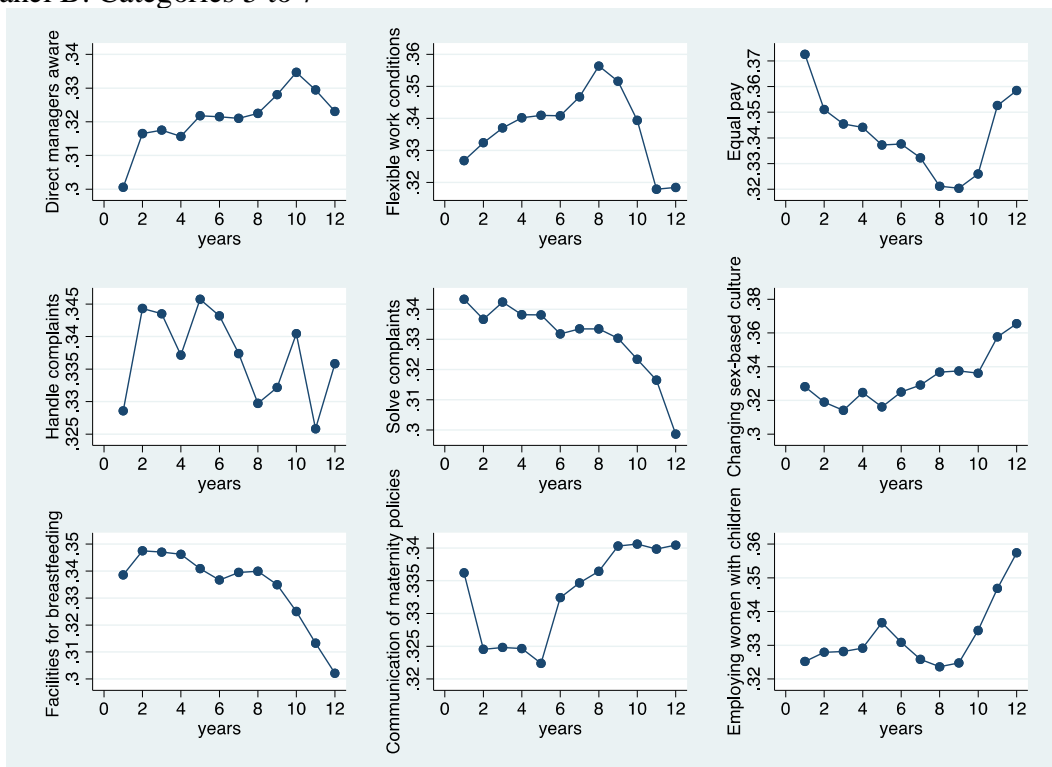
Topic / variable description	Rho
Filling specific positions, such as engineering, technical positions	0.62
Developing graduate programs, attracting graduates	0.59
Procedures to fill vacancies	0.61
Developing effective HR policies	0.56
Understanding employee turnover	0.53
Dealing with turnover of administrative positions	0.56
Education and qualification opportunities for male employees	0.59
Induction policies	0.61
Mentoring and coaching for all staff (inc. leadership coaching)	0.58
Developing programs to train, assist, support the workforce	0.53
Increasing permanent part of the workforce	0.57
Creating a roster to accommodate carers' responsibilities and leave requests	0.53
Making sure direct managers are aware of company's policy	0.59
Flexible work conditions	0.60
Offering better remuneration to female employees; Equal pay issues	0.60
Procedures to handle complaints	0.55
Procedures to solve complaints	0.60
Changing workplace culture, educating employees	0.56
Facilities for breastfeeding mothers	0.53
Support and communication of opportunities available to staff	0.46
Employing women with children, employee turnover due to having a child	0.57
<i>Female representation</i>	
Female employee ratio	0.91
Female other employee ratio	0.90
Female manager ratio	0.79
Female executive ratio	0.63
Ratio of females on board	0.72

