

Gendered Taxation

IMF Tax Advice and the Disempowerment of Women

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Abstract

Case research points to the gendered effects of the value-added tax (VAT), which may particularly disadvantage women by crowding out their economic participation. A key driver of VAT introductions has been the International Monetary Fund (IMF). To counter balance-of-payments woes, IMF advice for cash-stripped countries has frequently focused on shifting toward broad-based consumption taxes while lowering trade taxes and corporate income taxes. We expect this tax policy advice—while ostensibly gender-blind—to lead in practice to a deterioration in women’s socioeconomic well-being. To test this hypothesis, we construct a panel dataset for 147 countries from 1980 to 2019 and estimate the effect of IMF programs on women’s economic participation, education, and health. Accounting for selection effects, we find that women’s life chances deteriorate relative to men’s if a country undergoes an IMF program with tax conditionality. We corroborate these findings to demonstrate the mechanism underlying these effects by showing a negative effect of IMF-induced *de jure* VAT adoption on women’s life chances. We provide complementary individual-level evidence from the World Values Surveys based on 98 countries from 1981 to 2019. We show that during an IMF program with tax conditionality, women are significantly less satisfied with home life and report more material hardships. Our results provide systematic evidence of the consequences of IMF revenue prescriptions for women, thereby supporting calls for increased attention to gender-responsive budgeting.

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1 Introduction

How do tax policies affect women? A now standard prescription for developing countries in the globalized economy is to reform their tax system to shift away from trade and corporate taxes and toward consumption taxes (Crivelli and Gupta, 2014; Bastiaens and Rudra, 2018; Reinsberg, Stubbs and Kentikelenis, 2020). In this way, it is argued developing countries can strengthen fiscal capacity, reduce tax fraud and increase revenue. Tax reform is a standard tool in International Financial Institutions’ (IFIs) “toolkit.” The implementation of a value-added tax (VAT) is a particularly favored policy recommendation. By 2016, 167 countries had adopted a VAT. The trend has been described by the IMF as “the most dramatic—and probably most important—development in taxation in the latter part of the twentieth century, and it still continues” (Ebrill et al., 2002).

But tax reform produces winners and losers. VAT is a regressive tax¹ and as such, should raise immediate questions about its effect on poor and marginalized groups (Barnett, 2004). Compliance costs for VAT are also high, particularly for small- and medium enterprises where women are disproportionately represented. Indeed, feminist scholars have drawn attention to the distinctly *gendered* effects of internationally-imposed tax reform and structural adjustment more broadly (Afshar and Dennis, 1992). While policymakers, including in the IMF, have begun to take notice of these critiques (Asai and Zhang, 2023; Baer and Williams, 2023), a full reckoning has not occurred. This is partly because evidence of the consequences of the VAT for women is as yet sporadic and contextual. Studies of particular countries provide valuable insights (Grown and Valodia, 2010*a*; Akram-Lodhi and Steveren, 2003), but do not offer generalizable conclusions.

Here, we offer systematic cross-national evidence that IMF tax conditionality, via the introduction of a VAT, has negative consequences for women’s socioeconomic well-being. We assess women’s status relative to men’s in three areas that, together, are central determinants of women’s life chances: economic activity, educational attainment, and health.

In seeking to uncover the effect of IMF tax conditionality on women’s life chances, we face two inferential challenges. First, IMF programs are implemented in times of economic crisis, which

¹There is some debate on this point: <https://www.imf.org/external/pubs/ft/fandd/2002/06/ebrill.htm>. See also (Younger et al., 1999).

negatively affect women via various channels not necessarily related to the IMF. Furthermore, it is possible that tax conditions in particular are associated with more severe crises in which the IMF imposes more expansive and numerous fiscal policy conditions. Our task, then, is to isolate the effects of tax conditionality from the (crisis) conditions under which such conditionality is applied. We address this by including a set of standard controls capturing the severity of economic crisis, as well as including an indicator variable for other IMF programs (without tax conditionality). In this way, we isolate tax-related effects while still controlling for the general economic conditions associated with IMF program participation. Second, austerity-induced economic hardship can produce negative societal consequences affecting all citizens (regardless of gender) (Kentikelenis and Stubbs, 2023). To ensure that we are capturing the specific, disproportionate hardship that is borne by women, all our dependent variables for women’s life chances are measured *relative to men’s*.

We construct a panel dataset covering 141 countries from 1980-2018. Our empirical strategy has four parts. First, we estimate the effect of IMF tax conditionality on women’s labor force participation, education enrollment rates, and cardiovascular disease (a health outcome that is affected by stress and economic hardship). Because some countries cycle in and out of IMF programs, we employ the PanelMatch method (Imai, Kim and Wang, 2023) to adjust for inferential problems stemming from treatment reversals. We find that women in countries under an IMF program with tax conditionality exhibit lower labor force participation, higher unemployment, and lower tertiary school enrollment.

Second, we undertake an instrumental variable analysis to address potential endogeneity of VAT introduction with respect to gendered outcomes. Instrumenting VAT with IMF tax programs, we find negative effects on all three areas of women’s life chances: economic participation, cardiovascular disease, and educational enrollment. As a byproduct of our instrumentation strategy, we corroborate that IMF tax conditionality historically has been a strong driver for VAT adoption in developing countries. Third, as a final check on the gendered effects of VAT, we employ a staggered difference-in-differences design, which produces broadly consistent results: VAT is associated with lower labor force participation and worse health outcomes for women. Finally, we provide comple-

mentary individual-level evidence from the World Values Surveys based on 98 countries from 1981 to 2019. We show that during an IMF program with tax conditionality, women are significantly less satisfied with home life and report more material hardships compared to years under an IMF program without tax conditionality.

