Do Female Workers in Developing Countries Benefit from Labor Provisions in PTAs?

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Abstract

The inclusion of labor provisions in PTAs has become more common in recent years as economies seek to protect labor rights through trade policy. However, as documented in the LABPTA dataset (Raess and Sari, 2018), there is significant variation in the scope and enforceability of these labor provisions across the different PTAs. Building on LABPTA, we extend coverage to include all PTAs signed between 2016 and 2021 and perform a retrospective econometric analysis to determine the effect of PTAs with labor provisions on gender wage gap, a key indicator of gender equality and women's economic right.

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1 Introduction

The inclusion of labor provisions in PTAs (preferential trade agreements) has become more common in recent years as economies seek to protect labor rights through trade policy. The intended goal of these labor provisions is to strengthen labor institutions and labor laws so that workers in developing countries see clear benefits from trade liberalization. However, as documented in the labor provisions in preferential trade agreements (LABPTA) dataset (Raess and Sari, 2018), there is significant variation in the scope and enforceability of these labor provisions across the different PTAs. Thus, many countries that have signed trade agreements with labor provisions continue to have a dismal record when it comes to labor standards and worker rights.

A natural assumption would be that PTAs with stronger labor provisions are more likely to have positive effects on labor outcomes of interest to policy makers. However, this is ultimately an empirical question that must be taken to the data. Building on LABPTA, we extend coverage to include all PTAs signed between 2016 and 2021 and then perform a retrospective econometric analysis to determine the effect of PTAs with labor provisions on gender wage gap, an indicator of gender equality and women's economic rights and an outcome of key interest to policy makers in advanced and developing economies. Our estimates indicate that PTAs with strong labor provisions do indeed lead to a reduction in the gender wage gap for the developing countries in our sample. However, these findings would be stronger if there were less missing observations in our data for the gender wage gap.

The remainder of the paper is as follows. We review the relevant literature in the next section. Section three describes the update to LABPTA, the main trends seen in recent PTAs, and a discussion on the ILO wage data including limitations and coverage of developing countries. Our econometric analysis on the gender wage gap is presented in section five and we conclude in section six.

2 Literature review

This paper contributes to the literature on the impact on non-trade outcomes of provisions in PTAs that have non-trade objectives, such as the protection of environmental, human and labor rights (e.g., Hafner-Burton 2009; Jinnah and Morin 2020; Fernandes et al. 2023).

Given the focus of our study, we review the nascent literature on the effects of the inclusion of labor provisions in PTAs. While we shall primarily concentrate on the effects on labor outcomes, we make reference to studies examining the economic impact (i.e., trade flows). Because of our methodological approach, we focus our literature review on empirical studies that use quantitative research methods.[1] We limit ourselves to articles published in peer-reviewed journals that meet certain quality standards[2] or studies using the LABPTA dataset, the most fine-grained, comprehensive and up-to-date dataset on labor provisions in PTAs.

2.1 Trade and labor standards: a race to the bottom?

The empirical relationship between trade openness and labor standards has been extensively examined in the literature. While concerns that trade competition will lead to a "race to the bottom" in labor standards are widespread in the popular press and debates, finding reliable statistical evidence in support of an outright constraining effect has proved to be elusive. If anything, the literature points toward a null or positive effect. Considering several dimensions of working conditions (pay, hours of work, job safety) and of worker rights (child labor, freedom of association, forced labor, and employment discrimination by gender) in cross-country and panel analyses, Flanagan (2006) finds no evidence that trade openness degrades labor conditions or labor rights, with the exception of gender discrimination. On

[1] We footnote the empirical results from multiple studies employing qualitative methods.

[2] This is one way to control for the quality of the underlying study. The criteria on actual publication implies we exclude working papers. The criteria on journal quality, while necessarily more subjective, takes into account factors such as journal reputation, publisher, international ranking.