B3. Gender corporate cultural trends over time

Panel A: Categories 1 to 4

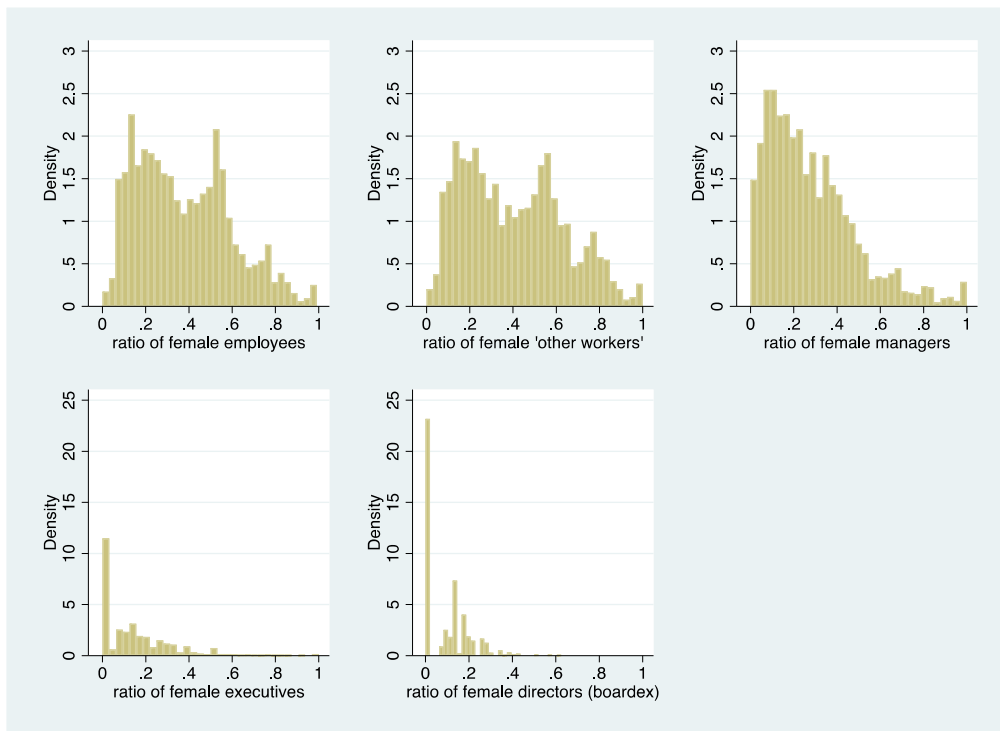


Panel B: Categories 5 to 7



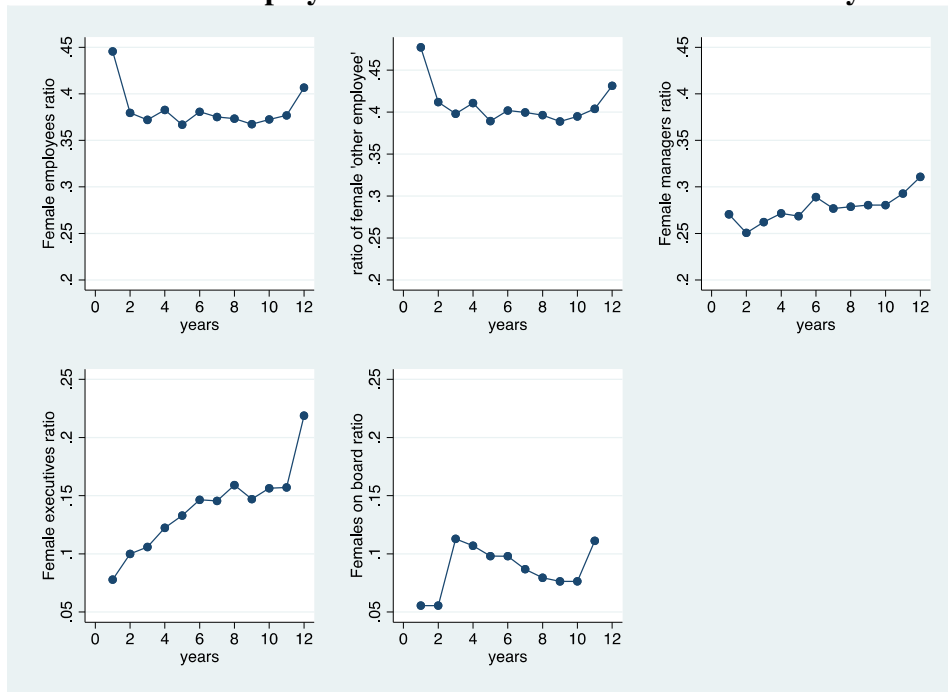
Notes: These graphs represent the evolution of the frequency of each topic, across firms, over time. Years are labelled from 2000 onwards.

B4. Distribution of female representation at different hierarchical levels across firms



Notes: The figure represents histograms of the distribution of the share of female employees at different hierarchical levels, across firms and years.

B5. Trends in female employment at different levels of the hierarchy over time

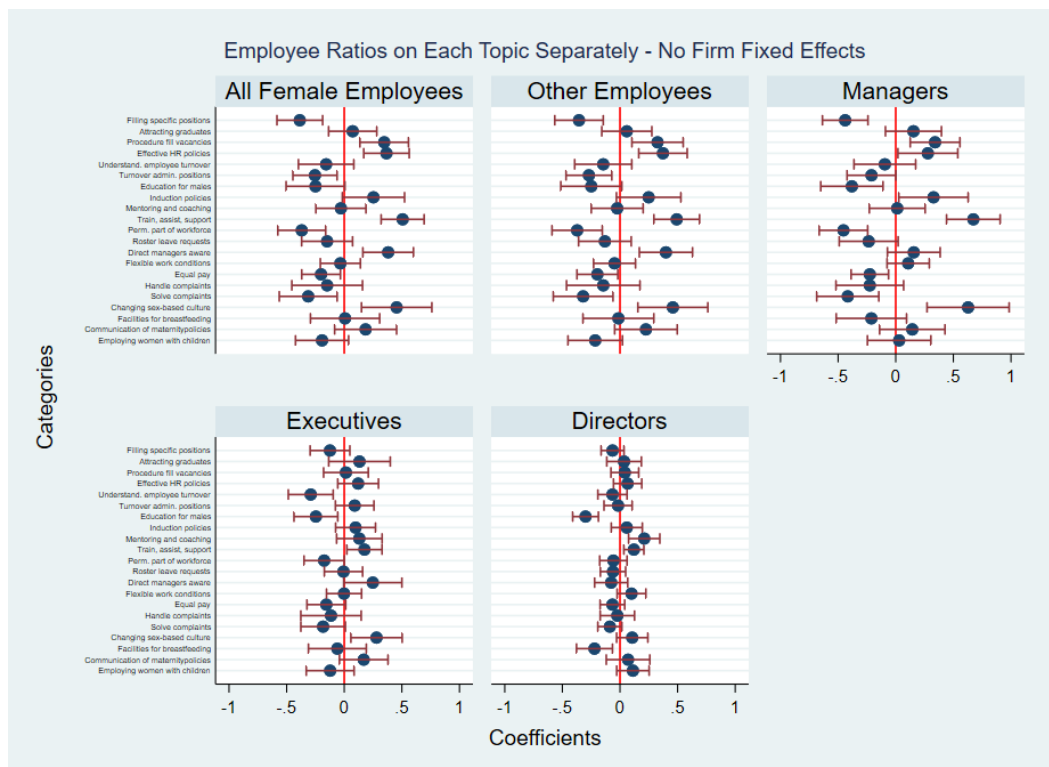


Notes: These graphs represent the evolution of the share of female employees at different levels of the hierarchy. The dataset is averaged across firms. Years are labelled from 2000 onwards.

