

Gender diversity in firms

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Abstract: This paper explores the recent efforts by the corporate world and public policy to increase the number of women in leadership positions in the workplace. We review and empirically evaluate the ‘business case’ for gender equality, showing some evidence in favour of it. Despite the evidence and growing support, progress towards more diversity in leadership positions has been slow. We study the importance of supply-side constraints, as well as the main diversity policies (gender quotas, mentoring and network programmes, diversity training to change firm culture, and family friendly policies) that have been implemented. We focus on the effectiveness of these policies, their shortcomings, as well as potential future steps that could help guide policy.

Keywords: gender, diversity, firm policies

JEL classification: D22, J16, J71, M50

I. Introduction

In recent years, the ‘business case’ for gender diversity in the workplace, which refers to the argument often cited by business leaders that more diverse teams and leadership make businesses grow and become more competitive, has emerged and gained a great deal of support. It is often argued that a team that is too homogeneous may ignore relevant alternatives, and it may reinforce its members’ own biases in their decisions. Diversity is believed to bring not only more creativity, but also a different perspective and highlight different unsatisfied product needs that a non-diverse team would have been unable to find. Moreover, the apparent sensitivity of a firm to the issue of diversity could help it attract top talents.

Despite the growing support for the business case among large corporations and consulting firms, and despite the fact that the push for diversity has been the backbone for some important public policies, such as the introduction of gender quotas on boards and committees, progress towards more diversity in leadership positions has been slow. In the United Kingdom, for example, the percentage of women among managers, directors,

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doi:10.1093/oxrep/graa043

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and senior officials has only grown from 31 per cent in 2001 to 35 per cent in 2018.¹ The percentage of women in senior management positions remains much lower—for instance, in the UK, the percentage of women among chief executives or senior officials has stagnated at 23 per cent between 2001 and 2018. This slow progress is puzzling, given the support lent by firms to the business case, with the notion that diversity is desirable from the perspective of competitiveness.

An important question, therefore, is why has progress been slow? In this article, we start by discussing the ‘case’ outlined by the business world on the importance and desire for diversity and inclusion in the workplace. We ask whether there is evidence to support the case in terms of performance benefits to firms, and, importantly, why firms may not adopt policies when it is arguably good for productivity. We combine an empirical analysis with arguments from the management literature, as well as from large auditing firms and think tanks, to show that there is support for businesses’ underlying belief of a positive association between diversity and firm competitiveness. Using a novel and detailed dataset covering 3,800 large corporations from member countries of the Organization for Economic Cooperation and Development (OECD), which allows us to document the extent to which large publicly traded firms and other large organizations have implemented policies in favour of gender diversity, we address three important issues. First, we look at the determinants of the percentage of women in firms, as a function of diversity policy implementation. Second, to understand whether diversity is good for productivity, we explicitly look at the relationship between performance and firm diversity. Third, to understand why some firms may not be adopting diversity policies (potentially, to their desired level), we look at heterogeneity across country and sector in factors that may constrain firms in terms of adoption potential.

We then move to the second part of the paper in which we discuss the main gender diversity policies that firms have adopted to address inclusion and, in particular, gender diversity, focusing on four major strategies—(i) quotas, (ii) mentoring and networks, (iii) firm culture, and (iv) family friendliness. In particular, we study the common policies firms implement to reduce workplace inequalities, such as gender quotas on boards, the impact of diversity and anti-bias training, reducing women’s workplace isolation via the creation of networks and mentoring programmes, as well as the effectiveness of flexibility and support for those with care responsibilities. We discuss the evidence on the effectiveness of these policies, showing that the findings are often mixed, in terms of their success. While there is some evidence of a positive effect of some of these policies on performance, as well as other dimensions, there are also limitations. For each strategy type, we discuss the policy shortcomings that could contribute to their lack of effectiveness, as well as potential future steps that could help guide policy.

In the final part of the paper, we offer a broader discussion on what challenges remain with respect to tackling gender diversity in the workplace. We explore, for instance, how some labour market and human capital factors may be limiting the scope for firms to effectively implement the business case. Barriers to entry may still discourage or prevent women from pursuing careers in fields that would enable them to reach leadership positions, making it difficult for firms to hire women in higher level ranks. Additionally, pursuing academic and policy analyses is often limited by the possibility to conduct the necessary research—for instance, conducting economic experiments—because of practical or ethical concerns.

¹ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employmentbyoccupationemp04>

II. The business case for gender equality

(i) The origins of the business case

The business case for diversity,² which can be defined as ‘the expectation that organizations that manage diversity well will also improve their performance’ (Oberfield, 2014), emerged in the management literature in the early 1990s. The origins of the business case date back to an article in the *Harvard Business Review* by R. Roosevelt Thomas Jr, in which he argued that, while affirmative action policies alone could lead to the hiring of women and minorities at the entry level, diversity management was a means to help women and minorities move up the ranks within firms (Roosevelt Thomas, 1990). He argued that enabling members of these groups to reach middle-management and leadership positions through diversity management was a means of ‘business survival’ for firms.

In the academic literature, Cox and Blake (1991) were among the first to study the relationship between diversity management and organizational competitiveness—laying out the main theoretical underpinnings for the business case for diversity. They argue that better diversity management can reduce costs for firms, for instance by reducing turnover rates of women and minorities who leave firms for lack of satisfaction with their overall careers and advancement opportunities. The article also develops the ‘resource-acquisition argument’, which states that firms with sound management practices can attract the most productive workforce through reputation effects. Firms can also earn a marketing, creativity, and problem-solving edge, by gaining from the insights of a more culturally diverse pool of workers. Finally, the authors argue that firms that effectively manage diversity can become more competitive by being more flexible regarding changes in the business environment.

Following this initial academic push in favour, the business case for diversity created a shift in public policies, mainly in the direction of improving firm governance by increasing diversity on boards. For instance, in 2003, the *Tyson Report on the Recruitment and Development of Non-Executive Directors*, which was commissioned by the British Department of Trade and Industry, explicitly launched the business case for gender equality, stating:

Diversity in the backgrounds, skills, and experiences of [non-executive directors] enhances board effectiveness by bringing a wider range of perspectives and knowledge to bear on issues of company performance, strategy and risk. Board diversity can also send a positive and motivating signal to customers, shareholders and employees, and can contribute to a better understanding by the company’s leadership of the diverse constituencies that affect its success. (London Business School, 2003)

Several countries adopted this line of reasoning and started to introduce gender quotas. While Israel was the first country to implement a quota law³ in 1999, requiring boards of public companies to comprise at least one woman, Norway initiated a more widespread movement towards gender equality on boards in 2003. Since then, other

² Alternative terms also exist in the literature, such as the ‘value-in-diversity perspective’ (Herring, 2009).