We contribute to several strands of the literature. For one, we expand existing literature on women in political economy (Guisinger, 2016; Elias and Rai, 2019; Iversen, Rosenbluth and Skorge, 2020; Betz, Fortunato and O’Brien, 2021; Hannah, Roberts and Trommer, 2021; Guisinger and Kleinberg, 2023; Armstrong et al., 2023). Our work primarily complements existing research on the impact of gendered implications of tax policy (for a survey, see Genschel and Seelkopf (2021)). Unlike previous works that focused on the gendered implications of tax policies, we innovate by tracing the origins of tax policy reforms back to their source: IMF programs. In doing so, we complement research studying the adverse socio-economic impact of IMF programs (Reinsberg et al., 2023; Stubbs et al., 2020; Peksen, Blanton and Blanton, 2017). Our work is therefore closely related to the literature that focuses on IMF programs and their impact on women’s well-being (Çağatay and Özler, 1995; Elson, 2010; Donald and Lusiani, 2017; Forster et al., 2020).

Here, we innovate in two important ways. First, we adopt a broad view of women’s life chances — accounting for multiple dimensions of well-being — that expands upon the more narrow focus on economic outcomes in prior research (Lee and Woo, 2021; Detraz and Peksen, 2016; Çağatay and Özler, 1995). Second, in contrast to studies on the gendered effects of IMF programs writ large,² we focus on the role of revenue-side conditionality *via the introduction of a VAT*, offering theoretical and empirical support for a specific channel of influence that is not typically emphasized in gender-based critiques of IMF conditionality. Despite the increasing attention paid by the IMF to gender-related challenges in their adjustment programs, quantitative evidence delineating the specific impact of Fund-sponsored reforms on women remains limited. Importantly, we show that seemingly ‘efficient’ tax policy reforms aimed at mobilizing government revenue without distorting structural adjustment conditions produce the unintended side-effect of placing a disproportional burden on women. From a policy perspective, our findings support the urgent need to incorporate

²For instance, Pandolfelli, Shandra and Tyagi (2014) show that IMF loans are associated with increases in maternal mortality in Sub-Saharan Africa but do not attribute this effect to specific program elements.

concepts such as gender budgeting into lending frameworks (Coburn, 2019).

2 IMF and revenue conditionality

When governments turn to the International Monetary Fund for bailout funding, they often desperately need fresh capital to stabilize their balance of payments. Since starting its lending operations in the 1970s, the IMF has attached loan conditions when it provided a helping hand (Bird, 2007; Breen, 2013; Dreher, Sturm and Vreeland, 2015). Built around general balance-of-payments considerations, IMF loan conditions aim to reduce mounting pressures on the balance of payments and mobilize funds to restore the government’s ability to service creditor claims.

In terms of fiscal policy reforms, given the urgency to mobilize public funds, the IMF frequently requests governments to implement radical spending cuts alongside the implementation of significant tax reforms (Nooruddin and Simmons, 2006; Vreeland, 2006; Hamm, King and Stuckler, 2012; Reinsberg, Stubbs and Kentikelenis, 2020).³ Next to advocating for the phasing-out of subsidy schemes (for a discussion, see Kentikelenis and Stubbs (2022)), the Fund consistently requires governments to widen and broaden the tax base through an increase in taxes on goods and services.

An elegant and technically appealing way of widening the tax base has been the introduction of value-added taxes (i.e., VAT). The VAT is a tax levied at every stage of the production chain and is thus believed to be more effective than a final retail sales tax due to the multiple points at which it is remitted to government coffers.⁴ Furthermore, it has distinct advantages over other forms of taxation such as import tariffs, income taxes, or inflation taxes.⁵ Importantly, the introduction of a VAT allows for a broadening of the revenue base without working at cross-purpose with structural reform measures (e.g., trade liberalization) (Bastiaens and Rudra, 2016; Reinsberg, Stubbs and Kentikelenis, 2020; IMF, 2023).

³Here, we concentrate on loan conditions aimed at public spending and fiscal policy. These are frequently embedded in IMF programs as structural adjustment measures that target a country’s wider economic policy framework (Kentikelenis, Stubbs and King, 2016; Beazer and Woo, 2016; Rickard and Caraway, 2019).

⁴As the VAT is a tax levied at every stage of production, with businesses allowed to claim credit for any VAT already paid to a supplier, critics point out that the VAT is complicated both for governments to administer and for firms to comply with, particularly in developing countries with weak bureaucratic capacity and large informal sectors (De Paula and Scheinkman, 2010; IMF, 2023). For further discussion, see <https://www.imf.org/external/pubs/ft/fandd/2002/06/ebrill.htm>

⁵Income tax in developing countries, for example, is notoriously difficult to administer (Tanzi and Zee, 2001).

Based on this logic, IMF revenue-side conditionality programs have aggressively advocated for the introduction and augmentation of VAT. Empirical evidence supports the notion that the IMF programs are associated with increases in revenue from VAT (and other consumption tax) but not with revenue from trade or income tax (Reinsberg, Stubbs and Kentikelenis, 2020). This represents a dramatic shift in revenue collection for many developing countries, yet it is a change whose consequences have not been fully explored.⁶ At the societal level, in particular, questions remain about how these shifts in tax policy impact marginalized groups. Here, we focus on the impact of VAT on women—a group whose economic participation is essential for unlocking economic growth in developing countries (Tzannatos, 1999; Duflo, 2012; Fruttero et al., 2020).