Appendix C: Additional Results

The difference between the two specifications is that in (1), we run individual regressions for each gender corporate cultural trait h identified by our methodology described in Section 2. The reported coefficient β_{11} should be interpreted as the average relationship between each gender corporate cultural trait j and our measures of gender diversity and performance across firms, sectors, and years. To correct for multiple hypothesis testing, we report the value of the Bonferroni adjusted P-value based on an uncorrected critical p-value of 0.10. We also address the issue of multiple hypothesis testing in (2), where we study the relationship between our outcomes of interests and *all* gender corporate cultural traits considered together. The reason why we implement both (1) and (2) is that each equation has relative advantages and drawbacks. The main drawback of (1) consists in inference issues related to multiple hypothesis testing (in effect 21 hypothesis for each outcomes). While this is not an issue in (2), the drawback of this second specification is that interpretation is less straightforward. By design of our computational linguistic algorithm, the frequencies of all three topics within a category sum to 1. The coefficients associated with a given topic in a given category can thus be estimated only against a specific alternative, which is dropped from the regression due to multicollinearity issues. However, as will become clear, the two methods draw a very similar picture and we will discuss the estimation results of (1) and (2) together.

Figure C1: Each topic separately, no firm fixed effect



Notes: We report the results of OLS regressions. Each line in each panel is a separate regression. The level of observation is a firm*year. Each regression controls for industry and year dummies, and for the usual firm*year characteristics. Each dot is the coefficient associated with a given gender corporate cultural trait in a separate regression, and horizontal segments represent 10% confidence intervals. The Bonferroni adjusted p-value based on an uncorrected critical p-value of 0.10 is 0.0047. Standard errors are adjusted for clustering at the firm level.

Overall, the correlation between gender corporate cultural traits and actual gender diversity is deeply contrasted across hierarchical levels. Several cultural traits strongly predict the share of overall female employment as well as the share of women employed in middle levels of management (managers, supervisors). In particular, specific cultural traits related to recruitment (“procedures to fill vacancies” – as opposed to ad-hoc hiring), work organisation (“programs to train, assist, support the workforce”) and sex-based harassment policies aimed at “changing workplace culture, educating employees” correlate strongly and positively with the overall share of female employees and with the share of women in middle management. Other cultural traits in the dimensions of promotion, training and development, and, perhaps surprisingly given the media and policy focus, work organisational issues such as flexible time matter less. However, the picture is completely different when one rises on the hierarchy to consider top management and women on boards. Virtually no gender corporate cultural trait robustly correlates with the share of women executive or the share of women on board, with the exception of traits related to training and development. Unsurprisingly, education opportunities offered to male only correlates strongly and negatively with the share of women in top management, while the importance given to mentoring and coaching (including leadership development) correlates positively.

Figure C2: Each topic separately, firm fixed effect

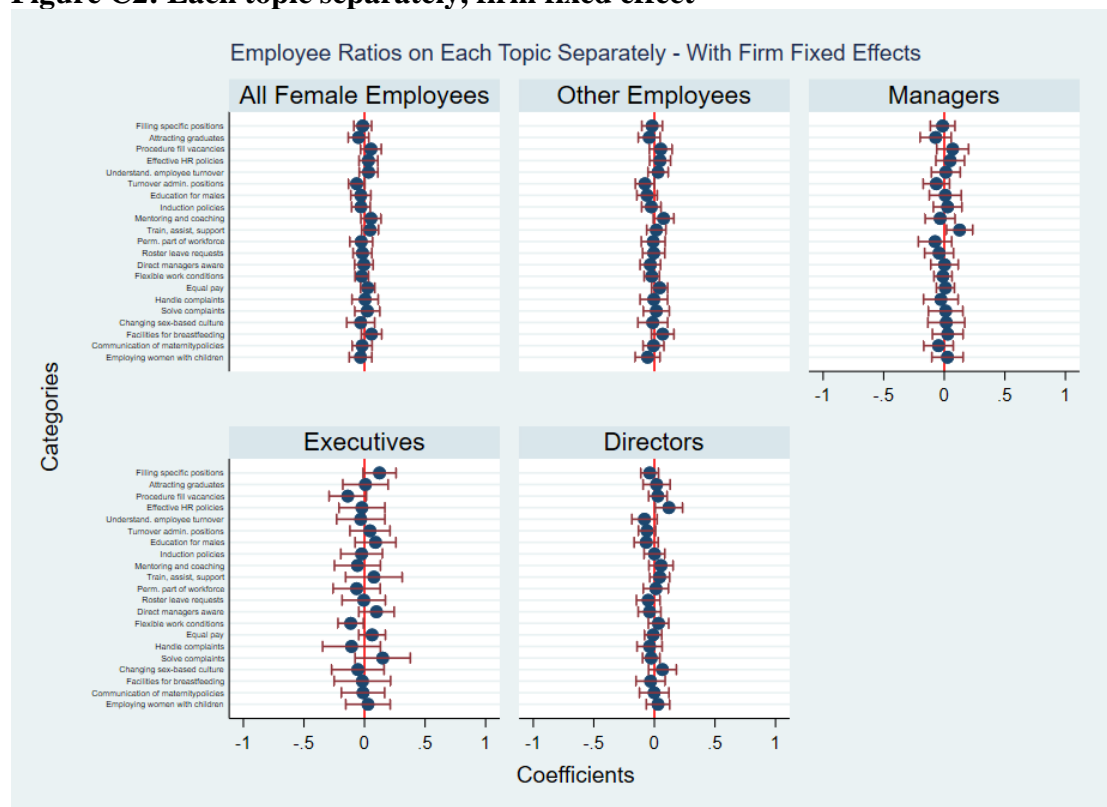


Table C1: LASSO regression results: female representation across the hierarchy and firms' CGC

