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Women's leadership and the gendered consequences of austerity in the public sector: Evidence from IMF programs

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Abstract

During times of economic turmoil, women often bear the cost of cuts in public spending and labor market deregulation. We argue that the adverse gendered consequences of austerity are mitigated when women occupy more political leadership positions. We test our argument using two independent sources of evidence. First, we use cross-country time-series data for 95 countries from 2000 to 2018 on public-sector employment outcomes and panel regressions to show that women leaders mitigate the adverse consequences of IMF programs for women in the public sector. Second, we use individual-level data from the World Values Surveys covering 50 countries from 2004 to 2015 to show that women in the public sector are more likely to fear job loss and endure income loss under IMF programs when the women share in the government of their country is low but that these adverse effects disappear once women are represented in the government. These results have important implications for debates on women's leadership as well as the impact of austerity on the public sector.

1 | INTRODUCTION

Countries in economic distress often turn to the International Monetary Fund (IMF)—an international financial institution that provides emergency loans (Dreher, 2009; Stone & Steinwand, 2008; Vreeland, 2003). Financial relief comes with strings attached—a commitment by borrowing governments to implement far-reaching economic policy reforms such as cuts to public expenditure, layoffs in the public sector, and market liberalization (Kentikelenis et al., 2016). Existing literature highlights the adverse socioeconomic effects of these reforms, including economic decline, higher inequality, deteriorating public services, and weakened state capacity (Dreher, 2006; Lang, 2020; Reinsberg, Kentikelenis, et al., 2019; Stubbs & Kentikelenis, 2018). These negative effects are not distributed evenly but disproportionally impact vulnerable and marginalized groups. Recent evidence suggests that women are hit hardest by the adverse impact of IMF programs (Detraz & Peksen, 2016; Donald & Lusiani, 2017; Elson, 2013). They often have to bear the brunt of adjustment costs, losing access to vital public services and being confronted with greater risk of job loss (Abouharb & Cingranelli, 2007; Blanton et al., 2015; Helleiner et al., 1991).

In this article, we examine whether women leadership can mitigate the gendered consequences of IMF programs. We focus on public-sector employment outcomes for several reasons. First, contrary to employment outcomes in the private sector which are mediated through firm-level decisions (Reinsberg & Abouharb, 2022), governments can directly affect employment outcomes in the public sector. Second, public sector employees are frequently the first ones to lose their jobs or swallow deep cuts in salary and employment benefits (Berik, 2016; Gunaydin, 2018; Reinsberg, Kentikelenis, et al., 2019; Rickard & Caraway, 2019). Finally, women in developing countries more frequently find employment in the public sector or provide public services closely linked to national budgets (Donald & Lusiani, 2017; Fruttero et al., 2020; Rubery, 2015; Çatay & Ertürk, 2004). Drawing on insights from corporate governance and public management research, we hypothesize that greater representation of women[1] in the government helps to cushion the adverse employment effects for women in the public sector during IMF programs. All-men cabinets will be more likely to discriminate against women employees or be unable to take corrective measures to counteract the adverse effects of IMF-induced policy pressures on gender equality. Therefore, we expect that women's leadership leads to less gender discrimination of public sector workers under IMF programs.

We test our argument using two independent sources of evidence at two levels of analysis. First, we use cross-country time-series data for 95 countries from 2000 to 2018 on public-sector employment outcomes and panel regressions. We find that when a country is under an IMF program, women's employment share in the public sector decreases under an all-men cabinet but increases when the government includes a women minister. Furthermore, the public-sector women-men wage ratio decreases under an all-men government but remains unaffected when the government includes a women minister. Second, we use individual-level data from the World Values Surveys covering 50 countries from 2004 to 2015 and within-country regression analysis to show that women in the public sector are more likely to fear job loss and endure income loss under IMF programs when the women share in the government of their country is low but that these adverse effects disappear once more women are represented in the government. Importantly, our results withstand numerous robustness checks, including different model specifications, data imputation, and alternative estimators, including instrumental-variable designs. We also provide illustrative evidence from several cases that demonstrate the viability of our suggested mechanisms.

Our research makes three key contributions to debates on leadership in public administration and the consequences of international financial institutions' lending programs. First, we extend a growing literature on women's leadership in public administration. Our research highlights the policy pressures of international financial institutions as a critical (understudied) international-level determinant of economic policy choices. While existing literature emphasizes that the representation of women in public agencies leads to a stronger focus on policy issues that more women care about and the fight against gender discrimination and workplace harassment (Keiser et al., 2002; Mansbridge, 2005; Tinkler & Zhao, 2020), we probe the scope conditions of this argument by studying gendered policy choices under economically turbulent times.