3 The gendered effects of VAT reform

Feminist critiques of structural adjustment tend to focus on the spending side of these programs (Sparr, 1994; Elson, 1995; Beneria, 1999) (for a survey, see Detraz and Peksen (2016)). They highlight the broadly harmful effects of reduced social spending for health, education, employment, and income, which fall disproportionately on women’s shoulders. For instance, Detraz and Peksen (2016) show that IMF programs are associated with a deterioration in women’s economic rights. The essential problem is that women bear the “heaviest burden...of poverty *and stress* resulting from cutbacks in public expenditure” (Afshar and Dennis, 1992) (emphasis added). This has knock-on effects on women’s education and economic participation, as it becomes more costly and difficult for women to go to school or work outside the home. Furthermore, the burden of unpaid care work increases (Donald and Lusiani, 2017). Reduced social spending leads to declines in women’s labor force participation (Asai and Zhang, 2023) and public sector employment (though this is mitigated in countries where women are represented in government) (Reinsberg et al., 2023).

On the revenue side, empirical evidence is less systematic but begins to show the potentially harmful effects of certain taxation policies for women (Betz, Fortunato and O’Brien, 2021; Genschel and Seelkopf, 2021). Income tax structures that discourage work by secondary household earners are

⁶In terms of the macroeconomic picture, several studies have examined how VAT introduction impacts government revenue (Reinsberg, Stubbs and Kentikelenis, 2020; Crivelli and Gupta, 2014; Alavuotunki, Haapanen and Pirttilä, 2019).

perhaps the most obvious example (Eissa and Hoynes, 2004; Klasen, 2019; Asai and Zhang, 2023). But recent work highlights that consumption taxes can also have implicit gender biases (Barnett, 2004; Coelho et al., 2022). Focusing specifically on the VAT, Emran and Stiglitz (2005) show theoretically that its implementation in developing economies with large informal sectors induces a shift toward further informal and home (unpaid) work. Clearly, this would disproportionately impact women, who already make up the bulk of the informal sector (Duflo, 2012; Coelho et al., 2022). For these reasons, critical voices among international development practitioners decry the “embedded gender biases in VAT design and implementation” (Buenaventura and Miranda, 2017).

The tax-related barriers to women’s economic participation in developing countries stem fundamentally from social and economic inequalities (Baer and Williams, 2023; Kabeer, 2020; Grown and Valodia, 2010*b*). These inequities shape the (gendered) effects of tax reform in two primary domains. First, for women *entrepreneurs*, changes in the tax code can produce adverse indirect effects. It is well established that women entrepreneurs in developing countries are disproportionately the owners of *small* and *micro* enterprises (Kabeer, 2020), for which the burden of tax compliance is much higher. Many women-owned small and micro businesses are unregistered, preventing them from redeeming tax payments on their inputs (Duflo, 2012). Even when registered, few small businesses have the means to hire tax accountants (WBL, 2022).⁷ In a study of small businesses in Vietnam, (Akram-Lodhi and Steveren, 2003) conclude that women-owned small enterprises pay a higher share of their income in VAT due to their lower value-added and lower access to unpaid (household) labor compared to male-owned businesses. Moreover, the IMF has a record of encouraging countries to eliminate VAT exemptions for small enterprises, favoring a single flat rate applicable to all (Buenaventura and Miranda, 2017, 6-7). These recommendations thus can be expected to hit women-led businesses particularly hard.

Second, the gendered impact of VAT applies to women as *consumers*. Women-led households earn less on average and thus pay a higher proportion of their income in consumption tax (Wanjala, 2006; Coelho et al., 2022). It has also been shown that women-led households spend a higher share of their income on goods related to education, food, and health, which benefit children (Grown and

⁷Furthermore, substantial evidence supports the notion that women entrepreneurs face significant hurdles regarding access to finance, technology, and legal protection to settle business disputes (WBL, 2022; Kabeer, 2020).

Valodia, 2010*b*). To some extent, the adverse effects of VAT on poor households can be mitigated via exemptions for basic food and sanitary products (Grown and Valodia, 2010*a*, Ch.11). But, again, the IMF advocates for simplicity in VAT design, which disfavors exemptions (IMF, 2011). In its engagement with Bangladesh, for example, the IMF clearly supported removing VAT product exemptions in a 2012 reform (Buenaventura and Miranda, 2017, pp.6-7). A similar dynamic played out in the Philippines, where under IMF guidance, the country removed VAT exemptions for social housing, cooperatives, and electricity, which would have benefited the poor (IMF, 2016).

We expect these gendered consequences to manifest in three areas: (1) women’s economic participation, (2) women’s education, and (3) women’s health. As outlined above, VAT reduces women’s economic activity due to their disadvantaged socioeconomic status: women as entrepreneurs experience a higher burden of VAT compliance and as consumers, a higher (relative) burden of VAT cost. The negative effects on household income increase pressures for female children to stay home and work in the informal economy rather than attend school (Reimers, 1994). In terms of health, the cumulative impact of these effects may lead to increased stress- and poverty-related diseases for women. Together, these three areas significantly impact women’s *life chances*—understood as opportunities for successful socioeconomic advancement and quality of life (Duncan et al., 1998). Synthesizing these insights, we formulate our key hypothesis.

Hypothesis 1. Countries subject to an IMF program with tax conditionality will exhibit lower levels of women’s economic participation, lower levels of women’s school enrollment, and negative repercussions for women’s health.

4 Data and methods

To examine the impact of IMF tax conditionality on women’s life chances, we construct a panel dataset of 147 countries from 1980 to 2019. To ensure that treated units are comparable to control units, this dataset excludes high-income countries as those are almost never under IMF programs.

4.1 Measuring women’s life chances

Our theoretical discussion highlights three dimensions of women’s life chances. As we want to benchmark women’s status relative to men’s, we require country-level indicators that measure socioeconomic outcomes separately by gender. Where we identify similar variables pertaining to the same dimension, we choose the variable(s) with less missing data.