³ The Israel Companies Law.

European countries have adopted a binding quota for women on boards (Belgium and France in 2011, Italy in 2012, and Germany in 2015). Some other countries have implemented ‘soft’ measures, such as non-binding gender quotas on boards, to encourage gender diversity on boards of large firms (Austria, Denmark, Finland, Greece, Iceland, Ireland, Luxemburg, the Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, and the United Kingdom) (de Cabo *et al.*, 2019; European Commission, 2019).

The support in favour of the business case gained further traction in the wake of the 2008 financial crisis, with the emergence of the ‘Lehman Sisters’ argument developed in 2009 by Neelie Kroes, the European Union Commissioner for Competition.⁴ She argued that the crisis would not have ‘happened like it did’ had there been more diversity in the banking industry, because women are more risk-averse than men. Also in 2009, a highly cited sociology article evaluated the pros and cons of the business case for gender diversity, concluding that gender diversity was associated with increased sales revenue, more customers, and greater relative profits (Herring, 2009).

More recently, large auditing firms and think tanks have furthered the push in favour of the business case for gender diversity and inclusion—for instance, Deloitte (2013, 2014, 2015), Boston Consulting Group (2017), McKinsey (2018), the Center for Talent Innovation (2013), and the World Economic Forum, which has been publishing its *Global Gender Gap Report* since 2006. In the reports published by these different organizations, the business case for gender equality generally relies on one or more of the following arguments, which state that initiatives to promote gender equality lead to better business outcomes; better profitability; better productivity; increase in attracting and retaining talent; more creativity, innovation, and openness; better reputation; better understanding of consumers and clients; encourages women to study business or ask for leadership positions; more economic growth. The arguments used tend to cast women as the ‘superheroes’ of tomorrow’s business world (Adams, 2016).

To a large extent, these arguments rest on correlational evidence. Many of the papers that study these arguments, at the firm level, are in the sociology and management literatures, and use observational data (Kirsch, 2018). Causal evidence for the business case is limited, with much of the analysis often ignoring important selection effects—for instance, women in the finance industry may actually be more risk-taking on average than men (Adams and Ragunathan, 2017). Nonetheless, this correlational evidence has effectively led to the apparent corporate embrace of the importance of gender diversity for business. However, despite this support, women in leadership positions remain underrepresented. While the numbers are growing, it is not well-understood why there is a persistent disparity in corporate perception and in reality. In the remaining part of this section, we look empirically at the determinants of gender diversity, as a function of diversity policy implementation; the relationship between performance relationship and firm diversity; and, finally, at the potential constraints that firms face in tackling diversity issues.

(ii) Evidence for the business case

The business case has gained traction in the corporate world in recent years. For instance, company survey data collected by the International Labour Organization

⁴ https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_09_344

(ILO) show that when firms are asked whether enterprise initiatives to promote gender equality had helped enhance their business outcomes, 57.4 per cent agree (ILO, 2019). Only one in five reported that these initiatives had not led to an improvement in business outcomes. In terms of how the outcomes have improved, 60.2 per cent reported better profitability and productivity, 56.8 per cent reported increased ability to attract and retain talent, 54.4 per cent reported greater creativity, innovation, and openness, 54.1 per cent said their enterprise reputation had been enhanced, and 36.5 per cent reported being better able to gauge consumer interest and demand (ILO, 2019).

Descriptive analysis of policies and gender diversity

As the push for gender diversity in corporate governance has increased, some organizations have emerged to keep track of the progress firms have been making towards gender equality in leadership positions. Vigeo Eiris, a company related to Moody's, evaluates companies on their environmental, social, and corporate governance performance. It collects data on nearly 4,000 firms worldwide to document the extent to which large publicly traded firms and other large organizations have implemented policies in favour of gender diversity, as well as the percentage of women on boards, in the C-suite, and in management positions. These data are used by organizations that promote gender diversity in leadership and in governance, such as the LeaderXXchange. In what follows, we use this novel dataset, which also contains the names of firms and sector and country information, to study the relationships between the types of policies implemented and the percentage of women in leadership positions, as well as firm performance.

In Table 1, we show the representation of women in leadership positions—looking at the percentage of women on boards, in C-suite, and in management, across large firms of OECD countries, as of November 2019. There are 21.4 per cent of women on boards of these large corporations, 15.8 per cent of women in C-suite positions, and 24.6 per cent in management positions. Overall, 29 per cent of the 3,812 firms do not have any women in the C-suite, 15.4 per cent do not have any women on boards, and only 1.3 per cent do not have any women in management positions.

While the percentages are below 42 per cent for all variables, and across all countries, there remains a great deal of disparity between countries. Countries with binding public policies, and which impose strong incentives for gender equality on firms, tend to show higher percentages of women in leadership positions in firms. For instance, large firms from countries that have implemented gender quotas policies show the highest representation of women. Norway and France, which arguably apply the most constraining quotas (and enforce a threshold of 40 per cent of women), have the highest percentages of women on boards in their largest corporations (41.8 per cent for Norway and 41.4 per cent for France). Cultural differences and gender norms seem to also influence the extent to which firms increase the share of women in leadership positions. For instance, Asian firms in the dataset (Japan and South Korea) have the lowest share of women in all types of leadership positions (2.9 per cent and 3.4 per cent of women in the C-suite in the Japanese and Korean firms, respectively).

Table 2 presents the use of different types of policies that firms have adopted, by country. These statistics show that a majority of firms across OECD countries have implemented basic policies in favour of gender equality. In all countries, except for South Korea, at least 50 per cent of firms have a formalized gender diversity policy or

Table 1: Representation of women in leadership positions by OECD countries' largest firms in terms of market capitalization, 2019

Country	Women on boards (%)	Women in C-suite (%)	Women in management (%)	Number of firms
Australia	22.7	21.7	30.8	361
Austria	29.5	9.2	27.9	26
Belgium	32.7	15.7	27.6	35
Canada	23.7	16.2	26.3	224
Chile	10.7	10.3	20.7	26
Denmark	26.7	11.1	31.1	27
Finland	32.6	21.9	24.8	36
France	41.4	19.5	33.5	159
Germany	25.8	8.1	23.4	165
Ireland	20.7	14.8	27.2	21
Israel	21.2	22.2	38.7	37
Italy	34.5	13.6	24.5	73
Japan	6.7	2.9	9.0	571
Luxembourg	18.7	9.0	21.4	20
Mexico	7.3	4.4	21.9	32
Netherlands	26.4	17.2	24.2	70
New Zealand	25.3	23.3	28.6	55
Norway	41.8	24.8	30.9	26
Poland	19.0	12.0	39.4	25
Portugal	19.2	12.0	35.4	11
South Korea	1.6	3.4	12.7	137
Spain	22.3	14.8	27.8	70
Sweden	38.3	24.5	27.0	55
Switzerland	22.6	7.8	25.3	55
Turkey	15.9	11.3	24.8	23
UK	23.7	17.5	25.2	454
USA	22.3	19.1	29.9	1,018
Total	21.4	15.8	24.6	3,812

Note: Information is collected from publicly available firm reports. Some reports have missing information about the percentage women in boards, C-suite, and management positions. Data are from the latest available reports: November 2019.