Second, we extend the literature by focusing on the impact of women leaders on gender discrimination in the public sector. Research on corporate governance finds that quotas for women on corporate boards can work as a powerful vehicle for gender empowerment, with tangible effects on firm performance (De Cabo et al., 2019; Kirsch, 2018; Profeta, 2020). Similarly, greater descriptive representation of women in the leadership of public agencies can enhance public policy outcomes (Betz, Fortunato, and O'Brien, 2021; Keiser et al., 2002; Wilkins & Keiser, 2006). While existing studies in public administration have highlighted the impact of gender representation on the policy outcomes for citizens (Keiser et al., 2002; Wilkins & Keiser, 2006), we test the impact of women leaders on the public administration itself.

Third, we contribute to the literature on IMF programs and public-sector employment outcomes (Gunaydin, 2018; Nooruddin & Simmons, 2006; Reinsberg, Stubbs, and Kentikelenis, 2019; Rickard & Caraway, 2019). A key limitation of the existing research on public-sector employment outcomes during IMF programs is that it neither accounts for gender differences nor analyzes the role of (women) leadership and its impact on such outcomes. Our contribution is to bring to this debate research in political science (Betz, Fortunato, and O'Brien, 2021), economics (Bertrand & Duflo, 2017; Blau & Kahn, 2017; Duflo, 2012), and public administration (Jacobson, Palus, and Bowling, 2010; Park, 2013; Wilkins & Keiser, 2006), emphasizing the benefits of women's leadership for policy outcomes. Our results provide nuance to the existing IMF literature by demonstrating that the adverse public-sector employment outcomes of IMF programs fall disproportionately on women, especially when such programs are agreed upon and implemented by all-men cabinets. From a policy perspective, our results undergird the paramount importance of enhancing women's descriptive representation in the public sector, especially in the political executive, for defending women's economic empowerment.

2 | IMF PROGRAMS, PUBLIC-SECTOR CUTS, AND THE ROLE OF WOMEN LEADERSHIP

Since its operations started, the IMF has transitioned into the single most important lender of last resort that comes to the financial rescue of countries finding themselves amid balance of payments crizes. IMF programs entail different conditions that address different underlying policy problems.[2] To restore short-term macroeconomic stability, IMF-mandated adjustment measures seek to restore a balanced budget (Guimaraes & Ladeira, 2021; Nooruddin & Simmons, 2006; Ray et al., 2020). To bring their financial house in order, many governments resort to a combination of spending cuts, tax hikes, and the sale of state-owned assets. In addition, the Fund also focuses on the removal of government regulations that (supposedly) prevent the smooth functioning of market forces (Forster et al., 2019; Kentikelenis & Babb, 2019; Stubbs et al., 2020). Related conditions target the institutional setup of public administrations in borrowing countries (Beazer & Woo, 2015; Reinsberg, Kentikelenis, et al., 2019; Rickard & Caraway, 2019).

IMF-mandated austerity measures and structural reforms have considerable adverse effects on the public-sector workforce (Agnello et al., 2014; Lee & Woo, 2021; Rickard & Caraway, 2019; Vreeland, 2002). Austerity measures are often associated with draconic compensation cuts for public servants and mass layoffs of public sector employees (Detraz & Peksen, 2016; Nooruddin & Vreeland, 2010; Reinsberg, Stubbs, and Kentikelenis, 2019). Louka Katseli, Minister of Economy in 2010 in Greece puts it aptly: “What the IMF calls administrative reform is firing people” (authors' interview).

Recent evidence suggests that women public servants are more likely to experience wage cuts and face a greater risk of losing their jobs. For example, Kern, Reinsberg, and Lee (2022) find that labor market outcomes for women deteriorate relative to those of men if countries undergo IMF programs, even when considering the economic turmoil that is associated with such programs. As women in developing countries—traditionally the recipients of IMF loans—rely more on public employment and critical public services to sustain their livelihoods (Erten & Metzger, 2019), we expect women to be disproportionally impacted by IMF-induced policy reform measures. The case of Greece illustrates this point. Under the IMF program, the share of women in public, community, and social services sector employment declined by more than 6%. While the share of women employed in these sectors was 56.3% in 2009 just before the IMF program, it declined to 50.1% in 2013 after three years under an IMF program.[3] This illustrative example is not an exception but reflects a typical pattern among IMF borrowers. In response to these findings, even the IMF acknowledges the importance of incorporating gender equality in its lending operations. At the same time, the role of women in political leadership positions and their impact during IMF programs remains understudied.

We argue that women's leadership plays an important role in women's employment outcomes in the public sector during IMF programs. All-men cabinets are less able to recognize or remedy the pervasive gender biases that lead to the gendered impact of IMF programs. Specifically, we expect women leaders to mitigate some of the discriminatory outcomes under IMF programs through indirect and direct action.