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Other workers	Managers	Executives	<i>Share of women:</i>		Managers	Executives	Board members
				Board members	Other workers			
Filling specific positions	-0.387	-0.382	-0.061	-0.07	-0.072	-0.226	0	-0.016
Attracting graduates	-0.239	-0.15	0	0	-0.085	-0.132	0	0
Effective HR policies	0.018	0	0.084	0.032	-0.022	0	0.067	0
Turnover admin. positions	-0.182	-0.1	0.121	0.074	-0.046	-0.084	0.038	0
Induction policies	0.329	0.338	0.296	0	0.109	0.078	0.161	0
Mentoring and coaching	0.036	0.132	0.325	0.284	0.168	0.085	0.077	0.197
Train, assist, support	0.283	0.393	0.01	0.007	0.064	0.314	0.159	0.103
Roster leave requests	0.061	0.049	0.018	-0.113	0.044	0.126	0.03	0
Flexible work conditions	-0.192	0	-0.118	0.073	-0.012	-0.022	-0.047	0.032
Equal pay	-0.114	-0.018	-0.227	-0.127	0.054	0	-0.058	-0.081
Solve complaints harassment	0	0	0	0	0.028	0	0	0
Changing sex-based culture	0.173	0.389	0.138	0.065	0.011	0.068	0.075	0.069
Facilities for breastfeeding	0	0	-0.236	-0.133	0.052	0	-0.119	-0.044
Employing women with children	-0.095	0.042	-0.168	-0.021	0	0	0	0
Log of assets								
Market leverage	-0.008	-0.009	-0.009	0.009	0.003	-0.004	0	0.006
R&D to assets	-0.14	-0.138	-0.094	-0.06	-0.054	-0.057	-0.024	-0.002
Age since listing	-0.585	-0.271	-0.203	-0.085	-0.394	0.174	0	0
Board size	0.001	0	0	0	-0.004	-0.001	0	0
Year dummies	0	0.001	0.001	0.001	-0.003	0	0	0.002
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	No	No	No	No	Yes	Yes	Yes	Yes
R-squared								
N	0.526	0.465	0.26	0.287	0.928	0.832	0.647	0.777

Notes: Results of LASSO regressions. lambda = 0.0021. Cross-validation MSE = 0.0271. Number of folds = 10. Number of lambda tested = 100. For excluded categories within each of the seven dimensions of HR, see Table 2.

Table C2: Post-LASSO regression results: female representation across the hierarchy and firms' CGC (underlying Figures 1 and 2)

Notes: Results of OLS regressions including only dimensions of CGC and firm-level controls for which LASSO estimation estimated non-zero coefficients (see Table C2). For excluded categories within each of the seven dimensions of HR, see Table 2 and Table C2.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Share of women:</i>	Other workers	Managers	Executives	Board	Other workers	Managers	Executives	Board
Filling specific positions	-0.290** (0.140)	-0.292** (0.118)	-0.015 (0.108)	-0.041 (0.085)	-0.043 (0.068)	-0.046 (0.078)		-0.007 (0.079)
Attracting graduates	-0.191 (0.145)	-0.114 (0.169)			-0.070 (0.080)	-0.089 (0.101)		
Effective HR policies	-0.085 (0.144)		0.124 (0.135)		-0.020 (0.068)		0.002 (0.144)	
Turnover admin. positions	-0.275** (0.135)	-0.147 (0.111)	0.217* (0.116)	0.083 (0.103)	-0.051 (0.060)	-0.027 (0.074)	0.082 (0.116)	
Induction policies	0.241+ (0.146)	0.305** (0.124)	0.157 (0.124)		0.040 (0.066)	-0.023 (0.091)	-0.135 (0.129)	
Mentoring and coaching	0.033 (0.139)	0.142 (0.137)	0.266** (0.132)	0.336*** (0.103)	0.113+ (0.072)	-0.030 (0.100)	-0.120 (0.144)	0.138* (0.082)
Train, assist, support	0.314* (0.165)	0.426*** (0.138)	0.054 (0.150)	0.023 (0.112)	0.030 (0.077)	0.171+ (0.106)	0.060 (0.181)	0.066 (0.098)
Roster leave requests	0.140 (0.144)	0.102 (0.122)	0.072 (0.120)	-0.122 (0.113)	0.024 (0.079)	0.036 (0.103)	0.043 (0.131)	
Flexible work conditions	-0.239+ (0.156)		-0.183 (0.138)	0.100 (0.110)		-0.079* (0.044)	-0.186* (0.095)	-0.007 (0.089)
Equal pay	-0.215 (0.149)	-0.053 (0.090)	-0.269* (0.142)	-0.124 (0.092)	0.062 (0.048)		-0.071 (0.099)	-0.079 (0.079)
Changing sex-based culture					0.028 (0.072)			
Solve complaints harassment	0.279* (0.163)	0.364** (0.143)	0.196 (0.158)	0.079 (0.113)		-0.004 (0.090)	-0.092 (0.136)	0.047 (0.088)
Facilities for breastfeeding			-0.169 (0.154)	-0.164 (0.138)			0.033 (0.145)	0.060 (0.107)
Employing women with children	-0.184 (0.144)	0.105 (0.129)	-0.165 (0.140)	-0.075 (0.134)				
Firm-level controls*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	No	No	No	Yes	Yes	Yes	Yes
Observations	971	954	838	398	908	971	839	403
R-squared	0.538	0.490	0.252	0.308	0.929	0.855	0.702	0.829