Source: Vigeo Eiris and LeaderXXchange, the Gender Diversity Exchange.

statement in place (*Diversity policy*). Overall, only 21.4 per cent of firms do not have a diversity policy. While these policies may serve as a signal of firms' willingness to embrace the business case for gender equality, their effectiveness in terms of enabling more women to reach leadership positions seems rather limited.

Fewer firms have implemented more binding types of policies. Indeed, a lower share of firms disclose how they implement basic gender anti-discrimination and promotion measures that apply to a majority of their global workforce, or extensive measures without regard to scope (*Policy implementation*), and the majority of firms have not set a quantified gender target to promote diversity, where 'target' is the established goal for the number or percentage the company has set for female employment at any position (e.g. board of directors, C-suite, etc.) (*Quantitative targets*). Only 12.6 per cent of these OECD firms had implemented all three types of policies by the end of 2019.

We next look at the determinants of the percentage of women in firms, as a function of diversity policy implementation. In Table 3, we present the results of OLS regression analyses, where the dependent variables are the percentage of women in firms' boards,

Table 2: Types of gender diversity policies implemented by OECD countries' largest firms in terms of market capitalization, 2019

Country	Diversity policies (%)	Policy implementation (%)	Quantitative targets (%)
Australia	94.7	56.0	21.6
Austria	57.7	61.5	19.2
Belgium	68.6	42.9	8.6
Canada	85.7	35.3	5.8
Chile	88.5	65.4	3.8
Denmark	88.9	59.3	44.4
Finland	94.4	47.2	11.1
France	86.8	81.8	35.8
Germany	83.6	62.4	32.7
Ireland	71.4	47.6	14.3
Israel	45.9	27.0	5.4
Italy	95.9	61.6	9.6
Japan	65.0	60.2	30.3
Luxembourg	80.0	50.0	20.0
Mexico	81.3	65.6	0.0
Netherlands	92.9	58.6	21.4
New Zealand	85.5	34.5	5.5
Norway	76.9	61.5	7.7
Poland	56.0	32.0	4.0
Portugal	100.0	90.9	9.1
South Korea	40.9	32.8	1.5
Spain	87.1	71.4	20.0
Sweden	89.1	58.2	18.2
Switzerland	78.2	45.5	10.9
Turkey	82.6	56.5	4.3
UK	59.5	51.3	10.4
USA	88.0	37.2	3.8

Note: Information is collected from publicly available firm reports. Some reports have missing information. Data are from the latest available reports: November 2019. Table includes only countries for which there are at least 10 companies.

Source: Vigeo and LeaderXXchange, the Gender Diversity Exchange.

C-suites, and management positions. The regressions are first run without fixed effects (columns (1) to (3)), and then including country and sector fixed effects (columns (4) to (6)). The results show a significant positive correlation between having a formalized gender diversity policy in place (or disclosing how the firm implements its policy), and the percentage of women in leadership. The results are less precise for setting quantitative targets.

Firm performance and diversity

In this section, to better understand the success of diversity policies, we explore the relationship between performance relationship and firm diversity. We do this by matching the Vigeo data using the firms' International Securities Identification Numbers (ISIN) with Compustat data, which allows us to calculate returns on assets (ROA), a commonly used measure of firm performance (e.g. [Adams and Ferreira, 2009](#)).⁵

⁵ ROA is calculated by using Compustat's 'Income Before Extraordinary Items' (IB) variable, divided by 'Assets – Total' (AT), times 100. For each firm, we use the latest ROA data available: 1,574 for fiscal year 2019, 707 for fiscal year 2018, and 4 for fiscal year 2017. Finally, we trim the outliers at the 1st and 99th percentiles. We are then left with 2,236 firms to conduct our analyses.

Table 3: OLS analysis of women on boards, in C-suite, and management positions, as a function of policies implemented by firms

Dep. variable:	Board	C-suite	Management	Board	C-suite	Management
	(1)	(2)	(3)	(4)	(5)	(6)
Diversity policy	5.229*** (0.595)	4.099*** (0.694)	3.078*** (0.930)	1.783*** (0.500)	1.718*** (0.654)	1.249* (0.749)
Quantitative targets	0.095 (0.669)	-2.579*** (0.724)	-2.439*** (0.791)	2.144*** (0.555)	0.391 (0.687)	0.912 (0.632)
Policy implement.	3.848*** (0.485)	1.150** (0.534)	1.231* (0.709)	4.241*** (0.392)	2.518*** (0.495)	2.494*** (0.542)
Constant	15.183*** (0.526)	12.169*** (0.628)	21.723*** (0.866)	19.057*** (1.916)	15.488*** (2.298)	17.321*** (2.639)
Country FE	No	No	No	Yes	Yes	Yes
Sector FE	No	No	No	Yes	Yes	Yes
Observations	3,640	3,135	2,173	3,640	3,135	2,173
R-squared	0.051	0.015	0.010	0.450	0.261	0.479

Note: Information is collected from publicly available firm reports. Some reports have missing information. Data are from the latest available reports: November 2019. Table includes only OECD countries for which there are at least 10 companies. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Source: Vigeo and LeaderXXchange, the Gender Diversity Exchange.

Table 4 (columns (1) to (3)) shows that there is a positive (and significant) relationship between firm performance and the percentage of women on boards (for C-suite and in management positions, the relationship is also positive but insignificant). Although we are not able to control for firm fixed effects or reverse causality, these correlational results are in line with those of [Adams and Ferreira \(2009\)](#), who similarly find a positive relationship when studying the impact of female diversity on boards and firm performance.

We then look at heterogeneity by sector, by dividing firms into two types of sectors: female dominated (columns (4) to (6)) or male dominated (columns (7) to (9)).⁶ We find that there is a clear positive relationship between performance and diversity in male-dominated sectors, while this effect is not significant in female-dominated sectors. These are important results as they strengthen the arguments put forward in the business case for gender diversity. Since the relationship differs depending on whether it is male or female dominated, it could reflect differential selection, but this too could reflect the business case argument that firms that retain their minority employees and offer them leadership positions become more productive. The results also highlight that the relationship is not strongly significant for key management leadership positions (C-suites), which may be due to smaller (and more select) samples in those positions.