First, we expect that women leadership cushions gender discrimination during IMF programs indirectly as research has shown women, on average, to be more reluctant to lay off employees. For instance, Chen and Kao (2020), argue that women's different lived experiences and network ties allow for a more holistic and inclusive stakeholder engagement, resulting in more reflected and socially balanced decision-making. Furthermore, these characteristics also allow women to break through group think circles and act more independently, manifesting in leaning-against-downsizing behavior (Adams & Ferreira, 2009; Carter et al., 2003; Matsa & Miller, 2014). Such preferences are of particular importance during economic downturns. On average, women leaders are more likely to consider the well-being of their employees, even when this comes at the expense of immediate (short-term) professional rewards and corporate profits (Adams & Funk, 2012; Chen & Kao, 2020; Devicienti et al., 2019; Matsa & Miller, 2014). For instance, Chen and Kao (2020) show that the share of women board members in listed corporations in Taiwan between 1996 and 2017 was negatively associated with employee layoffs and firm downsizings. Similarly, Matsa and Miller (2014), analyzing U.S. corporates during the Great Recession, find that women-led companies' employment reductions were up to 29% smaller than their men-led peers, re-affirming the notion that women leaders are reluctant to implement large-scale layoffs. Evidence from Norway suggests that these leadership characteristics align well with a preference for employee retention (Matsa & Miller, 2014). The discussed preferences for employee retention will benefit women as they are often more likely to face lay-off due to gender discrimination during IMF programs.

Second, women leaders will be more likely to mitigate gender discrimination. Gender discrimination is still widespread all over the world (World Economic Forum, 2021) but the empowerment of women leaders has been extensively linked to measures that mitigate such discrimination. More women than ever represent their constituents in domestic politics (Nyrup & Bramwell, 2020), are members of corporate boards (Kamalnath, 2017), head important domestic and international political institutions or hold executive office (Paxton et al., 2020). Greater gender representation has been linked to less gender-discriminatory policies. For example, recent research indicates that the greater representation of women in parliaments or executives leads to less gender discriminatory tax policies (Betz, Fortunato, and O'Brien, 2021), more maternity leave initiatives (Atchison & Down, 2009), and labor market policies that are less discriminatory toward women (Atchison, 2015). More specifically, women's leadership has been extensively linked to a reduction in labor market discrimination. A substantial literature finds evidence linking women's leadership to women's employment outcomes, gender wage gaps, promotion of women employees, and lower displacement (or job loss) rates after economic shocks (Biasi & Sarsons, 2022; Maida & Weber, 2022; Matsa & Miller, 2014). For example, Funk et al. (2017) find that women mayors tend to increase the average wages of women public sector employees in Brazil, thereby effectively lowering gender wage gaps. In related research, Arvate et al. (2018) show that women mayoral leadership led to an increase in the number of top and middle women managers in public administrations. These findings support the notion that women's leadership removes some of the professional entry and promotion barriers that undermine gender equality (Kunze & Miller, 2017). Thus, women leaders can mitigate societal concerns and prejudices about gender stereotypes (Bertrand et al., 2019; Kamalnath, 2017). In addition, women's leadership has been associated with lower promotion barriers, translating into lower gender wage gaps and women holding a larger share of austerity-proof jobs (Arvate, Galilea, and Todescat, 2018; Biasi & Sarsons, 2022). Going back to the example of Greece, women's public sector employment share declined by less than one percent in the PASOK government between 2009 and 2010 when a woman, Louka Katseli, held a key ministerial position as the Minister of Economy. Under the Samaras government between 2012 and 2013, when there was only one woman minister holding the Ministry of Tourism out of 11 ministries, the share of women in public-sector and social and community services employment declined by more than three percent.[4] Overall, the literature shows that, on average, women's leadership is conducive to the implementation of policies that take into account more prominently the interests of women (Soares & Sidun, 2021). Against this background, we expect women's leadership to help cushion the adverse effects of IMF programs on women in the public sector.

Hypothesis 1. Women's leadership mitigates the adverse employment effects of IMF programs on women employed in the public sector

Not all IMF-induced austerity and adjustment measures lead to job losses. Many policies simply reduce a government's wage bill through cutting back on public sector wages and benefits. Latvia provides a case in point. Under its IMF program, employee compensation (measured as a percentage of gross value added) in the services sector declined from 38.4% to 33.9%[5] even though the share of women employment in the public sector increased from 72.7% to 74.8% between 2009 and 2011, suggesting that salaries decrease when more women are employed (Levanon et al., 2009). We expect women's leadership in government to help cushion the adverse effects of IMF programs on the public-sector women-men wage ratio. Recent research finds that gender wage gaps in public service (compared to comparable jobs in the private sector) are narrower in developing countries (Blau & Kahn, 2017; IMF, 2016), especially under women's leadership. In addition, it is well documented that women leaders put greater emphasis on social issues, build on more inclusive leadership styles, and have an empowering impact on women employees (Biasi & Sarsons, 2022).[6] For instance, Biasi and Sarsons (2022), analyzing a removal of collective bargaining for teachers in Wisconsin, find that gender wage gaps significantly increased due to women's less aggressive negotiation style when bargaining for their salaries. Importantly, they find that women principals and superintendents had a neutralizing effect, underscoring the importance of women's leadership's potential to close gender wage gaps and retain pre-reform public sector gender wage ratios. Taken together, we expect that increasing women's leadership will have a muting effect on the negative effects of an IMF program on the public-sector wage ratio.