Table C3: LASSO regression results: firm performance and firms' CGC

	(1)	(2)	(3)	(4)	(5)	(6)
	Return on assets	EBIT to assets	Tobin's Q	Return on assets	EBIT to assets	Tobin's Q
Filling specific positions	0	-0.021	-0.176	-0.012	0	-0.289
Attracting graduates	0	-0.034	0.089	0	0	0
Effective HR policies	0.1	0.092	0.751	0.021	0	0.411
Turnover admin. positions	0.036	0.053	-0.418	0	0	-0.596
Induction policies	0	0	0	0	0	-0.15
Mentoring and coaching	0.078	0.128	1.721	0	0.03	0.727
Train, assist, support	0	0	0	0	0.088	0.105
Roster leave requests	0	0	0	0	0	0
Flexible work conditions	0	0	0.718	0	0	0.472
Equal pay	-0.039	-0.031	0	-0.022	-0.027	0
Solve complaints harassment	0	0	0	0	0	0
Changing sex-based culture	0	0.049	0	0.013	0.075	0
Facilities for breastfeeding	0	0	0	0	0.072	0.404
Employing women with children	-0.068	-0.028	-0.195	-0.036	0	-0.175
Log of assets	0.001	0	0	0	0	0
Market leverage	-0.186	-0.195	-2.045	-0.16	-0.155	-1.609
R&D to assets	0.106	0	7.261	0	0	5.598
Age since listing	0	0	0	0	0	0
Board size	0	-0.002	0	0	-0.002	0
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	No	No	Yes	Yes	Yes
R-squared	0.207	0.159	0.386	0.663	0.425	0.688
N	927	937	941	927	937	941

Notes: See notes to Table C1.

Table C4: Post-LASSO regression results: Firm Performance and CGC (underlying Figures 3 and 4)

Notes: Results of OLS regressions including only dimensions of CGC and firm-level controls for which LASSO estimation estimated non-zero coefficients (see Table C3). For excluded categories within each of the seven dimensions of HR, see Table 2 and Table C3.

	(1) Return on assets	(2) EBIT to assets	(3) Tobin's Q	(4) Return on assets	(5) EBIT to assets	(6) Tobin's Q
Filling specific positions		-0.010 (0.077)	-0.278 (0.640)	-0.012 (0.055)		-0.157 (0.480)
Attracting graduates			0.279 (0.771)			
Effective HR policies	0.058 (0.045)	0.046 (0.061)	0.643 (0.681)			0.376 (0.719)
Turnover admin. positions			-0.548 (0.537)	-0.094* (0.053)		-0.804+ (0.547)
Induction policies						-0.193 (0.538)
Mentoring and coaching	0.112** (0.045)	0.141*** (0.051)	1.895*** (0.485)		0.032 (0.064)	0.620 (0.599)
Train, assist, support					0.152 (0.125)	-0.010 (0.643)
Flexible work conditions			0.890** (0.445)			0.691 (0.808)
Equal pay	-0.067+ (0.041)	-0.048 (0.052)		-0.054 (0.040)	-0.022 (0.044)	
Changing sex-based culture		0.067 (0.067)		0.067 (0.061)	0.161** (0.077)	
Facilities for breastfeeding						0.670 (1.106)
Employing women with children	-0.101* (0.061)		-0.323 (0.581)	-0.108+ (0.066)		-0.188 (0.827)
Firm-level controls*	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	No	No	Yes	Yes	Yes
Observations	1,030	969	1,043	1,033	965	1,027
R-squared	0.197	0.164	0.381	0.698	0.449	0.704

C5. Does CGC matter for performance above and beyond gender diversity?

The literature before us has noted a positive correlation between female representation in management and firm performance.¹ We document in the current paper that the specific dimension of CGC that matters most for gender diversity, especially at higher levels of the hierarchy (Mentoring and leadership training open to all) is also associated with firm performance. The question we now address is whether this dimension matters for firm performance above and beyond its association with gender diversity.

To investigate this question, we estimate the following specifications:

$$FinPerf_{ijt} = \beta_0 + \beta_1 Mentoring_{ijt} + \beta_2 GendDiv_{ijt} + \beta_5 X_{ijt} + \delta_j + \delta_t \quad (C5)$$

Where $GendDiv_{ijt}$ measures either: the share of women managers, executives, or board members in firm i , industry j , at time t . We do not control together for the shares of female managers, executives and directors, as these variables are highly colinear.² We focus on the specific dimension of CGC that we have singled out as being robustly associated with female representation in top management and with firm performance: “Mentoring and coaching for all staff (inc. leadership coaching)” ($Mentoring_{ijt}$). Our measures of firm performance are: return to EBIT and Tobin’s Q³. We control for the usual firm characteristics as in specifications (1) and (2) and for industry and year dummies.

We first estimate (C5) without including a control for $Mentoring_{it}$. The purpose of this specification is to check whether we can replicate some of the literature findings of a positive correlation between female representation and firm performance. We then include $Mentoring_{it}$ in the specification, but without controlling for our proxies of gender diversity in management or executive levels. We then include our dimension of CGC of interest together with our measures of gender diversity in management and executive levels. Results are presented in Table C5.

¹ See Adams 2016, Adams and Ferreira 2009, Adams and Funk 2012, Dezsö and Ross 2012, Griffin et al. 2018, among others.