Market-level barriers and supply-side constraints

An important reason for why firms may still be slow in hiring more women into leadership positions may be related to scarcity in the supply of female candidates. To understand why some firms may not be adopting diversity policies (potentially, to their desired

⁶ To create these categories, we use data from the ILO on the percentage of women employed in different sectors in OECD countries, in 2018. We match the sectors from our database with the ILO categories (see Table A1 in the Appendix for corresponding categories).

Table 4: OLS analysis of firm performance, as a function of percentage of women on boards, in C-suite, and management positions

Dep. variable:	All sectors			Female-dominated sectors			Male-dominated sectors		
	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA	ROA
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Board	0.026** (0.012)			−0.005 (0.022)			0.031** (0.014)		
C-suite		0.007 (0.011)			−0.013 (0.019)			0.009 (0.014)	
Management			0.003 (0.013)			−0.014 (0.02)			0.013 (0.014)
Constant	3.507*** (1.349)	3.940*** (1.381)	4.380*** (1.447)	5.116*** (0.762)	5.204*** (0.69)	4.684*** (0.952)	2.571*** (0.506)	3.012*** (0.514)	3.887*** (0.593)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	No	No	No	No	No	No
Observations	2,137	1,740	1,552	472	363	348	1,591	1,315	1,165
R-squared	0.111	0.115	0.129	0.078	0.13	0.091	0.039	0.04	0.039

Note: Information is collected from publicly available firm reports. Some reports have missing information. Data are from the latest available reports: 2019. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Source: Vigeo and LeaderXXchange, the Gender Diversity Exchange and Compustat.

level), we look at heterogeneity across country and sector in factors that may constrain firms in terms of adoption potential. Progress may have been slow despite policies implemented by firms, because there are important pre-market factors that remain (e.g. gender differences in higher education programme choice, like STEM (science, technology, engineering and mathematics)), as well as differences in preferences, such as women not wanting to work in male-dominated sectors. If women are working in a smaller subset of industries, this could lead to occupational crowding, and few women learning the knowledge and skills required in industries in which they are a minority.

In Table 5 we look at the percentage of women on boards, in the C-suite, and in management positions, as a function of policies implemented by firms, and at the country level (i.e. at a level that is exogenous to a given firm). Columns (1) to (3) show the results without controlling for firm-level policies, whereas columns (4) to (6) include these variables. The country-level factors we include are: (1) the proportion of women by sector (*Female in sector*), a variable which accounts for labour market segregation; (2) the proportion of female STEM graduates⁷ (*Female STEM*); (3) the implementation of a ‘hard’ quota (*Binding quota*), which is a binary variable equal to one for countries that have implemented strong, binding gender equality laws, (i.e. in Norway, France, Germany, Belgium, and Italy). This acts as a proxy for gender-equality policies in a country. The results presented in Table 5 highlight that all three of these measures are correlated with the percentage of women on boards, in the C-suite, and in management positions. Implementing a binding quota correlates negatively with the percentage of women in the C-suite, but positively with the two others. In particular, the percentage of women in

⁷ World Bank Gender Statistics Data: <https://databank.worldbank.org/source/gender-statistics#>. Data are from 2018 or 2017 (latest available by country). Observations are missing for Turkey and Japan.

Table 5: Percentage of women on boards, in the C-suite, and in management positions, as a function of policies implemented by firms, and country-level factors

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Board	C-suite	Management	Board	C-suite	Management
Diversity policy				3.890*** (0.639)	3.766*** (0.798)	3.565*** (0.936)
Quantitative targets				4.110*** (0.745)	0.672 (0.860)	1.148 (0.817)
Policy implementation				5.034*** (0.504)	3.065*** (0.601)	3.562*** (0.693)
Female STEM	0.360*** (0.064)	0.187** (0.076)	0.231*** (0.075)	0.422*** (0.062)	0.245*** (0.076)	0.297*** (0.074)
Female in Sector	7.251*** (1.576)	10.257*** (1.813)	35.967*** (2.033)	9.004*** (1.515)	11.599*** (1.799)	37.483*** (2.009)
Binding quota	13.458*** (0.778)	-2.351*** (0.882)	1.529* (0.871)	11.460*** (0.764)	-3.041*** (0.895)	0.670 (0.872)
Constant	7.377*** (2.199)	7.685*** (2.621)	6.060** (2.602)	-1.356 (2.229)	0.514 (2.769)	-2.130 (2.845)
Observations	2,708	2,432	1,614	2,708	2,432	1,614
R-squared	0.108	0.021	0.170	0.185	0.048	0.200

Note: Information is collected from publicly available firm reports. Some reports have missing information. Data are from the latest available reports: November 2019 for Vigeo data and 2018 or 2017 (latest available by country) for World Bank data. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. *Source:* Vigeo and LeaderXXchange, the Gender Diversity Exchange and World Bank Gender Statistics Data.

STEM, gender segregation across sectors, and the use of binding quotas are positively correlated with all three variables. This highlights that there are differences across industries (and countries) depending on the extent of ‘constraint’ felt on the supply side. The results also suggests that progress might have been slow, despite policies implemented by firms, because there are important pre-market factors that remain (e.g. gender differences in choices of higher education), as well as differences in preferences, such as women not wanting to work in male-dominated sectors (this could be because they are less interested in those sectors or for other reasons, such as a fear of harassment).

III. Evaluation of main diversity policies

In this part of the paper, we describe and evaluate the effectiveness of the main policies used by firms to promote gender diversity. We focus first on the main policy that has been introduced by firms: quotas on boards of directors. We then discuss other types of policies that firms have been implementing on a more proactive basis: mentoring and networking programmes, improving firm culture, and work flexibility policies.

(i) Gender quotas within firms

Following the case proposed by the business world, a recent commonly used approach to promote gender diversity within firms has been to target diversity on boards through the use of quotas. In some countries, these quotas have been mandated on firms by

governments through legislative actions. In other countries, governments have introduced a softer approach of non-binding board quotas. More recently, some activist institutional investors and asset managers have also started to require that firms improve their gender diversity on boards (Katz *et al.*, 2017).

Quotas on boards are intended to speed up diversity, make society fairer, faster, through a trickle-down effect. Motivated by the idea that an underrepresentation of women on boards and committees leads to a lack of female role models and, sometimes, to discrimination in the selection process because of male dominance, this policy aims at tackling diversity concerns at the very top. The underlying argument for legislative mandates for gender parity on boards and committees is that these problems will disappear over time and the quotas can, eventually, be lifted.

Another important motive for board quotas proposed in the business case study is the expectation that a greater female presence will broaden teams' preferences so that they are more representative of society as a whole. This might impact the firm's output and, in turn, consumer choice. However, the impact might also be seen within the firm, where women in positions of power might adopt policies that better match the preferences of female employees (e.g. the adoption of flexible work).