In the area of *work*, we measure labor force participation and the unemployment rate. In the area of *health*, we measure the prevalence of cardiovascular disease and child mortality. In the area of *education*, we measure the primary enrolment rate, secondary enrolment rate, and tertiary enrolment rate. All variables are available from the World Development Indicators (WDI, 2021). The supplemental appendix includes variable descriptions and descriptive statistics for these and all other variables (Table A1).

4.2 IMF programs, tax conditionality, and tax adoption

Our key predictor of interest is a country’s participation in an IMF program with tax conditionality. We draw this indicator from previous research, which uses a keyword-assisted search of IMF loan agreements to identify cases in which these programs require countries to make changes in their tax code (Reinsberg, Stubbs and Kentikelenis, 2020). In most cases, IMF-sponsored reforms pertain to consumption taxes, specifically VAT introduction and VAT base adjustment. Conversely, IMF-sponsored reforms request the abolition of trade taxes (Bastiaens and Rudra, 2016). We follow previous research using a dichotomous indicator of IMF tax conditionality because these conditions—if included in a program—are never numerous. Furthermore, the total number of programs with tax conditionality is relatively low.

Our secondary predictor of interest is VAT adoption, available from the Tax Introduction Database (Genschel and Seelkopf, 2021). Previous research has already established that countries alter their tax structures—specifically through VAT introduction—in the wake of IMF programs with tax conditionality (Reinsberg, Stubbs, and Kentikelenis 2020). An additional plausibility test of our argument would, therefore, involve examining the direct impact of VAT adoption on women’s life chances. If our argument were true, we would find similar results compared to our analysis of

IMF tax conditionality and women’s life chances.

4.3 Econometric methods

A key inferential challenge is that IMF program participation often unfolds in a series of spells rather than being an absorbing state. Two-way fixed-effects estimates might be biased in the presence of treatment reversals due to the problem of ‘forbidden comparisons.’ Where treatment reversals are allowed, a country that already had an IMF program in the past might become a control unit in the treatment estimate of another country. This is problematic because the initial treatment might have affected potential outcomes in subsequent years. The methodological literature offers a solution for how to handle treatment reversals. Specifically, we use the PanelMatch estimator, which matches each treated observation with a control observation from other units in the same time period with identical treatment history up to a pre-specified number of lags (Imai, Kim and Wang, 2023). In addition, the estimate uses propensity-score weighting to ensure that treated units have similar pre-treatment outcomes as the control units for variables specified by the researcher and in each year of the pre-treatment year. Identification requires the additional assumption of unconfoundedness up to $T_0 - L$ where T_0 is the treatment year and L is the number of lags of identical treatment history between the treated unit and the control unit. The choice of lags is arbitrary but should be made based on knowledge of context.

In addition, we wish to establish *how* IMF tax conditionality affects women’s life chances. In line with our theoretical discussion, we posit that VAT adoption is the primary mechanism through which IMF tax conditionality affects women’s life chances. Building on the idea that IMF tax conditions has spurred VAT adoption in many countries (Reinsberg, Stubbs, and Kentikelenis 2020), we implement an instrumental-variable design that we estimate using two-stage least squares regression. Identification requires the assumption that IMF tax conditionality impacts gender outcomes primarily through VAT adoption. As we confirm with F -tests, IMF tax conditionality predicts VAT adoption reasonably well for most outcomes, except where there is a considerable amount of missing data in these outcomes.

Unlike IMF program participation, VAT adoption is an absorbing state. Once a country has

decided to adopt this tax type, it does not revert back, given the stickiness of institutions. The appropriate research design to analyze the socioeconomic effects of VAT adoption is a difference-in-differences analysis with staggered adoption. The methodological literature offers a ready-made estimator for this setup (Borusyak, Jaravel and Spiess, 2021). The assumptions required for identification are threefold. The first is the ‘parallel trends’ assumption, which requires that relevant potential outcomes of adopters and non-adopters evolve similarly. The second assumption is no treatment reversal, which is fulfilled by definition. Finally, unlike the canonical two-way fixed-effects estimator, we do not need to assume homogeneous treatment effects. This is because the staggered adoption estimator computes treatment effects separately for each cohort—a group of countries that are treated in the same year—and aggregates these effects using appropriate weights. To make these assumptions more plausible, we alter the sample to only include countries that were at risk of VAT adoption.

4.4 Model specification

The availability of data on development outcomes by gender should obviate the need for many additional control variables. In all specifications, we control for men’s life chances as this variable would absorb any effects related to contextual factors, exogenous shocks, and endogenous dynamics. In other words, by controlling for men’s life chances, we isolate the differential effect of our policy treatment that only affects women’s life chances. Our research design thereby promises valid inference even without controlling for a large number of additional factors. Nevertheless, we do include an indicator variable for IMF programs without tax conditionality, in order to isolate the effect of tax conditions relative to IMF programs generally. We also include control variables from the IMF effectiveness literature which, similar to our design, feature models with IMF program participation on the right-hand-side (Moser and Sturm, 2011; Reinsberg, Stubbs and Kentikelenis, 2020; Nooruddin and Simmons, 2006; Dreher, 2006). In particular, we measure the incidence of a financial crisis (Laeven and Valencia, 2013), to avoid attributing effects to IMF programs rather than the crises that precede them. We also account for the severity of an economic crisis, to mitigate concerns that tax conditionality may be imposed by the IMF in more serious crises which may have

greater consequences for women and which are likely met by larger numbers of IMF conditions in different areas. We include variables for the level of GDP growth, the logged inflation growth, and the level of reserves in months of imports (WDI, 2023). In our models using VAT adoption, we also control for total tax revenues. This should help mitigate the potentially confounding effect of revenue generation.