² The raw correlation between: (i) the ratios of female managers and female executives is 0.516; (ii) the ratios of female managers and women on boards is 0.265; and (iii) the ratios of female executives and women on boards is 0.326. All these correlations are statistically significant at the 1% level.

³ Results for return on assets are quantitatively similar although less precisely estimated and not presented for economy of space.

Table C5A: CGC matters for firm financial performance and explains away potential correlations between female representation in management and firm performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	EBIT to assets							Tobin's Q						
Female manager ratio	0.057*				0.035			0.422+				0.248		
	(0.032)				(0.033)			(0.277)				(0.275)		
Female executive ratio		0.036				0.025			0.136				0.259	
		(0.040)				(0.046)			(0.337)				(0.302)	
Ratio of females on board			-0.026				-0.019			-1.331*				-0.707
			(0.049)				(0.051)			(0.730)				(0.563)
Mentoring and coaching for all				0.101**	0.093*	0.100*	0.086*				2.016***	1.930***	1.453***	2.359***
				(0.048)	(0.054)	(0.056)	(0.050)				(0.533)	(0.568)	(0.492)	(0.778)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,329	1,151	834	1,027	961	847	431	1,333	1,155	836	1,031	965	851	433
R-squared	0.177	0.174	0.252	0.166	0.179	0.177	0.427	0.244	0.260	0.223	0.371	0.367	0.426	0.453

Notes: This table reports the results of OLS regressions. Firm-level controls are: log of assets, leverage, R&D expenditure ratio, firm age since listing, and board size. Robust standard errors adjusted for clustering at company level (103 to 233 clusters depending on specification). ***, **, *, and + indicate statistical significance at the 1%, 5%, 10%, and 15% level, respectively.

We find, in our sample, only weak evidence of a correlation between female representation in management and firm financial performance. The ratio of female managers is positively associated with EBIT to assets and the coefficient is statistically significant at the 10% level. It is also associated with Tobin's Q, but the relationship falls short of statistical significance at standard levels. None of our proxies of gender diversity in executive levels is significantly associated with performance. By contrast, our dimension of CGC of interest (Mentoring and Coaching for All) is significantly and positively associated with either measure of firm performance. Beta coefficients suggest that a one standard deviation increase in the frequency of Mentoring and Coaching for All is associated with a 0.046 standard deviation increase in returns on assets, a 0.060 standard deviation increase in EBIT to assets and a 0.142 standard deviation increase in Tobin's Q (according to specifications reported in Columns 4 and 11 and an equivalent specification for return on assets). Furthermore, the coefficient associated with the dimension of CGC and firm performance remains statistically significant, and in fact hardly changes in magnitude, when we introduce controls for gender diversity in management (Columns 5 and 12). Similarly, the coefficient associated with the dimension of CGC and firm performance remains statistically significant when we control for gender diversity at executive levels (Columns 6 and 13) or on boards (Columns 7 and 14). When we control for gender diversity at executive levels or on boards, the comparison of magnitudes is not possible from the Table, as the estimation samples are different. However, results of regressions not reported in the Table similarly indicate that the coefficient associated with Mentoring and Coaching for All is similar when we control for gender diversity. For example, the coefficients associated with Mentoring and Coaching for All when we restrict the sample to observation for which the share of women executive is observed are 0.104 and 1.494 when the dependent variables are, respectively, EBIT to assets and Tobin's Q (to compare with Columns 6 and 13, respectively). The coefficients associated with Mentoring and Coaching for All when we restrict the sample to observation for which the share of women on boards is observed are 0.081 and 2.176 when the dependent variables are, respectively, EBIT to assets and Tobin's Q (to compare with Columns 7 and 14, respectively).

The fact that the relationship between CGC and firm financial performance is barely affected by the relationship between gender diversity (which, we have seen, is correlated with CGC) and firm performance can be more formally tested by performing

Sobel-Goodman mediation tests. This analysis examines the extent to which a mediating variable (ratio of female managers, executives, or board members) carries the influence of an explanatory variable (gender corporate cultural dimension) to a dependent variable (firm performance). Results are reported in Table C5B. We find that only between 1.1% and 13.6% of the coefficient associated with the cultural dimension of interest on firm performance are mediated by female employment shares in management and at executive levels. The remaining 86.4% to 98.9% constitute a “direct association,” i.e., independent of firms’ gender diversity. In one case (Tobin’s Q controlling for the share of women on boards), the result of the test is negative. This can be explained by the fact that the relationship between women on boards and Tobin’s Q is actually negative (consistent with Column 10 of Table C5A), while the relationship between CGC and women on board is positive. Higher prevalence of Mentoring and Coaching for All is therefore directly (positively) associated with firm performance but also indirectly (and negatively) associated with firm performance through its relationship with the share of women on boards. Overall, however, the positive relationship dominates.

Table C5B: Sobel-Goodman Mediation Tests

This table reports the results of Sobel-Goodman Mediation Tests associated with Table C5A. The mediated variable is our dimension of CGC of interest (Mentoring and coaching for all). Each row is the result of an independent test, for each possible dependent variable (indicated in the column headers) and each possible mediator variable (in rows).

Dependent Variable (column)	EBIT to Assets	Tobin's Q
<i>Mediator:</i>		
Female manager ratio	0.061	0.025
Female executive ratio	0.089	0.052
Ratio of females on board	0.019	-0.123

This Table reports the proportion of total effect of Mentoring and coaching for all that is mediated by the Mediator variable listed in the first column.