A third reason for why firms might care about gender diversity at the board level is because more diversity at the top could enhance productivity. Gender differences in attitude towards risk, preferences for competition, and social values could alter the dynamics of the group. Groups are known to have idiosyncrasies. For example, group polarization is a widely documented phenomenon: groups make decisions that are more extreme than the average of the individual views in the group (Adams and Ferreira, 2009).

Understanding the effectiveness of whether an organization's performance is influenced by its gender diversity is central to the debate about gender parity on boards and committees. Because groups typically form endogenously, an empirical understanding of the link between diversity and performance is more difficult to establish. If more-diverse teams perform better, it is tempting to conclude that more diversity is rewarding. This might be because groups that are more diverse are more entrepreneurial and perform well because of their diversity. However, the reverse could also be the case. Teams that were already performing well might be at greater liberty to behave in ways that are not necessarily profit-maximizing, such as by implementing gender diversity policies. Establishing the causal link between diversity and group performance is thus problematic.

The recent changes in countries regarding the quotas of women on boards has led to an increase in the study of its effectiveness. One of the first countries to introduce this reform was Norway, which required that women make up at least 40 per cent of the members on corporate boards of Norwegian firms. Ahern and Dittmar (2012) studied the relationship between firm performance and gender composition. Using variation in how close to the threshold the firm was before the reform, they show that an increase in female representation led to a decline in shareholder value. The reason was that the change in board membership happened rapidly, and the new female directors had much less corporate executive experience and were younger than the male directors. More recently, using data from Californian firms, Hwang *et al.* (2019) argue that quotas do not necessarily increase value for firms when the pool of qualified female directors is small, because of high search costs for firms that have to apply the quota.

Other studies, however, have challenged the finding that an increase in female board members has a negative impact on firm value. Using information on US boards of directors, [Kim and Starks \(2016\)](#) show that women who are appointed as corporate directors diversify the set of board expertise more than their male counterparts do. This increase in skills heterogeneity leads to an increase in firm value. Using evidence from France's quotas on boards of directors, [Ferreira et al. \(2020\)](#) find that firms have adapted to the binding law by diversifying and deepening their talent pool—finding talent where they were not necessarily looking before the introduction of the law.

Many studies have gone one step further to better understand how gender quotas interact with decision-making at the firm. A study of the effects of the Norwegian gender quota on corporate decision-making found that the quota changed the style of corporate leadership ([Matsa and Miller, 2013](#)). They showed that, while most corporate decisions were unaffected after women's board representation increased, there were large differences in firms' employment policies. In particular, firms affected by the quota laid off fewer employees, resulting in higher relative labour costs. Female board members might consider labour hoarding to be a more profitable long-term strategy, or they might have a greater concern for workers' vulnerability to unemployment risk. [Kunze and Miller \(2017\)](#) show that there also exist gender 'spillovers' in career advancement. Using employer–employee matched data on white-collar workers in Norway, they consider the entire organizational hierarchy of workers and changes in the female share of co-workers. They find that women experience a significantly lower annual likelihood of advancing a rank than do their male counterparts. The gap is reduced when there are more female bosses in the next highest rank, but increased when there are more female peers at the same rank, suggesting a positive spillover across ranks but a negative spillover within ranks.

The effect of gender on team decision-making is likely to have several other consequences. One argument for affirmative-action policies or better enforcement of equal opportunity policies is their long-term effect on gender discrimination. Women in top positions, whether because of gender quotas or increased education and training, might influence decisions to hire or promote more women. This might lower or eliminate statistical discrimination—gender inequality stemming from stereotypes or other forms of discrimination—and in the long term enable labour markets to operate without these distortions. [Bertrand et al. \(2018\)](#) take a longer-term approach to looking at the Norway board reform, showing that women appointed to these boards post-reform were better qualified than women appointed at the time of the reform, subsequently reducing the gender earning gap. However, there was mixed support for whether the reform affected the decisions of young women through a trickle-down effect. While more women chose to do business degrees, there were increases in enrolment into science degrees, suggesting it could be other factors leading to these changes or that the reform had broader implications on the decisions of younger women.

In sum, while the evidence on the effectiveness of quotas at top-level executive positions is mixed, there is still some work to be done to understand the longer and wider effects of these reforms. Moreover, since quota policies tend to focus on the firm's board diversity, where the day-to-day running of the firm is quite limited, it may instead be preferable to target lower-level management to have a more effective response.

(ii) Mentoring and professional networks

One of the most common ways in which firms have been trying to help women reach leadership positions is through the development of mentoring programmes, and the support of female professional networks. Women are likely to benefit from these programmes because they give them access to more quality career-related information. Through these programmes, women can signal their competence to a larger number of managers by extending their networks or being associated with mentors who are outside of their day-to-day business environment.

Mentoring programmes are argued to reduce information costs for women who want to climb up the hierarchy. Through mentoring, they can learn the tricks of the trade. Since mentoring can include information sharing, informal teaching, or career advice provided by more senior workers, mentoring interactions can help minority employees develop specific human capital for upper-level positions, by learning from upper-level employees (Athey *et al.*, 2000). Moreover, since mentoring relationships often form endogenously between members of a same type, if few women are in upper-level positions, then there are fewer mentoring opportunities for women of lower ranks. Exogenously creating mentoring networks can, therefore, help women who otherwise would be under-served in human capital development.

While the empirical analysis finds relatively positive evidence on the effectiveness of mentoring programmes, the gender of the mentor may or may not play an important role. Azmat *et al.* (2020) study gender disparities in reaching top positions in law firms—in particular, being promoted to partner level—showing that, while having a more senior mentor early in one's career is helpful in reaching the top, the gender of the mentor does not play a role. This is the case for both male and female lawyers. That finding suggests that a policy aimed at matching junior female lawyers to female mentors in the firm, might not be optimal, given that seniority is important to reach the top and there are currently fewer senior female mentors. Relatedly, as with quotas, assigning more tasks to already stretched female seniors, may be harmful for career progression at the top (Vernos, 2013).

When looking at social networks, while they have been shown to be important in labour markets (Hensvik and Skans, 2016) and can help to reduce unemployment duration (Cingano and Rosolia, 2012), women and men often have significantly different networks. Men's professional networks tend to be larger (with more connections), whereas women's networks are denser (Lindenlaub and Prummer, 2019). Women are less opportunistic and more selective in their networks, forming fewer but stronger ties (Friebel *et al.*, 2017). The literature presents a trade-off that exists between having loose but large, versus tight but small, networks. Tight networks, such as the ones women tend to have, can help to overcome trust issues (Coleman, 1988). However, a larger network with weaker ties provides individuals with more information (Granovetter, 1973; Lindenlaub and Prummer, 2019). Lindenlaub and Prummer (2019) develop a theoretical model in which they show that women's networks tend to be smaller, tighter, and more clustered, resulting in lower performance in high-risk and uncertain environments. Research also suggests that women's networks tend to be poorer in social and economic resources. Moreover, even when women do have access to similar social capital as men, they benefit less from it (Abraham, 2019). Nonetheless, it seems that women could benefit from having broader networks than they currently have.