5 Results

We first present country-level results on the effect of IMF tax conditionality on women’s life chances using panel-matching methods and difference-in-differences analyses. To cast light on the underlying mechanism, we then replicate this analysis using VAT adoption as our policy treatment. Finally, to complement the country-level analysis, we also present individual-level survey evidence.

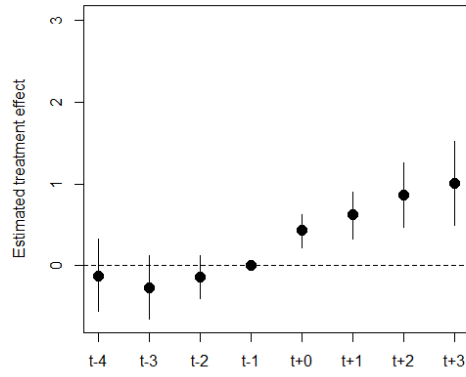
5.1 IMF tax conditionality and women’s life chances

We calibrate the panel-matching estimator in the following ways. First, we require a similar pre-treatment history of the treatment variable for up to five years. Second, we further balance the estimation using propensity score weights based on women’s and men’s pre-treatment outcomes for every year up to five years prior to the treatment. This ensures we eliminate any omitted trend that could drive the outcomes of interest.

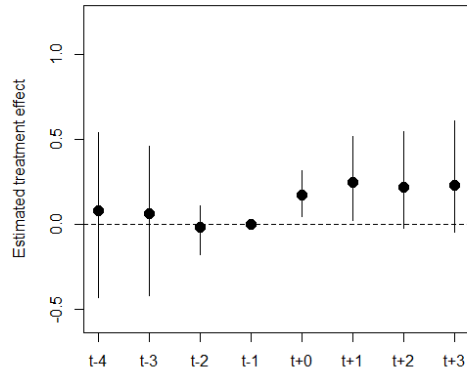
Using this panel-matching estimator, we find significant effects of IMF programs with tax conditionality on some dimensions of women’s life chances. Specifically, we obtain a significant increase in women’s unemployment in the wake of tax conditionality. In contrast, labor force participation is not affected. Furthermore, we recover a significant uptick in the prevalence of cardio-vascular disease among women. However, child mortality does not respond to tax conditionality. Looking at education outcomes, we find significantly negative effects of IMF tax conditionality on secondary enrolment and tertiary enrolment, but not primary enrolment.

For robustness tests, we also present estimates from conventional two-way fixed-effects regressions although their inferential assumptions are unlikely to be met. The two-way fixed-effects estimator is known to be biased in the presence of treatment effect heterogeneity, carryover effects,

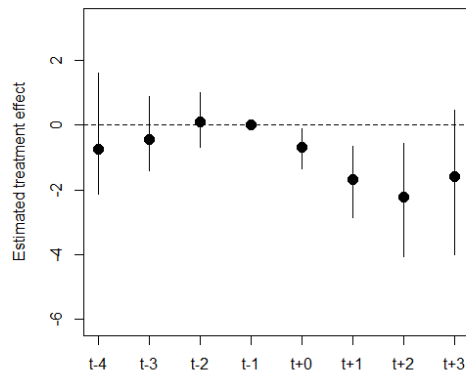
Figure 1: IMF tax conditionality and women's life chances



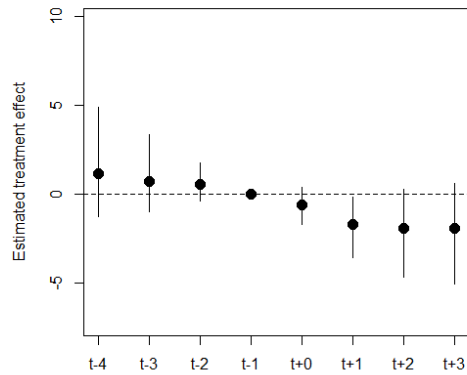
Women's unemployment
(a) Women's unemployment rate



Women's cardio-vascular diseases
(b) Women's cardio-vascular disease prevalence



Women's secondary enrolment
(c) Women's secondary enrolment



Women's tertiary enrolment
(d) Women's tertiary enrolment

Outcomes with insignificant treatment effects suppressed. All estimates shown with 90% confidence intervals.

and treatment reversals (Liu, Wang and Xu, 2022). Despite these challenges, it may serve as a useful comparison.

Our findings are broadly consistent with the panel-matching results. IMF tax conditionality is significantly negatively related with women’s labor force participation (L1). IMF tax conditionality also tends to be positively related to women’s unemployment (L2). There are no significant relationships between IMF tax conditionality and health outcomes (H1-H2). In terms of enrolment outcomes, (E1-E3), IMF tax conditionality is significantly negatively related to women’s tertiary enrolment (E3).

Table 1: IMF tax conditionality and women’s life chances

	L1	L2	H1	H2	E1	E2	E3
With tax conditionality	-0.099** (0.044)	0.093* (0.049)	-0.002 (0.037)	0.001 (0.017)	0.093 (0.148)	-0.164 (0.119)	-0.361*** (0.110)
Without tax conditionality	-0.042 (0.048)	0.121** (0.056)	-0.021 (0.038)	-0.007 (0.014)	-0.015 (0.107)	-0.291*** (0.097)	0.056 (0.107)
Observations	3483	3354	2244	5091	3503	2457	1862
Countries	129	129	132	139	136	133	122
R-squared	0.402	0.504	0.507	0.998	0.700	0.568	0.584
p-value	0.244	0.585	0.610	0.574	0.405	0.334	0.005

Notes: Dependent variables are listed at the top of each column. **L** captures labor market outcomes, **H** is related to health outcomes, and **E** represents education outcomes. Outcomes are in differences. Control variables include men-specific livelihood outcomes and two-way fixed effects. Standard errors clustered on countries in parentheses.