the contrary, trade improves working conditions indirectly by way of its positive impact on income per capita, and has a direct positive effect on most labor rights. Based on a sample of ninety developing countries, Mosley (2011) finds a robust negative and significant association between trade openness and [in law] collective labor rights (i.e., freedom of association and collective bargaining rights, FACB). She shows, however, that government partisanship strongly conditions the relationship: higher trade openness leads to a worsening of collective labor rights in countries ruled by center-right governments whereas the opposite holds in countries where left-leaning governments are in power. Furthermore, she demonstrates that participation in the global economy through trade mitigates the negative effects of specialization in labor-intensive, unskilled production, such as the effect of the size of the textile sector, on collective labor rights. In a series of papers using large samples of countries, Neumayer and De Soysa (2005, 2006, 2007) show that trade is positively associated with respect for fundamental labor rights. Specifically, freedom of association and collective bargaining rights and women's economic rights improve in countries that are more open to trade while the incidence of child labor and forced labor decreases with trade openness. In single country (Vietnam) and cross-country settings, Edmonds and Pavcnik (2005, 2006) find that increased trade reduces child employment in developing countries through income effects. Finally, in what is perhaps one of the most comprehensive analysis to date of the trade-related "race to the bottom" thesis, Guasti and Koenig-Archibugi (2022) find no evidence that export competition has led to a deterioration of trade union rights (i.e., FACB) in two large samples of countries for the periods 1985-2002 and 1994-2010.

One strand of the literature has argued that what matters for labor standards is not the level of trade openness per se but who the trade partners are (i.e., trading with whom) in terms of the quality of their labor standards. This literature focuses on export market opportunities in advanced economies for developing country firms participating in global supply chains. Greenhill et al. (2009) show that key export markets with high labor standards

exert upward pressures on labor rights in developing countries. The mechanisms for labor upgrading posited, but not tested, by the authors are the changing preferences of lead firms in developed markets, as a result of pressure from social activists (NGOs, shareholders), and the role of concerned consumers against the backdrop of the spread of global supply chains.

2.2 Trade effect of labor provisions in PTAs: hidden protectionism?

Moving to the effects of trade policy, particularly preferential trade liberalization, there is strong evidence that PTAs substantively increase trade flows, in particular 'deep' PTAs (e.g., Baier and Bergstrand 2007; Cipollina and Salvatici 2010; Dür et al. 2014; Baccini et al. 2017). What about the trade flow effect of PTAs including labor provisions? Do labor clauses have protectionist effects? If the introduction of labor clauses is driven by protectionist motives, as long argued by developing country governments, they should be associated with a reduction of bilateral trade flows.

Carrère and her co-authors (2022) were the first to address this question using the brand new LABPTA dataset (437 PTAs signed between 1990-2014). They argue that there are good reasons to believe that labor provisions can either increase or decrease bilateral trade flows, but the effect should be observed in the South-North trade configuration, that is, labor provisions should impact (positively or negatively) Southern exports to the North. Labor provisions boost exports if they increase demand in the North for goods produced under high labor standards in the South, as a result of increased concerns among consumers and firms in the North about fair trade and decent work, or if they increase productivity by way of improving labor standards. Alternatively, labor provisions can decrease exports if they lead to a reduction in the comparative advantage of developing countries, as low-skill export employment shrinks as a result of higher labor standards. Also, domestic interest groups might use enforceable labor clauses for protectionist purposes. They further argue that the design of labor provisions should matter. Specifically, more stringent labor provisions, that is, those

entailing commitments that are enforceable through sanction-based dispute settlement and those that institute dedicated and inclusive committees in charge of PTA implementation, should yield a stronger (positive or negative) effects. The empirical analysis corroborates their expectations and produces results that are inconsistent with the idea that labor clauses have protectionist effects. Indeed, the results show that the introduction of labor provisions increases exports of developing countries with weaker labor standards in North–South trade agreements, an effect that is mostly driven by provisions with institutionalized cooperation mechanisms (provisions with strong enforcement mechanisms do not have a statistically significant impact on developing country exports).

Subsequent studies corroborate that labor provisions do not reduce Southern exports to the North.[3] Using the sample of WTO-notified PTAs from the 1990s through early 2016, LeClercq et al. (2023) find "no robust evidence that labor provisions impact, much less reduce, trade flows". Similarly, using the World Bank's horizontal depth database that provides information on 279 PTAs signed by 189 countries up until 2015, Timini et al. (2022) find that on average the trade effects of PTAs with labor provisions are larger than those without, while exports from the South to the North are not associated with a significant increase as a result of the introduction of 'strong' labor provisions. However, this study does not distinguish between legally- binding provisions and provisions enforced through dispute settlement, which are two very different design features of labor provisions. While the authors define strong labor provisions in reference to 'enforceable' provisions, in fact what they measure is the degree of binding.[4] Therefore, this study cannot assess the role of strong

[3]The story might be a different one under firm-to-state dispute settlement as the U.S.-Mexico Facility-Specific Rapid Response Mechanism under the USMCA agreement. Analyzing two cases of non-compliant exporting firms based in Mexico, De La Cruz (2022) concludes that such firms face substantial risks of losing access to the U.S. market. It should be noted that the Facility-Specific Rapid Response Mechanism under USMCA is sui generis.