In summary, it seems that a growing number of firms are introducing policies that encourage within-gender networks or mentoring for junior employees. While there is some evidence in favour of having ‘role models’, in the current climate of few and relatively younger (or less experienced) senior female employees, these policies could have some unintended consequences and limitations in effectiveness. By overburdening senior women acting as mentors or leaders of these networks, it could imply professional costs to them and even impact the effectiveness of their leadership. More generally, while it is thought that networking and mentoring are important, the channels through which they may work are yet to be well-understood. It could be through an information channel, which makes others aware of one’s competence or helps to share labour market opportunities. However, firm culture, which we discuss in more detail in the next section, may be an essential factor for the effectiveness of networking or mentoring policies. Indeed, much mentoring and networking often happens endogenously in firms, and women may miss out more on career opportunities.

(iii) Firm culture and diversity training

It is often noted that, due to firm culture, men at work tend to benefit from socialization in ways that women cannot. The ‘old boys’ club’ is argued to persist in the workplace and generates lower promotion rates for women who are, *de facto*, excluded from it (Cullen and Perez-Truglia, 2019). Research also suggests that women may feel pressure to adapt their behaviours in male-dominated fields, by adopting stereotypically male leadership styles (Halberstam, 2019). Relatedly, sexual harassment is a firm culture-related issue predominantly affecting women, especially in male-dominated environments. Using data from the US, Sweden, and Japan, Folke *et al.* (2020) show that women supervisors are more likely to be sexually harassed than employees, which is likely to discourage women from seeking leadership positions. Sexual harassment can also lead women to exit male-dominated sectors (Folke and Rickne, 2020). How women can better fit into the corporate culture could suggest that changes to the corporate culture are needed.

One way that firms have tried to address this issue is through diversity training to reduce managers’ biases. Economic evidence suggests that biases of principals have an impact on the selection of agents, on the principal’s perception of agents’ performance, and on agents’ performance and motivation. These biases may lead to a drop in the productivity of workers. For instance, in the context of French grocery stores, minority cashiers tend to perform less well and have worse labour market outcomes when they are assigned to managers who are biased (Glover *et al.*, 2017). Similarly, in an educational setting, Carlana (2019) shows girls tend to perform worse in maths relative to boys, and to self-select out of more demanding academic tracks, when they are assigned a maths teacher who has strong gender-science stereotypes.

The empirical analysis on traditionally used ‘anti-bias’ trainings, which started in the 1930s, points to them not working (e.g. Paluck and Green, 2009; Dobbin and Kaley, 2016, 2017). Anti-bias trainings are part of policies consisting in constraining managers in their decision-making processes for hiring and promotion decisions (which also include job tests, performance evaluations, and grievance procedures) (Dobbin *et al.*, 2015). Part of the reasons invoked as to why such policies fail is that they tend

to generate resistance or sabotage from those who feel that they are being controlled and restricted in their autonomy at work. This finding is surprising given the very large amounts that firms spend each year on this type of training. For instance, US firms spend an estimated 8 billion dollars per year on diversity trainings.⁸ Despite the lack of evidence that diversity training works, firms continue to engage in them. Why? Perhaps because they serve another purpose than to directly reduce discrimination. Indeed, firms may be using them to prevent or counter litigation, by signalling that they are trying to do something to reduce discrimination (Dobbin and Kalev, 2018).⁹ Using diversity training may be less constraining for the firm and less costly than alternative policies aimed at changing firm culture.

An important limitation of the existing analysis is that much of the literature relies on observational data. The lack of experimental evidence regarding the efficiency of anti-bias training is an important constraint in understanding well its effectiveness. In a recent field experiment, Chang *et al.* (2019) study the impact of a short online diversity training module conducted on 3,000 individuals at a large global organization. The study finds some evidence of attitude and behavioural changes following the intervention, but this was mostly driven by individuals who were already supportive of women before the intervention, suggesting firms cannot rely only on such types of diversity training to change firm culture. Another recent study addresses the issue of gender biases in the evaluation of the competence of women, in the context of student evaluations of teaching (Boring and Philippe, 2019). Using a field experiment, the paper details an intervention which provided information to students about the fact that former students had discriminated against women in student evaluations of teaching. This intervention reduced students' biases in their evaluations. The paper also included an intervention that was purely normative—essentially, asking students to be careful not to discriminate in their evaluations. This intervention finds no significant effect, suggesting that the design of any intervention targeting gender biases in evaluations is essential in reducing biases.

To target firm culture, several alternative policies have also been proposed. In some countries, such as Canada, Denmark, and the UK, firms are encouraged (or mandated) to disclose the average pay for male and female workers within the firm. Theoretically, the impact that this may have on the pay gap is unclear. On the one hand, it may induce firms to address any existing gender pay differentials. On the other hand, the mere act of publishing these figures may fail to trigger any further response, particularly when firms have little room to raise their wage bill. Moreover, some caution is likely to be needed to ensure that greater transparency does not come at the cost of firms making compositional changes to their workforce or shedding discretionary flexible work policies. Empirical findings seem to suggest that these policies lead to a drop in the gender pay gap. In a recent study, Duchini *et al.* (2019), analyse the UK's 2017 reform in which firms with at least 250 employees are mandated to annually publish, on a dedicated website, the mean and median gender pay and bonus differentials, as well as the share of female employees in each quartile of the wage distribution. The study does not find any significant effect of the reform on female hourly pay. It does, however, show that

⁸ <https://www.mckinsey.com/featured-insights/gender-equality/focusing-on-what-works-for-workplace-diversity>

⁹ For studies about their efficiency, see footnotes 2 and 3 of Dobbin and Kalev (2018).

transparency policy leads to a 2 per cent slowdown of male hourly pay growth in affected firms, with there being stronger effects in firms that had a higher baseline gender pay gap. Studies have investigated similar policies in other countries. For instance, [Bennedsen *et al.* \(2019\)](#) exploits a legislation change in Denmark that requires firms to provide gender disaggregated wage statistics, and [Baker *et al.* \(2019\)](#) use Canadian public-sector data with a similar reform, both finding that salary disclosure laws lead to a decrease in the gender pay gap.