Significance levels * $p < .1$, ** $p < .05$, *** $p < .01$

In the supplemental appendix, we probe the robustness of these results further. First, we include all countries in the analysis—rather than just developing countries. We also find that IMF programs with tax conditionality appear to significantly reduce women’s labor force participation (L1) while being related to increased women’s unemployment (L2). For the remaining outcomes, we confirm a negative relationship between IMF programs and tertiary enrolment (E3) whereas IMF programs without tax conditions have no significant relationship with this outcome (Table A2).

Second, we submit our main findings to additional control variables that are typically associated with IMF program participation: financial crisis, foreign currency reserves, economic growth, and the change in the inflation rate. While the inclusion of these variables leads to a drop in observations,

we are still able to recover a significantly negative relationship between IMF programs with tax conditionality and the tertiary enrolment rate. The respective coefficients for the other outcomes are in line with expectations but fail to reach statistical significance (Table A3).

5.2 VAT adoption and women’s life chances

We argue that the primary mechanism through which IMF tax conditionality affects women’s status is VAT adoption. This allows us to adopt an instrumental-variable design which exploits the fact that many countries have reformed their tax systems in response to IMF tax conditionality. Indeed, we find that IMF tax conditionality strongly predicts VAT adoption in the first stage, with F -statistics exceeding the conventional threshold for weak instruments ($F > 10$) in at least half of the models.⁸ While the exclusion restriction is untestable, it is plausible to argue that IMF tax conditionality affects gendered outcomes through VAT adoption, especially in our sample countries that have not yet adopted this tax.

Using this instrument, we find that VAT introduction undermines women’s life chances in ways that are consistent with our previous findings on the effects of IMF programs. VAT does not affect labor force participation but increases unemployment among women. We also find a positive relationship between VAT adoption and cardiovascular disease among women. Finally, there is a negative relationship with girls’ secondary enrolment.

To be sure, our models identify a treatment effect of VAT adoption that is due to IMF conditionality. Countries may occasionally adopt tax reforms without external inducement. To probe the possibility that results may differ when including these cases, we conduct additional analyses. In particular, we employ a staggered DID design, which assumes VAT adoption is an absorbing state but considers heterogeneous adoption dynamics (Borusyak, Jaravel and Spiess, 2021). For these reasons, the staggered DID estimator is preferable to a conventional two-way fixed-effects estimator. All estimations control for the contemporary outcome of interest among males and pre-treatment trends up to eight years before the treatment.

Using this staggered DID design, we find that VAT introduction pushes women out of the labor

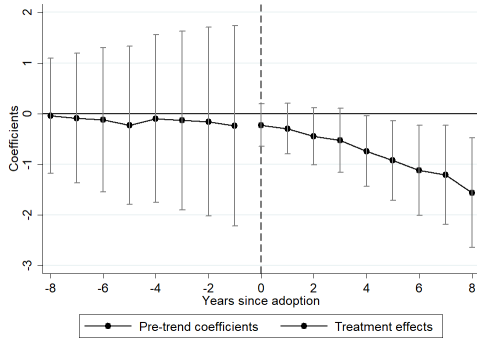
⁸We also probe participation in a World Bank structural adjustment loan as an alternative but find this instrument to be weaker across all outcomes.

Table 2: VAT introduction and gender outcomes using instrumental variables

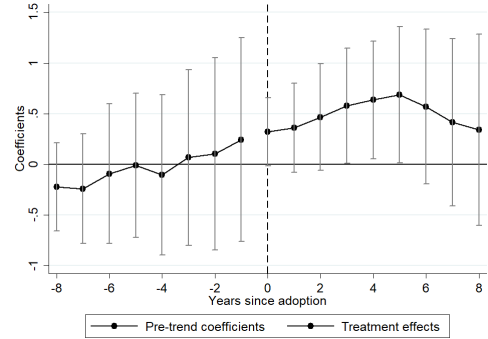
	L1	L2	H1	H2	E1	E2	E3
VAT introduction	-8.987 (12.414)	11.993* (6.771)	11.997* (6.473)	-10.431** (5.294)	-33.314* (18.101)	-25.052* (14.662)	-17.045 (18.629)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4438	4313	2992	5694	4743	3854	3280
Countries	177	177	177	187	185	183	175
R-squared	-0.032	0.115	0.085	0.994	0.697	0.833	0.871
F-statistic	7.864	8.427	7.767	14.693	11.248	10.166	7.748

Notes: Dependent variables are listed on top of each column. **L** captures labor market outcomes, **H** is related to health outcomes, and **E** represents education outcomes. Control variables include the men-specific outcome, IMF programs without tax conditionality, and total tax revenue. Standard errors clustered on countries in parentheses. Significance levels * $p < .1$, ** $p < .05$, *** $p < .01$

Figure 2: VAT adoption and women’s life chances



(a) Women’s labor force participation.



(b) Women’s cardio-vascular disease prevalence.

Outcomes with insignificant treatment effects suppressed. All estimates shown with 95% confidence intervals.

force at a higher rate than men. This effect is not transitory but appears to aggravate over the long term. Conversely, we do not find any gendered effects with respect to unemployment. Turning to health outcomes, we find an increase in cardiovascular disease among women that becomes statistically significant four years after VAT introduction. Looking at education outcomes, we find no consistent effects.

5.3 Complementary findings from individual-level data

We supplement our analysis on the country-level with individual-level evidence from the World Values Survey (Haerpfer et al., 2020). The survey allows us to cast light on socioeconomic indicators

and attitudes on the role of women in society in the wake of IMF programs. Aside from these questions, the survey includes standard sociodemographic information.