Hypothesis 2. Women's leadership mitigates the negative effect of an IMF program on the public sector gender wage ratio.

3 | IMF PROGRAMS, WOMEN LEADERS, AND PUBLIC-SECTOR EMPLOYMENT OUTCOMES

Our first piece of supporting evidence uses cross-country time-series data to show that when countries face adjustment pressure under an IMF program, women are disproportionally adversely affected unless women are represented in the government.

3.1 | Data

We rely on a panel dataset of up to 95 countries in 2000–2018. The sample is limited by the availability of data on gender outcomes in the public sector. Despite limited data coverage, this analysis is insightful because governments—at the behest of the Fund—can directly affect employment conditions in the public sector, while they cannot do so in the private economy to the same extent. Hence, the impact of a women leader should make itself felt more so in the public sector than in the private sector.

Our outcome variables are the *women's employment share* and the *women-men wage ratio* in the public sector. The women employment share is calculated as the number of women working in the public sector as a share of all women in employment. The gender wage ratio is defined as the average wage rate of women relative to men in the public sector. We draw both pieces of information from the World-Wide Bureaucracy Indicators (World Bank, 2021).

For our main predictors, we use a binary variable for IMF program participation, indicating whether a country has been under an IMF program in a given year (Kentikelenis et al., 2016). In addition, we measure whether a country has any women ministers in the government, drawing on the latest version of the WhoGov database (Nyrup & Bramwell, 2020). We opt for this broad conceptualization of women's leadership because in many developing countries ministerial and bureaucratic duties among a country's leadership are not clearly delineated (Meier & Funk, 2017 and references therein). We also include an interaction term of both variables to test whether women in government moderate the impact of IMF programs on public-sector employment outcomes.

We include two sets of control variables. As baseline controls, we include country-fixed effects and year-fixed effects. This allows us to mitigate the confounding effect of time-invariant omitted variables. For models using women employment as outcome, a basic control variable is the men employment rate in the public sector (as of all male employment), whereas for models using the public-sector gender wage ratio, we draw data on the private-sector gender wage ratio. The rationale for these base controls is that they likely capture unobserved features that make countries have a large public sector or respectively a large gender pay gap so that their inclusion can guard against bias while improving model fit. Our second set of control variables captures economic fundamentals that may influence both IMF programs and public-sector outcomes. Specifically, we include the (logged) GDP per capita, the inflation rate, and economic growth, available from the World Development Indicators (World Bank, 2022). We also include a binary indicator for financial crizes (Laeven & Valencia, 2013) and a measure of regime type from the Polity dataset (Marshall, Jaggers, and Gurr, 2010). We present variable definitions and descriptive statistics in the appendix (Table A1).

3.2 | Methods

As our outcomes are quasi-continuous, we opt for linear regression models due to their ease of interpretation and their robustness to model misspecification. Diagnostic statistics do indicate no concerns with non-stationary data. Hence, we estimate our models in levels. However, since we do find evidence of auto-correlated errors, we report robust standard errors clustered on countries.

A key concern is poor data coverage. Our original panel dataset is unbalanced and has gaps because the data on public-sector employment outcomes are not measured annually. To address this issue, we use the last available data in each panel such that gaps between any two observations with missing years are filled. This approach to imputation is justifiable because institutional outcomes are slow-moving. Our results are qualitatively similar when using linear interpolation between data points with non-missing information. We provide further details on the interpolation approach in the appendix (Box A1).

3.3 | Results

Before we turn to multivariate analysis, we inspect the relationship between IMF programs, women leaders, and public-sector employment outcomes graphically. To that end, we focus on IMF program countries and keep all observations in a 20-year time window around the start year of an IMF program. This allows us to assess public-sector employment outcomes following an IMF program, separately for countries with few women leaders and relatively many women leaders.

Figure 1 shows the differences in the gender employment outcomes in the public sector across these two groups of countries. In the left panel, we show that the share of women employment in the public sector declines under all-men governments (blue line) but tends to increase under governments with women ministers (gray line). The right panel visualizes the gender wage ratio in the public sector. The visual results are striking. When countries have men-only cabinets, the women-men wage ratio in the public sector drops considerably in the wake of an IMF program. In contrast, when countries under IMF programs have women ministers in the government, the public-sector women-men wage ratio appears unaffected during program implementation.