C6. Firm financial performance, female representation, and CGC: Reduced form results in the sample of historical counties

The following table reports estimation results of the relationship between firm financial performance and indicators of CGC or female representation across the hierarchy. Usual firm-level controls are included, as well as year, state, and industry dummies. Historical controls and Geograohic controls are those included in Table 5 of paper. Robust standard errors clustered at company level. ***, **, *, and + indicate statistical significance at the 1%, 5%, 10%, and 15% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Return on asset					EBIT to assets					Tobin's Q				
Mentoring and coaching for all staff	0.060 (0.047)					0.110** (0.052)					1.991*** (0.556)				
Female 'other workers' ratio		0.007 (0.031)					0.022 (0.034)					0.253 (0.257)			
Female manager ratio			0.007 (0.033)					0.029 (0.035)					0.166 (0.291)		
Female executive ratio				0.023 (0.042)					0.021 (0.045)					0.177 (0.295)	
Ratio of females on board					-0.036 (0.048)					-0.020 (0.054)					-0.550 (0.572)
Firm-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	998	950	935	823	431	1,009	961	946	834	430	1,013	965	950	838	432
R-squared	0.229	0.238	0.236	0.251	0.436	0.175	0.180	0.182	0.184	0.432	0.380	0.368	0.361	0.436	0.447

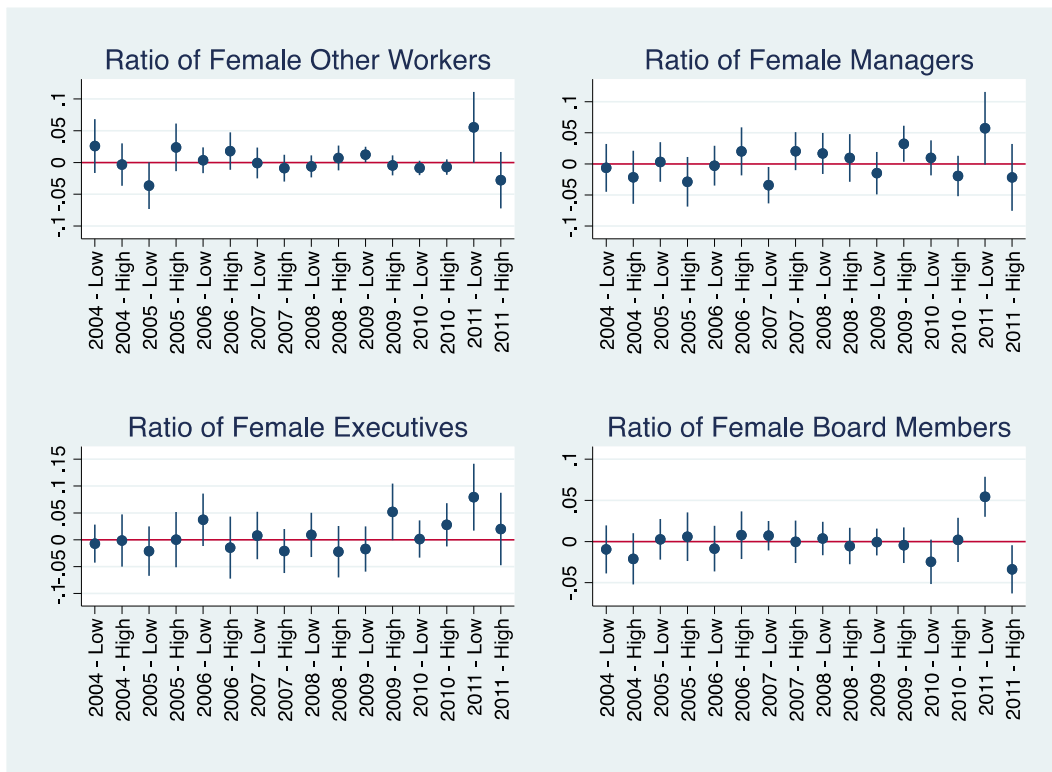
Appendix D: Robustness Analysis

Figure D1: Simple Difference Placebo: Female Employment Categories in all years



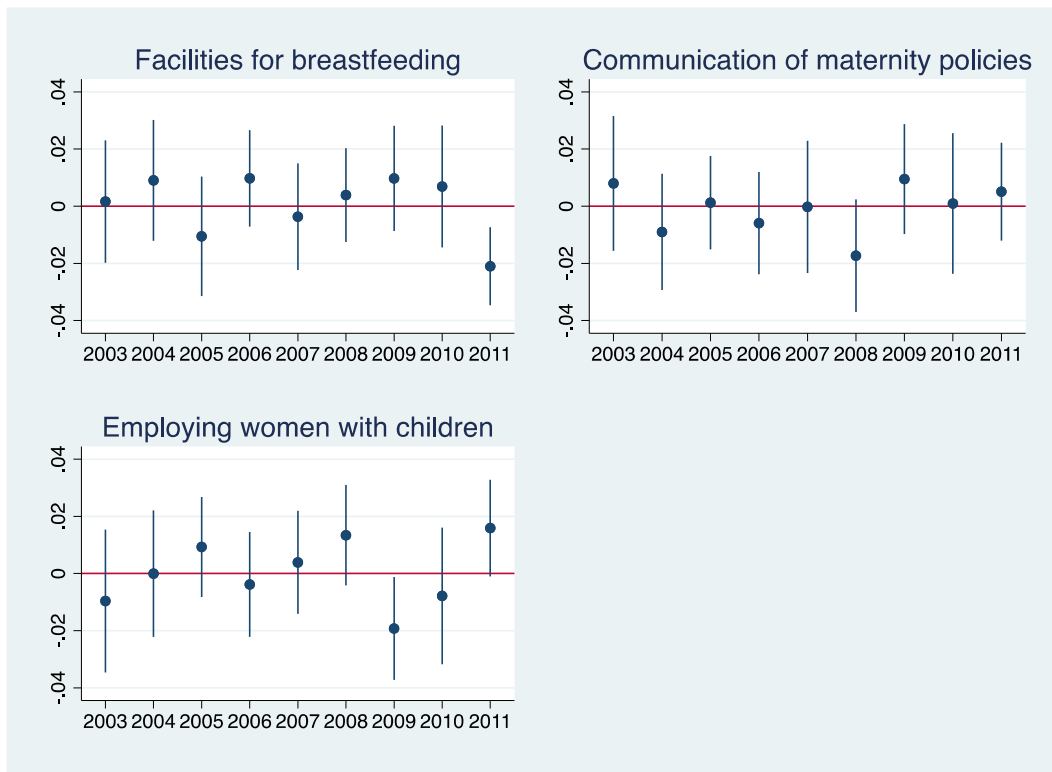
Notes: Results of simple difference (Specification 6) with firm fixed effects. For all years except 2011 (when the policy was actually introduced) we consider placebo treatments in which the *PostPolicy* dummy takes value 1 in that year. We only present the results of the estimation in which we restrict the estimation period to 2 years before and 2 years after the introduction (i.e. placebo for all years and real treatment for 2011) of the policy. The dots represent coefficients and the line are 90% confidence intervals. Standard errors are clustered at the firm level.