Our first set of outcomes capture hardships felt by respondents. The WVS includes three questions asking respondents whether they had gone without food (S1), income (S2), or medicine (S3) in the past year. For example, regarding food insecurity, the question reads: “In the past twelve months, have you or your family gone [food]?”. Answer categories range from never, rarely, sometimes, to often, and we use this ordinal scale as if it were quasi-continuous in order to estimate linear models. We complement this battery of questions with another item—unfortunately only available for one wave—which asks respondents about how satisfied or unsatisfied they are with the situation in their household (S4). Answers are recorded on a ten-point scale, thus being amenable to treatment as a continuous variable. We invert the scale so that higher values indicate greater dissatisfaction.

Our predictors are at two levels of analysis. At the country level, we include dummies for whether a country is under an IMF program with tax conditionality and an IMF program without tax conditionality. We introduced these variables earlier. At the individual level, we measure if the respondent is a woman, given that preferences may differ between both sexes. Importantly, we include a multiplicative interaction between the country-level treatments and the indicator for women.

We estimate fixed-effects models with survey weights so that our samples are nationally representative. The inclusion of country-fixed effects guards against any confounder that relates to the country context and, as such has been used in related research (Reinsberg and Abouharb, 2022). We cluster standard errors by country.

Our results are strongly consistent with our prior findings in that they suggest that IMF tax conditionality serves to undermine women’s perceptions of key factors that shape their life chances. For all three hardship outcomes, women report negative sentiment more often than men — but particularly when the country has been under an IMF program with tax conditionality (IMFwt). Interestingly, we do not find such effects for IMF programs in general. Interaction effects between gender and an IMF program without tax conditionality are less significant and less consistent. For

the fourth outcome, we find that women are significantly less satisfied with the situation in their household under IMF tax conditionality. In contrast, they report being more satisfied—relative to men—when the government participated in an IMF program without tax conditionality (IMFwot). In sum, this analysis provides one more piece of evidence in support of the pernicious gendered effects of IMF tax conditionality.

Table 3: IMF tax conditionality and women’s life chances in survey data

	S1	S2	S3	S4
Woman	0.014 (0.009)	0.016* (0.009)	0.016 (0.010)	0.059 (0.090)
IMFwt#Woman	0.069*** (0.020)	0.076** (0.030)	0.048** (0.020)	0.250* (0.137)
IMFwot#Woman	0.029 (0.027)	0.024 (0.042)	0.067* (0.040)	-0.402** (0.158)
Observations	162284	161853	161871	22093
Countries	75	75	75	16
R-squared	0.150	0.186	0.152	0.068
p-value of F-test	0.206	0.300	0.656	0.001

Notes: Dependent variables are listed on top of each column. **S** denotes survey outcomes: **S1** is food deprivation, **S2** is income deprivation, **S3** is health deprivation, and **S4** is household dissatisfaction. Country-fixed effects included. Standard errors clustered on countries in parentheses. Significance levels * $p < .1$, ** $p < .05$, *** $p < .01$

6 Conclusion

We examine the gendered effects of the value-added tax, one of the Global South’s most crucial and widely implemented tax policy innovations in recent decades. Drawing on the feminist critique of structural adjustment programs, we provide the first systematic analysis of these gendered effects. Using a sample of 147 countries in 1980-2019, we employed state-of-the-art causal inference methods to examine the variegated effects of VAT introduction on women’s life chances relative to men’s in terms of economic participation, education, and health.

We find that if a country undergoes an IMF program with tax conditionality, women’s life chances deteriorate relative to men’s. To demonstrate the mechanism underlying these effects, we show a negative effect of IMF-induced *de jure* VAT adoption on women’s life chances. Our findings hold against numerous robustness tests and alternative estimation methods addressing potential

selection effects. We also provide complementary individual-level evidence from the World Values Survey based on 98 countries from 1981 to 2019. We show that during an IMF program with tax conditionality, women are significantly less satisfied with home life and report more material hardships compared to years under an IMF program without tax conditionality.

We note that our study has some limitations. First, data availability on gendered outcomes is a key challenge. The extent of missing data across the various dimensions of women’s life chances differs. This makes comparisons across these outcomes difficult. Missing data might also explain why we did not find consistently robust results on some of these outcome dimensions. Future work could use imputation techniques to address this issue. Second, methods of causal inference are valid under certain assumptions that may not be fully met.

Our results suggest a dilemma for governments. Many emerging markets and LDC governments have faced pressure to lower trade barriers and corporate income taxes in a bid to harness the opportunities of economic globalization. The standard accompanying recommendation from international experts, including most prominently the IMF, is to broaden and widen the tax base through introduction and augmentation of a VAT. However, these tax reforms have distributional implications that may adversely affect marginalized groups. Without complementary policy measures, our findings show that women suffer disproportionate hardships that bring adverse consequences for their life chances. While the IMF—as a key driver of VAT introductions over the last decades—has exhibited some awareness of the gendered consequences of its policy advice, the institution is still far from fully mainstreaming women’s rights given that its mandate is primarily to fend off balance-of-payments problems.

From a policy perspective, our findings urgently support calls for greater attention to the gendered effects of the IMF’s tax policy advice. The IMF’s preference against product- or enterprise-specific VAT exemptions, for example, is an obvious target for further scrutiny. The efficiency advantages of a simple VAT design must be balanced against consideration of how VAT compliance costs differ for small enterprises (where women are disproportionately represented) as well as how higher taxation of certain products harms poor women-led households in particular. Research and policy analysis on the concept of ‘gender budgeting’ may also provide helpful insights in this

regard, though more systematic study of the effectiveness of gender budgeting remains sorely needed (Polzer, Nolte and Seiwald, 2023). Moreover, the most developed guidelines for gender budgeting come from organizations like the OECD, which deal with advanced economies.⁹ Future research should further develop best practices for the application of gender budgeting to developing economy contexts marked by lower female labor force participation, higher poverty, and a large informal sector.