Table 1 reports the results of country-level regression analyses on the gendered impacts of IMF programs in the public sector. We find statistically significant improvements in both outcomes

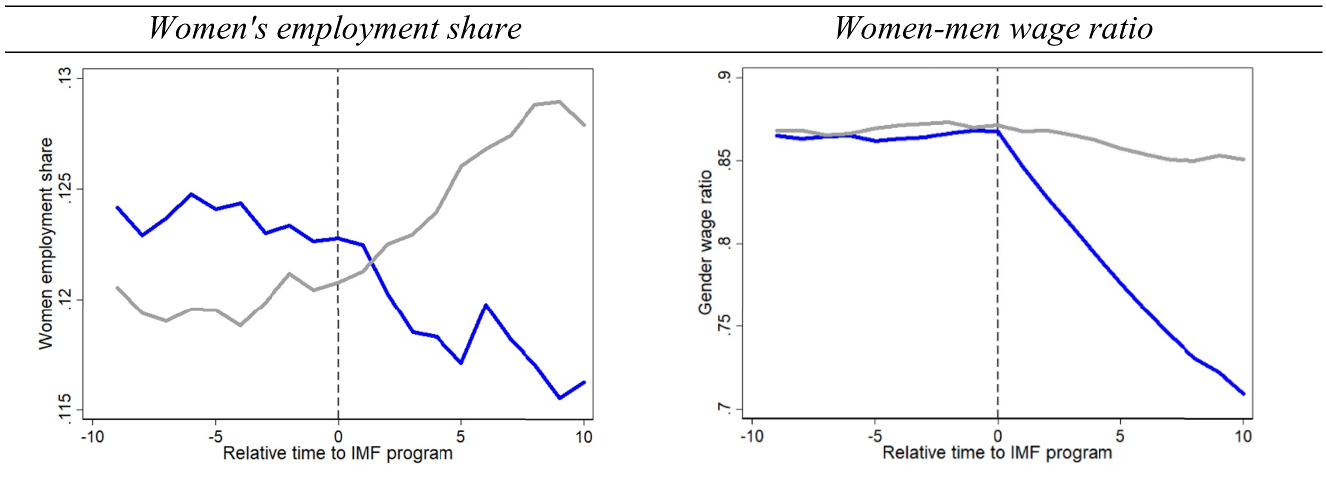

FIGURE 1 Public-sector employment outcomes around IMF programs. Graphs produced using a lagged dependent variable specification with contemporaneous predictors for IMF programs with all-men government (blue lines) and IMF programs with women minister(s) (gray lines). Figure produced from our own research dataset with the dynardl package for simulating dynamic autoregressive distributive lag models (Jordan & Philips, 2017).

TABLE 1 Country-level evidence on the gendered impact of IMF programs in the public sector.

	Women's employment share		**Women-men wage ratio**	
	(1)	**(2)**	**(3)**	**(4)**
IMF program	−0.006*	−0.007*	−0.037**	−0.039**
	(0.003)	(0.004)	(0.018)	(0.018)
Women minister(s)	−0.002	−0.004	−0.004	−0.005
	(0.003)	(0.004)	(0.012)	(0.014)
(Interaction)	0.010**	0.012**	0.032*	0.037*
	(0.004)	(0.005)	(0.019)	(0.020)
(Base control)	0.771***	0.772***	0.236**	0.229**
	(0.103)	(0.102)	(0.103)	(0.106)
GDP per capita		0.027**		0.036
		(0.013)		(0.045)
Inflation		0.001		−0.005*
		(0.001)		(0.002)
GDP growth		−0.001***		−0.001
		(0.000)		(0.001)
Financial crisis		−0.000		0.005
		(0.003)		(0.014)
Polity index		0.001		−0.001
		(0.001)		(0.002)
Observations	1453	1297	1115	1006
Countries	95	89	75	70
Adjusted R2	0.972	0.968	0.829	0.825

Note: Linear regression with country-fixed effects and year-fixed effects. The outcome is shown in the column header. "Interaction" refers to the interaction between "IMF program" and "Women minister(s)". "Base controls" are men's public-sector employment share for the first outcome and the private-sector women-men wage ratio for the second outcome. Country-clustered standard errors in parentheses.

*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

when a government has any women minister(s), compared to when all members of the cabinet are men. Substantively, when a country is under an IMF program, the women employment share in the public sector decreases by 0.7% points (from 12.6% to 11.9%) under an all-men cabinet ($p < 0.1$). With a women minister, the women employment share in the public sector increases by 0.8% points (from 11.9% to 12.7%). Hence, under this scenario, the women employment share is over 1% point higher than under an all-men cabinet ($p < 0.05$). The public-sector women-men wage ratio decreases by 3.9% points (from 88.1% to 84.2%) when an all-men government is under an IMF program but remains unaffected when the government includes any women ministers. These results suggest that countries with all-men cabinets show greater gender discrimination during IMF-induced public sector cuts.

We probe the robustness of this finding by using the unimputed data with gaps in the time series. While this significantly reduces the number of observations, our results are unaffected or even gain statistical significance in two specifications. This corroborates our main takeaway from the analysis so far: While IMF programs lead to a deterioration in employment outcomes for women in the public sector under all-men governments, these adverse effects vanish when governments include women ministers (Table A2).