[4]The World Bank database has two crude measures of labor provisions in PTAs: one capturing any substantive labor-related commitments and the other the binding of such commitments (determined by way of an analysis of the legal language used, i.e., for example the use of shall vs. should).

labor provisions, which the literature considers to be the approach based on sanctions (hard law) (e.g., Hafner-Burton 2009). In any case, as the effect of labor provisions on bilateral trade flows tends to be null or positive, joining a trade agreement with labor provisions has the potential to indirectly improve labor standards in developing countries by way of opening up opportunities for (low- or semi-skilled) export employment and raising incomes for (low or middle) income households.

2.3 Labor provisions in PTAs: a magic bullet for upgrading labor standards?

The academic literature has investigated the effect of labor provisions in PTAs on a variety of labor outcomes in developing countries. We concentrate our review of the literature on studies that examine effects occurring in the aftermath of signing a PTA ("ex post" effects).[5] While the empirical evidence from statistical studies is mixed, studies using qualitative research methods invariably do not find any positive (ex post) effects on either working conditions or worker rights (Marx et al. 2016; Van Roozendaal 2017; Orbie et al. 2017; Harrison et al. 2019; see also Tran et al. 2017). Until recently, the studies were context-specific, focusing either on a single player (e.g., the United States or the EU) or a region of the world. This is now changing with the compilation of datasets on labor provisions in PTAs with a global scope, such as LABPTA. Moreover, where positive effects are reported, the results are generally weak: either in terms of robustness and/or statistical significance of the results, in relation to the author's own theoretical priors, or due to theoretical/conceptual and/or measurement issues.

Postnikov and Bastiaens (2014) examine the impact of labor provisions in EU PTAs on

[5] Although not a substantive outcome affecting workers directly, Dewan and Ronconi (2018) show that labor provisions in U.S. PTAs led to a strengthening of labor law enforcement in Latin American trade partner countries over the period 2000-2012.

individual and collective labor rights in the EU's trade partners. They expect the EU approach based on dialogue, cooperation, and stakeholder involvement to generate networking, policy learning (or socialization) and capacity building in PTA implementation which in turn should lead to improvements in labor standards. The temporal and spatial focus of the study is the period 1980-2010 – before the EU formalized and generalized its approach, which occurred with the introduction of the Trade and Sustainable Development chapter in so-called "new generation" EU PTA in 2010 – and a small sample of 18 trade partner countries.[6] Using Cingranelli, Richards and Clay's (CIRI) composite measure of worker's rights as well as Mosley's indictor of collective labor rights (FACB), the authors find support for their argument. Elsewhere, Raess (2022) has raised a number of concerns relating to theory and data (the latter pertaining to the coding of particular PTAs with respect to labor provisions and the exclusion of certain EU PTAs from the sample) which cast some doubts on the reliability of the study's findings.

Raess and Sari (2020) investigate the impact of 'deep institutional' labor provisions on state compliance with internationally recognized labor standards. They expect labor-related cooperation provisions backed up by a strong institutional framework to be associated with the improvement of labor rights in developing countries. Furthermore, they argue that the effect of labor-related institutionalized cooperation will be conditional on regime type. The study uses the LABPTA dataset to generate the predictors and the Labor Rights Indicators (Kucera and Sari), which provide measures of de jure and de facto violations of FACB rights, as outcomes variables. FACB rights or trade union rights are a relatively narrow, yet substantively important measure of labor rights, because they are widely considered as 'enabling rights' for the realization of other labor rights.

For a sample of 129 developing countries over the period 1990-2015, Raess and Sari (2020)

[6]By focusing on EU trade partners only, the results are driven by variation in labor provisions in EU PTAs, which are captured by a crude dummy (presence or absence of any labor provisions).

find that membership in PTAs that reference FACB and include a strong institutional framework reduce violations of FACB rights in law. Moreover, regime type conditions the effect of LPs on FACB rights in practice, as follows: membership in PTAs with institutionalized cooperation mechanisms over FACB reduce violations of FACB rights in practice more strongly in autocracies than in democracies. With respect to the alternate measure of the stringency of LPs, the authors do not find empirical support regarding the effectiveness of LPs with strong enforcement mechanisms.