⁹See for example, <https://www.oecd.org/gov/budgeting/gender-budgeting/>.

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Appendix

Table A1: Descriptive statistics

Variable	Observations	Mean	Std Dev	Min	Max
Women's labor force participation	3870	53.521	18.793	6.26	91.83
Women's unemployment	3741	10.07	8.727	0.149	47.183
Women's cardio-vascular disease	2640	21.131	6.805	6	47.8
Girls' child mortality	5508	69.072	59.441	2.3	336.9
Girls' primary enrolment	4134	94.553	24.911	0	163.021
Girls' secondary enrolment	3115	57.462	32.359	0	146.645
Women's tertiary enrolment	2507	21.015	23.229	0	146.838
With tax conditionality	5439	0.159	0.366	0	1
Without tax conditionality	5439	0.189	0.392	0	1
VAT introduction	5880	0.018	0.133	0	1
Total tax revenue	4354	13.593	8.274	0.3	112.81
Financial crisis	5460	0.056	0.23	0	1
Reserves in months of imports	3721	4.257	4.531	0.027	79.237
GDP growth	4548	5.203	15.721	-75.778	294.955
Inflation growth	3738	-0.115	2.261	-10.746	10.682

Sample excludes high-income countries.

Table A2: IMF tax conditionality and women's livelihoods in all countries

	L1	L2	H1	H2	E1	E2	E3
With tax conditionality	-0.099** (0.044)	0.093* (0.049)	-0.002 (0.037)	0.001 (0.017)	0.093 (0.148)	-0.164 (0.119)	-0.361*** (0.110)
Without tax conditionality	-0.042 (0.048)	0.121** (0.056)	-0.021 (0.038)	-0.007 (0.014)	-0.015 (0.107)	-0.291*** (0.097)	0.056 (0.107)
Observations	3483	3354	2244	5091	3503	2457	1862
Countries	129	129	132	139	136	133	122
R-squared	0.402	0.504	0.507	0.998	0.700	0.568	0.584
p-value	0.312	0.898	0.563	0.342	0.213	0.671	0.095

Outcomes are in differences. Control variables include men-specific livelihood outcomes and two-way fixed effects.

Standard errors clustered on countries in parentheses.

Significance levels * $p < .1$, ** $p < .05$, *** $p < .01$

Table A3: IMF tax conditionality and women's livelihoods

	L1	L2	H1	H2	E1	E2	E3
With tax conditionality	-0.065 (0.054)	0.070 (0.050)	0.022 (0.047)	-0.005 (0.017)	-0.112 (0.145)	-0.116 (0.154)	-0.328** (0.144)
Without tax conditionality	-0.022 (0.061)	0.117*** (0.042)	-0.010 (0.046)	0.003 (0.014)	0.006 (0.116)	-0.423*** (0.159)	0.073 (0.109)
Financial crisis	-0.147 (0.100)	0.066 (0.073)	-0.036 (0.065)	-0.004 (0.022)	-0.173 (0.177)	0.189 (0.188)	-0.579** (0.234)
Reserves	-0.011* (0.006)	-0.001 (0.006)	0.003 (0.006)	0.003 (0.003)	-0.001 (0.014)	0.006 (0.016)	-0.021 (0.018)
Economic growth	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.000 (0.000)	0.000 (0.003)	0.003 (0.003)	0.001 (0.004)
Inflation growth	0.004 (0.007)	-0.012 (0.011)	-0.001 (0.007)	0.002 (0.001)	-0.009 (0.029)	0.018 (0.020)	-0.014 (0.020)
Observations	2303	2241	1656	2906	2223	1628	1271
Countries	110	110	112	115	110	103	97
R-squared	0.435	0.502	0.475	0.998	0.801	0.531	0.686
p-value	0.505	0.380	0.458	0.598	0.368	0.088	0.038

Outcomes are in differences. Additional control variables not shown include the men-specific livelihood outcomes and two-way fixed effects. Standard errors clustered on countries in parentheses.

Significance levels * $p < .1$, ** $p < .05$, *** $p < .01$

Table A4: IMF tax conditionality, VAT introduction and women's livelihoods

	L1	L2	H1	H2	E1	E2	E3
Outcome equation							
With tax conditionality	-0.115** (0.050)	0.046 (0.064)	0.075 (0.048)	-0.335 (0.223)	0.750*** (0.228)	-0.473*** (0.178)	-0.477*** (0.143)
VAT introduction	0.161** (0.073)	0.049 (0.139)	0.051 (0.071)	0.060 (0.278)	0.051 (0.672)	-0.256 (0.390)	0.138 (0.308)
Without tax conditionality	-0.066 (0.048)	0.101 (0.067)	0.033 (0.041)	0.185 (0.255)	0.082 (0.185)	-0.621*** (0.140)	0.296** (0.129)
VAT introduction							
With tax conditionality	0.015* (0.009)	0.019** (0.009)	0.018** (0.009)	0.023*** (0.008)	0.028*** (0.009)	0.033*** (0.010)	0.027** (0.011)
Without tax conditionality	0.000 (0.007)	0.002 (0.008)	0.006 (0.007)	0.010* (0.006)	0.013* (0.007)	0.020** (0.008)	0.009 (0.009)
Observations	3483	3354	2244	5091	3816	2884	2268

Outcomes are in differences. Control variables not shown include the lagged level of the outcome, men-specific livelihood outcomes and two-way fixed effects. Standard errors clustered on countries in parentheses.

Significance levels * $p < .1$, ** $p < .05$, *** $p < .01$