(iv) Work flexibility and family-friendly policies

A traditional explanation for gender disparities in the labour market has been that there exists occupational segregation (see [Altonji and Blank \(1999\)](#) for a review of the literature). A range of explanations have been put forward to explain why women and men may select into different professions. While differences in preferences is argued to be an important factor into why men and women may have different career preferences ([Croson and Gneezy, 2009](#)), the demands of parenthood are also likely to play an important role in occupation and career choices. Since these demands have been shown to weigh differently on mothers and fathers, women who decide to stay in the labour market when they become mothers often prefer jobs that offer a greater extent of flexibility or require less overtime ([Goldin, 2014](#); [Cortes and Pan, 2018](#)).

Within the same occupation, but across firms, there often also exist disparities in the extent of ‘family-friendliness’. Workplaces may differ with respect to the extent of temporal flexibility that they offer their employees. Recent studies highlight the importance of workplace flexibility, or, more generally, family-friendly policies in promoting more workplace diversity ([Goldin and Katz, 2011, 2016](#)). [Hotz *et al.* \(2018\)](#) analyse the impact of differences in the attributes of workplaces and jobs on the careers of women and men using rich employer–employee data in Sweden. Creating an index of family-friendliness based on a large set of workplace-level characteristics, they show that compared to men, women switch to more family-friendly workplaces after their first birth. However, while they show that there appear to be tangible benefits of working in more family-friendly work environments for mothers, these benefits may not enhance their careers in the longer term. This is partly because family-friendly workplaces tend to be lower or medium skilled and have a flatter career ladder.

The compensating differential associated with working in a more family-friendly or flexible environment is likely to be an important factor in explaining gender differences in pay and progression. However, tackling the problem can often be complicated by the fact that certain firms or occupations cannot be broken down or made to be more flexible. A recent study by [Azmat *et al.* \(2020\)](#) documents that after the arrival of the first child, women often move away from jobs and firms where ‘presenteeism’ is important (i.e. where there is a stronger penalty for unpredictable (temporary) work absence). These positions, while higher paying and having a better career trajectory, are also those where finding a substitute at the workplace is more

difficult. Unlike parental leave and part-time employment, which allow the employer to anticipate the absence of the worker, temporal work absence, often due to own sickness or caring for sick children, is unpredictable. The study highlights that presenteeism can play an important role in explaining the parenthood wage penalty for women and that this could be reduced if firms organized work in such a way that tasks, at least in the short run, can be performed satisfactorily also by other employees in the workplace.

The design of family-friendly policies is not always straightforward and sometimes comes with unintended consequences. The presence of children has been shown to impact female labour market opportunities and the probability that women are promoted because of falling productivity. Family leave policies may not mitigate this issue and could even exacerbate the problem because of missed experience on-the-job, since women are more likely to take any parental leave. Countries like Sweden and Norway have tried to tackle this problem through the introduction of ‘use it or lose it’ paternity leave that requires both parents to take, at least, part of the parental leave or then lose part of the benefit. Certain professions have also taken an active approach to deal with this problem; for instance, gender-neutral family policies have been adopted in some professions in an attempt to ‘level the playing field’. While this may be an effective solution in some professions, in others, like academia, where there is a tenure decision taken after some years, this may not be the case. In research-intensive universities that adopted gender-neutral tenure clock-stopping policies for family-related reasons, female tenure rates actually fell while substantially increasing male tenure rates ([Antecol et al., 2018](#)).

IV. Discussion of remaining challenges

Firms increasingly favour the business case for gender diversity, but progress in effective diversity and in promoting more women to leadership positions has been slow. In this article, we have shown that there is evidence that establishing gender diversity is a function of the initiatives introduced by firms, and that more diversity in leadership positions seems to be related, in a positive way, to firms’ performance outcomes. However, firms are often constrained by supply-side factors, such as the availability of suitable female candidates for leadership positions, and we observe a great deal of heterogeneity in firm-level diversity across sectors and countries, attributed to the extents to which the constraints bind. Another important factor to consider is the types of diversity policies being used in firms. The second part of the paper is devoted to exploring the main type of policies, their motives, their effectiveness, and whether what has been implemented has been done so efficiently, or sufficiently enough, to help women climb the corporate ladder.

In this final part of the paper, we identify several limitations to the existing literature that make it difficult to have a complete overview of the policies in place or the potential to measure the effectiveness of these policies. The business case for gender-equality often focuses on firm-level incentives or an organizational strategy aimed at having

more women within the firm, including at the very top. However, hiring and promotion decisions are often taken at an individual level. Individuals within a firm may have other incentives. It has been shown, for instance, that the higher the share of women in a firm, the lower the wages overall for both female and male workers. Moreover, firms in which women are more likely to be mentored and promoted tend to have fewer men working in them (Cardoso and Winter-Ebmer, 2010). Another reason for the slow progress may be that the business case ignores potential costs for firms in promoting gender equality. Indeed, the costs of managing diversity may be underestimated (Mannix and Neale, 2005).

Another important limitation on diversity in firms is that of measurement. Conducting (large-scale) randomized control trials in firms to causally estimate the effect of diversity policy is often difficult. Indeed, firms often refuse to participate because of the sensitivity of the issue—the fear that the research may reveal that (some) of their employees discriminate or are discriminated against and that this could trigger lawsuits. Firms that tend to participate are often select—those that agree to participate in experiments may discriminate less. For instance, Behaghel *et al.* (2015) found that firms who agreed to participate in an experiment designed to test the impact of anonymous resumés on discrimination in hiring decisions were firms that tended to positively discriminate in favour of minorities, in contrast to firms that did not agree to participate in the experiment.

Policies are also often multi-dimensional in their potential effectiveness. What researchers generally estimate might not be the intended purpose by the firm—or even the only policy effect. As economists, we often focus on the performance impact of having more diversity. However, firms may care about how implementing these policies impacts worker satisfaction or well-being. Given that hiring and retention may be key policy objectives for firms, implementing diversity policies could also be a way to attract top workers, especially among young workers. Indeed, research suggests that workers care about working for a firm that aligns its social values with those of the workers (Cassar and Meier, 2018). Firms can use socially responsible business practices and adopt pro-social values to attract and motivate employees (Kitzmueller and Shimshack, 2012; Cassar and Meier, 2018).

Finally, despite the growing interest in targeting firm culture, the impact that sexual harassment in the workplace can have on women's careers and their productivity, there are still few papers that directly study this (exceptions are Antecol and Cobb-Clark, 2003, 2004, 2006; Basu, 2003; Hersch, 2011; and, more recently, Folke *et al.*, 2020, and Folke and Rickne, 2020). The empirical findings suggest that enforcement of sexual harassment prohibition has remained incomplete, with many victims being reluctant to file formal complaints. The fact that much sexual harassment remains unreported may lead to the persistence of sexual harassment practices in some workplace environments. Importantly, the persisting tolerance of sexual harassment in the workplace may be a cause of some women's choices not to apply for some positions or their decisions to switch to lower-paying industries in order to avoid the risk of being harassed. While changing firm culture takes time, still much more needs to be done to understand and to tackle harassment issues, especially in the higher-paying, male-dominated sectors.