Figure D2: Difference-in-Differences Placebo: Female Employment Categories in all years



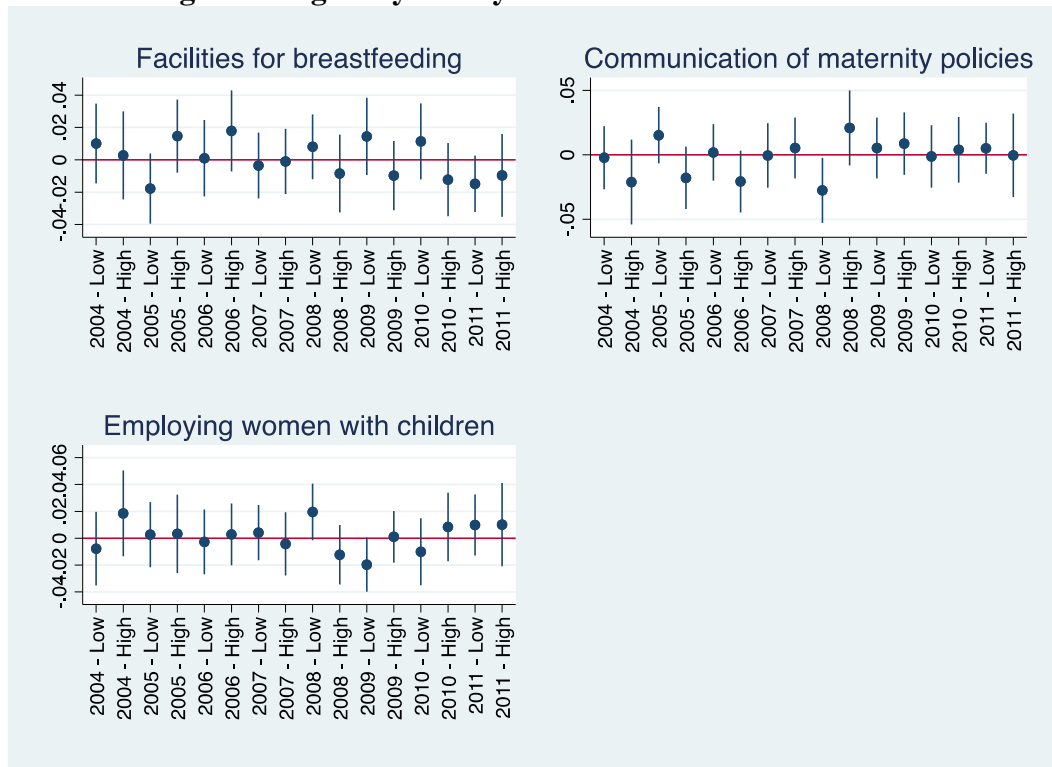
Notes: Results of Difference in Differences specification (Specification 7) with firm fixed effects. For all years except 2011 (when the policy was actually introduced) we consider placebo treatments in which the *PostPolicy* dummy takes value 1 in that year. We only present the results of the estimation in which we restrict the estimation period to 2 years before and 2 years after the introduction (placebo for all years and real treatment for 2011) of the policy. The dots represent coefficients and the line are 90% confidence intervals. Standard errors are clustered at firm level.

Figure D3: Simple Difference Placebo: Cultural traits related to Breastfeeding and Pregnancy in all years



See Notes to Figure D1.

Figure D4: Difference in Differences Placebo: Cultural traits related to Breastfeeding and Pregnancy in all years



See notes to Figure D2.

Table D1: The introduction of the government-funded parental leave in 2011 and placebo outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ratio male working part-time	Return on assets	EBIT to assets	Tobin's Q	Ratio male working part-time	Return on assets	EBIT to assets	Tobin's Q
Estimation method	Simple Difference				Difference in Differences			
Estimation period	2009-2012							
Post mat. leave	-0.002 (0.011)	-0.006 (0.010)	-0.007 (0.009)	-0.084+ (0.056)	-0.004 (0.013)	-0.006 (0.015)	-0.007 (0.015)	-0.026 (0.089)
Post mat. leave*> median fem emp 2009					0.004 (0.012)	0.001 (0.015)	0.002 (0.015)	-0.094 (0.108)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trend	No	No	No	No	No	No	No	No
Observations	351	492	512	515	334	475	493	496
R-squared	0.935	0.853	0.862	0.894	0.926	0.853	0.862	0.891

Notes: See notes to Table 7 in paper.