In further analysis, we explore the relationship between IMF program design, women leadership, and employment outcomes for women in the public sector. We expect that IMF programs affect these outcomes when they explicitly mandate changes in the public sector and that discrimination under all-men cabinets is greatest in these situations. We test these expectations by drawing on disaggregated conditionality data. Specifically, we source off-the-shelf counts of conditions on labor-related issues and fiscal policy from the IMF Monitor (Kentikelenis et al., 2016). We also derive a coarser measure of public-sector conditionality obtained via keyword search on the condition text (Box A2). Consistent with our expectations, we find that public-sector conditionality under all-men cabinets is significantly negatively related to employment outcomes for women. Conversely, with women ministers, these effects disappear. Although our analysis is correlational and our tests are potentially under-powered, the results seem to suggest that IMF conditionality on the public sector has adverse effects on women only under all-men cabinets (Table A3).

An additional challenge is non-random selection into IMF programs (Daoud et al., 2017; Stubbs et al., 2020; Vreeland, 2003). Our results would be biased if omitted variables were to drive IMF program participation and employment outcomes differently for all-men cabinets and governments with women leaders. We address non-random selection through matching and instrumental variables. First, we present results from a non-parametric matching technique that balances observations according to economic circumstances (Hainmueller, 2012). We compute observation weights to match the distributions of four lagged variables—GDP per capita, GDP growth, inflation, and financial crisis—up to their second moments. Results from weighted regression turn out to be stronger (Table A4). Second, non-random selection into IMF programs may also be driven by unobservables, which matching techniques cannot address. We therefore use an instrumental-variable approach. We predict IMF program participation with the interaction between the IMF budget constraint—proxied by the number of countries under programs—and the long-run probability of a country to be under an IMF program (Forster et al., 2019). This instrument can plausibly resolve endogeneity because IMF program participation is no longer explained by idiosyncratic country characteristics.[7] Using this compound instrument, we obtain qualitatively similar results, suggesting that women in the public sector are relatively better off under women leaders than under all-men cabinets (Table A5).

Another challenge may be endogeneity of women leaders. Our results would be liable to bias if women leaders were less likely to undergo IMF programs and chose to enact different gender-relevant policies.[8] We address this challenge using an instrumental-variable design. We consider the percentage of women parliamentarians as a potential pool of women for leadership positions in the executive. However, because we are worried that this instrument is not excludable, we interact it with the global annual share of women ministers. Global advances in women representation in the executive will be a more powerful driver of change in country years with relatively few women in politics compared to those country years in which women are already well-represented. We confirm this intuition in our first-stage results. Importantly, our main results are qualitatively unaffected, although somewhat less precisely estimated (Table A6).

Furthermore, we address the problem that our first outcome is a proportion, which complicates the interpretation of our results. Our results might conceal that women are pushed out of private-sector jobs or out of the workforce altogether, which would be even more worrisome. Unfortunately, the World Bank data do not include the raw counts of women employed in the public sector. We address this problem in two ways. First, we control for the share of women employed in the private sector, which does not affect our main results. Second, we estimate the raw count of women in public-sector employment by pre-multiplying the dependent variable with the female population and the female labor force participation rate. The latter strategy multiplies any measurement error at each step and will therefore make our estimates less precise. Nonetheless, coefficient estimates are consistent with our main results (Table A7).

Finally, we seek to understand if our results hinge on specific cabinet positions to be filled by women. Following the literature, we expect the finance minister to matter most, given its close interactions with the IMF staff (Chwieroth, 2015). A further position of influence would be the head of government. We add dummies for whether women respectively hold these positions and interact them with the IMF program dummy. We find that female finance ministers are associated with improvements in both outcomes in addition to female representation in the cabinet more broadly. Conversely, there is no moderating relationship between women as heads of government and gender outcomes under IMF programs (Table A8).

While the robustness tests increase our confidence scope in the country-level results, they also rest on short time series and relatively weak instruments. To triangulate our findings beyond the country level, the next section develops additional tests using individual-level data.

4 | IMF PROGRAMS, WOMEN LEADERS, AND INDIVIDUAL EXPERIENCES IN THE PUBLIC SECTOR

We supplement our analysis on the country-level with additional individual-level evidence. Our second piece of supporting evidence comes from the World Values Survey—a widely used resource by social scientists for studying questions of political representation and socioeconomic development (Inglehart et al., 2014). The survey is uniquely positioned to address our research question because it combines sociodemographic information with questions on public-sector employment, perceived job security, and income.

4.1 | Data

We draw on waves 5 and 6 of the World Values Survey, which asked respondents whether they work in the public sector—our sample of interest. We focus on two outcomes. The first asks respondents: "To what degree are you worried about the following situations: Losing my job or not finding a job?" We code answers on a scale from 0 (Not at all) to 3 (Very much). This question is available from Wave 6 (38 countries). The second indicator measures the income of a respondent and is provided for Waves 5 and 6 (50 countries). Because countries are at different levels of development, monetary values might be misleading. To facilitate cross-country comparisons, the World Value Survey team codes responses into three categories: Low (1), Medium (2) and High (3). We believe both survey items are useful for our analysis because they capture self-reported perceptions about employment security and income, respectively, thus tapping different dimensions of socioeconomic wellbeing. Our largest sample includes 18,273 public sector employees from 50 countries surveyed between 2004 and 2015.