V. Conclusion and policy implications

Although the business case was introduced around 30 years ago, it is only recently that firms and governments have accelerated the push towards more gender diversity in leadership positions. Firms and governments have been investing in different types of interventions, where some of the more recent policies seem to be more effective in promoting the access of women, while others have not have worked as well. Public policies have also been shown to play a vital role in promoting policies and tackling the issue of diversity, especially in countries and sectors where representation of women is lower.

Our research explores the business case study, as well as the main diversity policies that have been implemented, focusing on effectiveness of these policies, constraints in implementation, and policy shortcomings. As potential future steps that could help guide policy, our study offers several potential policy recommendations for the development and improvement of gender diversity policies.

- (i) *Quotas on C-suites*: the effectiveness of quotas at top-level executive positions has been shown to have mixed effects on performance. However, since quota policies tend to focus on the firm's board diversity, where the day-to-day running of the firm is quite limited, it seems that targeting lower-level management is likely to have a more effective response.
- (ii) *Mentoring/network*: A growing number of firms are introducing policies that favour within-gender mentoring for junior employees. While there is some evidence in favour of having 'role models', our research suggests that mentoring should not be based on gender alone—it can limit the exposure and experiences of junior employees. At the same time, it can overburden senior female mentees, who are still underrepresented.
- (iii) *Firm culture*: Our research points to more policies being needed to target and change firm culture. There is a growing literature showing that firm and management practices are highly important for firm performance (Bloom and Van Reenen, 2011). To target firm culture, some firms have implemented diversity training, but so far, the research suggests that this has only been with limited success. Alternative policies need to be tested.
- (iv) *Family friendly policies*: Firms that are more 'family friendly', and firms where temporary absence is less penalized, have a higher retention rate of women after childbirth. However, these firms tend to be more concentrated in lower-paying and lower-skilled sectors. A broader commitment to flexibility and family friendliness across different types of firms, as well as change in the social norm towards flexible work for both men and women could be a potential step towards improving firm diversity, and also help reduce gender pay inequality.

We thank the referees and the editor for their helpful comments. We are also grateful to Vigeo Eiris and the LeaderXXchange for providing us with the data used in this research. Anne Boring wishes to acknowledge funding from the Women in Business Chair at Sciences Po.

Appendix

Table A1: Matching Vigeo and ILO's sector classifications

VIGEO classification	ILO classification
Aerospace	Economic activity (ISIC-Rev.4): C. Manufacturing
Automobiles	Economic activity (ISIC-Rev.4): C. Manufacturing
Beverage	Economic activity (ISIC-Rev.4): G. Wholesale and retail trade; repair of motor vehicles and motorcycles
Broadcasting & Advertising	Economic activity (ISIC-Rev.4): J. Information and communication
Building Materials	Economic activity (ISIC-Rev.4): F. Construction
Business Support Services	Economic activity (ISIC-Rev.4): M. Professional, scientific, and technical activities
Chemicals	Economic activity (ISIC-Rev.4): C. Manufacturing
Development Banks	Economic activity (ISIC-Rev.4): U. Activities of extraterritorial organizations and bodies
Diversified Banks	Economic activity (ISIC-Rev.4): K. Financial and insurance activities
Electric & Gas Utilities	Economic activity (ISIC-Rev.4): D. Electricity; gas, steam, and air conditioning supply
Electric Components & Equipment	Economic activity (ISIC-Rev.4): C. Manufacturing
Energy	Economic activity (ISIC-Rev.4): D. Electricity; gas, steam, and air conditioning supply
Financial Services – General	Economic activity (ISIC-Rev.4): K. Financial and insurance activities
Financial Services – Real Estate	Economic activity (ISIC-Rev.4): L. Real estate activities
Food	Economic activity (ISIC-Rev.4): I. Accommodation and food service activities
Forest Products & Paper	Economic activity (ISIC-Rev.4): A. Agriculture; forestry and fishing
Health Care Equipment & Services	Economic activity (ISIC-Rev.4): Q. Human health and social work activities
Heavy Construction	Economic activity (ISIC-Rev.4): F. Construction
Home Construction	Economic activity (ISIC-Rev.4): F. Construction
Hotel, Leisure Goods & Services	Economic activity (ISIC-Rev.4): I. Accommodation and food service activities
Industrial Goods & Services	Economic activity (ISIC-Rev.4): C. Manufacturing
Insurance	Economic activity (ISIC-Rev.4): K. Financial and insurance activities
Local authorities	Economic activity (ISIC-Rev.4): N. Administrative and support service activities
Luxury Goods & Cosmetics	Economic activity (ISIC-Rev.4): G. Wholesale and retail trade; repair of motor vehicles and motorcycles
Mechanical Components & Equipment	Economic activity (ISIC-Rev.4): C. Manufacturing
Mining & Metals	Economic activity (ISIC-Rev.4): B. Mining and quarrying
Oil Equipment & Services	Economic activity (ISIC-Rev.4): B. Mining and quarrying
Pharmaceuticals & Biotechnology	Economic activity (ISIC-Rev.4): M. Professional, scientific, and technical activities
Publishing	Economic activity (ISIC-Rev.4): J. Information and communication
Retail & Specialized Banks	Economic activity (ISIC-Rev.4): K. Financial and insurance activities
Software & IT Services	Economic activity (ISIC-Rev.4): J. Information and communication
Specialized Retail	Economic activity (ISIC-Rev.4): G. Wholesale and retail trade; repair of motor vehicles and motorcycles
Specific Purpose Banks & Agencies	Economic activity (ISIC-Rev.4): K. Financial and insurance activities
Supermarkets	Economic activity (ISIC-Rev.4): G. Wholesale and retail trade; repair of motor vehicles and motorcycles
Technology – Hardware	Economic activity (ISIC-Rev.4): C. Manufacturing
Telecommunications	Economic activity (ISIC-Rev.4): J. Information and communication

Table A1: Continued

VIGEO classification	ILO classification
Tobacco	Economic activity (ISIC-Rev.4): G. Wholesale and retail trade; repair of motor vehicles and motorcycles
Transport & Logistics	Economic activity (ISIC-Rev.4): H. Transportation and storage
Travel & Tourism	Economic activity (ISIC-Rev.4): I. Accommodation and food service activities
Waste & Water Utilities	Economic activity (ISIC-Rev.4): E. Water supply; sewerage, waste management, and remediation activities

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