For our main predictors, we again draw on the binary indicator for an active IMF program in the year before the survey was conducted (Kentikelenis et al., 2016). Furthermore, we measure whether the respondent is a woman, available directly from the World Values Survey. To test whether experiences of IMF programs are different for women compared to men, we include the interaction between IMF programs and women respondents. To ease interpretation, we estimate models separately for countries with more and fewer women leaders in the executive in the year preceding the survey. The results are similar for models with three-way interactions, which we present in the appendix.

Because we already include fixed effects on countries and survey years, we can use control variables sparingly, focusing on the most relevant potential confounders. All control variables are available from the World Values Surveys. We control for respondents' beliefs about the desirability for gender equality at the workplace. This approach ensures that the effect is not driven by normative concerns for gender equality but by the actual experience of gender inequality. We also include a binary variable indicating whether the respondent is married, given that in many countries, there is an expectation that women reduce their participation in the labor market in favor of the "men breadwinner" under times of economic stress (Cheng & Chan, 2008; Keim et al., 2014; Mezzadri et al., 2021). Additionally, we count the number of children, capturing the confounding effect of caretaker duties that may affect employment outcomes. In the models with perceived job security as the outcome, we can further control for respondent income and savings (Keim et al., 2014). Both variables should have a cushioning effect on the extent to which respondent will be worried about job loss. We present variable definitions and descriptive statistics in the appendix (Table A9).

4.2 | Methods

We conduct linear regression analysis with fixed effects on countries and survey years. This is advantageous because it eliminates the confounding effect of country characteristics and global shocks common to all countries. Unlike much work on the socioeconomic impact of IMF programs at the country-year level, our focus is on identifying the individual-level effect of being a woman, which can be estimated using fixed effects without sample selection because all factors that could predict selection into IMF programs are controlled for by country fixed effects.[9] As the sample only includes countries with at least one IMF program in the past 40 years, the effects shown here indicate the individual-level response patterns for countries where IMF lending is plausible.

4.3 | Results

Table 2 shows our main results on the individual-level gendered effects of IMF programs. The first two columns examine the gendered impact of IMF programs on perceived job security, separately for countries governed by more or fewer women leaders. In countries with more women executives, we find that women are significantly less likely than men to be worried about losing their job when their country is not under an IMF program. During an IMF program, however, the fortunes reverse: women are more likely to be worried about job loss. In countries with women leaders, we find no statistically significant effect between men and women regarding their worries about job loss. If anything, the perceived risk of job loss tends to be lower among women than men, especially during economic crizes, but the results are not statistically significant.

Turning to our second outcome of interest, we find similar patterns. In men-governed countries, women report higher incomes in regular times but lower incomes when the country is under an IMF program. In contrast, in countries with women leaders, the gender difference in incomes is indistinguishable from zero, regardless of whether the country participates in an IMF program. These results suggest that during times of economic hardship, women in public-sector

TABLE 2 Individual-level evidence on the gendered impact of IMF programs.

	Worries about job		Income	
	(1)	(2)	(3)	(4)
Samples	Fewer women ministers	More women ministers	Fewer women ministers	More women ministers
Woman	−0.193**	−0.026	0.073***	−0.007
	(0.087)	(0.041)	(0.025)	(0.015)
(Interaction with IMF program)	0.235*	−0.018	−0.132***	0.023
	(0.115)	(0.062)	(0.037)	(0.023)
Workplace gender equality	0.009	0.010	0.039*	0.012
	(0.058)	(0.049)	(0.019)	(0.022)
Married	0.152***	0.064*	0.065***	0.083***
	(0.024)	(0.033)	(0.019)	(0.014)
Age	−0.018***	−0.022***	−0.002*	−0.002
	(0.002)	(0.003)	(0.001)	(0.001)
Children	−0.005	0.047***	−0.006	0.003
	(0.009)	(0.008)	(0.004)	(0.007)
Income	0.007	−0.050		
	(0.040)	(0.030)		
Savings	−0.018	0.046*		
	(0.024)	(0.023)		
Education dummies	Yes	Yes	Yes	Yes
Observations	4712	4729	8130	10,143
Countries	16	22	23	34
R^2	0.170	0.260	0.149	0.192

Note: Linear regression with country-fixed effects and year-fixed effects. "Interaction" refers to the interaction between "IMF program" and "Woman". Country-clustered standard errors in parentheses.

$^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

employment suffer discrimination over men under male-dominated governments, while there is no discrimination when the government includes more women ministers.

Despite differences in samples (e.g., country-year coverage), the results remain robust. In the appendix, we also probe the robustness of these findings in several ways. First, we re-estimate models using a three-way interaction between women respondents, women cabinet ministers, and IMF programs (Table A10). Second, we use the average women's cabinet representation as an alternative measure to split our sample in half (Table A11). Third, we conduct a placebo check using private-sector outcomes (Table A12). In all these tests, our results are qualitatively unaffected.

5 | CONCLUSION

In developing countries, women are often prevented from accessing economic opportunities but bear the brunt of painful structural adjustment programs (Detraz & Peksen, 2016; Elson, 2013;

Kern et al., 2022). This unjust distribution of economic burdens is based on deep-seated gender discrimination, violating women's rights and preventing nations from reaping the benefits of women's empowerment. Numerous policy initiatives—such as the new IMF Gender Strategy—have tried to put a stop-gap on gender discrimination and foster societal gender empowerment (IMF, 2022). Notwithstanding these efforts, the gendered impacts of IMF adjustment programs have long been overlooked.

We find that the gendered effects of IMF programs are particularly pronounced when all-men cabinets implement IMF-mandated reforms. Conversely, governments including women ministers seem to be able to cushion these adverse effects. We analyzed cross-country time-series data on public-sector employment outcomes for 95 countries in 2000–2018 and found that women's employment share in the public sector *decreases* by 0.7% points (from 12.6% to 11.9%) under an all-men cabinet during an IMF program but *increases* by 0.8% points (from 11.9% to 12.7%) under cabinets with women ministers. The results underscore the importance of women's political leadership in muting the adverse effects of IMF programs. We find similar patterns concerning the public sector women-men wage ratio. We also used individual-level data from the World Values Surveys covering 50 countries in 2004–2015, finding that women in the public sector are more likely to fear job loss and endure income loss under IMF programs under cabinets with fewer women ministers. Conversely, the taxing material and psychological effects of IMF programs disappear when more women are represented in the government.

We acknowledge the limitations of our findings and suggest several avenues for future research. First, given data limitations, we do not know whether women's leadership during economic hardship exerts similar positive effects on marginalized groups (e.g., racial minorities, immigrants).[10] Future research—relying on more fine-grained data—would be needed to unlock critical mechanisms informing policy measures to safeguard these marginalized groups' livelihoods. Second, our analysis provides an isolated view of public-sector employment outcomes. We believe that analyzing the impact of women's leadership in private firms in the context of IMF programs, relying on firm-level data, represents an important future research avenue that would complement the limited existing research on women's labor market outcomes at the country-level (Kern et al., 2022). Finally, we did not explicitly account for the impact of budgetary spending cuts that limit women's access to vital social services (Forster et al., 2019). Future research should examine whether women's leadership not only shields women from job discrimination in the public sector but also eases the burden of economic adjustment by ringfencing critical social services.

From a policy perspective, our results reinforce the notion that women in political leadership positions can cushion the adverse effects of IMF programs. These effects are cumulative: while women's representation in cabinet matters, it does so even more when women occupy the finance ministry, as an important conduit for economic policymaking and budgetary decisions. For this reason, measures aimed at removing the political glass ceiling on women have the potential to produce positive spill-over effects, bolstering women's resilience during times of economic hardship. In this respect, the IMF's recent efforts to mainstream gender issues into policymaking are promising as they could help provide protection from the negative consequences of austerity for women's livelihoods.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Harvard Dataverse at https://dataverse.harvard.edu/.

ENDNOTES

[1] When we speak of "men" and "women" throughout, we refer to gender rather than sex. Furthermore, our use of the binary classification in this paper should not be seen as an endorsement of a binary understanding of gender. Instead, the data we use does not allow for a more accurate representation of people's gender identity—a key limitation of our research. Future research should address this limitation by attempting to collect data better data on (a) gender differences in labor market outcomes, (b) gender differences in wages, and (c) gender differences in political representation.

[2] In the appendix, we plot the number of active IMF programs per year (Figure A1) and the average number of binding conditions across programs (Figure A2).

[3] ILO employment statistics, various years, drawn from https://www.ilo.org/shinyapps/bulkexplorer50/?lang=en&segment=indicator&id=EMP_TEMP_SEX_ECO_DSB_NB_A (accessed 1 August 2022).

[4] ILO employment statistics, various years, see earlier footnote.

[5] https://data.oecd.org/earnwage/employee-compensation-by-activity.htm#indicator-chart.

[6] Research supports the notion that increasing the number of women within an organization and women's leadership have the power to weaken stereotypes about gender roles (Adams & Funk, 2012; Beaman et al., 2009; Dahl et al., 2021; Kunze & Miller, 2017).

[7] An alternative instrument using the interaction between the IMF liquidity ratio and the probability of an IMF program was too weak, likely due to our restriction to developing countries and a shorter period (Lang, 2020).

[8] Empirically, this bias is less relevant, because we find that cabinets with women are more likely under an IMF program in our sample. If at all, this would induce bias against our findings.

[9] Random-effects multi-level regression is not advisable because the country-level treatment of an IMF program is not randomly assigned, which would produce biased estimates (Daoud et al., 2017; Papke & Wooldridge, 2022; Reinsberg & Abouharb, 2022).

[10] For instance, Laird (2017), analyzing administrative data from the U.S., finds that racial minority women were disproportionally affected by public-sector downsizings during the Great Recession.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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