Using the same outcomes variables, Kareem (2023) investigates how the introduction of labor provisions in EU and US PTAs affect labor rights in countries that have ratified such agreements. This paper makes an empirical contribution. The findings are twofold. First, EU PTAs are effective in reducing violations of FACB rights in the law among member countries while U.S. PTAs are not. Second, both EU and U.S. PTAs significantly increase violations of FACB rights in practice among member countries. The latter result is counter-intuitive and unaccounted for, so these results remain somewhat of a puzzle.

Bastiaens et al. (2023) focus on the impact of labor provisions on women's rights, considered in their civic, economic and political dimensions. The authors expect labor provisions to enhance women's freedom in all three realms. Using data on labor provisions from three different datasets and on various measures of women's freedom (women's civil society organization participation; freedom from forced labor; women's political participation) from the V-Dem dataset as well as alternative measures (e.g., CIRI's indicators of women's economic and political rights), the authors find for a sample of 142 developing countries over the period 1961-2021 that labor provisions in PTAs increase women's civic freedoms but not their economic or political freedoms. However, a convincing causal mechanism behind their main findings is missing from the study. For example, to back up the claim that labor provisions should increase women's participation in civil society organizations (CSOs), the authors write that "participation mechanisms in PTAs target CSOs and aim at improving

learning among them which could positively affect the strength and representativeness of civil society in signatories" (Bastiaens 2023: 5). While it is true that the institutions that are being set-up in some PTAs to monitor and implement labor provisions can be inclusive of labor/human rights CSOs and can lead to a strengthening of their representativeness (broadly understood, not just in terms of gender), it is unclear how and why this should enhance women's ability to participate in CSOs in general or CSOs' ability to pursue women's interests. Moreover, there is a huge 'conceptual distance' between the independent variables and the dependent variables as the former are conceptualized as generic variables (running from shallow LP variables such as mere mention of labor rights language or the presence of a labor chapter to measures of the overall stringency of LPs) that arguably have the potential to affect just any labor outcome.

Finally, Abman et al. (2023a, 2023b) study the impact of child labor standards in PTAs on a variety of child labor market outcomes. The research combines information from 283 PTAs notified to the WTO and in force in 2017, of which 43 contain child labor provisions, with harmonized income survey microdata from 101 developing countries for the period 1960-2020. The findings are that PTA with provisions prohibiting child labor increase child employment among older children (14-17 year of age) and decrease school enrollment for both young (those under 14) and older children. By contrast, PTAs without such provisions reduce child employment and increase school enrollment, especially for older children. The authors also examine the effect of provisions that are legally binding and enforceable through dispute settlement (a majority of the child labor ban provisions are binding and subject to state-to-state dispute settlement) and find, surprisingly, that there is no difference between the two types of provisions.

To sum up, based on the available evidence, there is still a lot of skepticism on whether labor provisions are effective. More research is needed that uses state-of-the-art and up-to-date data on the design of labor provisions, such as the LABPTA dataset. One of the main

challenges researchers are facing is to find comparable, cross-national and longitudinal data on labor outcomes of interest.

2.4 International and domestic determinants of the gender wage gap

Previous studies have sought to explain cross-national and/or longitudinal variation in the gender wage gap, a measure of women's economic rights and perhaps the most basic indicator of gender equality.[7] On the international determinants of the gender wage gap, some scholars have focused on the role of international institutions. Weichselbaumer and Winter-Ebmer (2007) examine the effect of the ratification of international conventions with the objective to combat discrimination. Two ILO fundamental Conventions directly prescribe equal treatment between men and women: the Convention on equal remuneration (C100) and the Convention on non-discrimination in employment and occupation (C111). While ratification of these conventions should reduce the gender wage gap, others might increase it. This may be the case for regulations that restrict women's occupation choices or ban them from holding certain jobs, such as the Convention prohibiting women's underground work (C45) and the Convention prohibiting women's night work (C89), respectively. Besides ILO Conventions, the authors also focus on the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), finding mixed effects on gender wage differentials. It should be noted that these UN organizations do not actually have any mechanisms to enforce the Conventions. The empirical evidence confirms that countries that ratify international conventions combating discrimination (C100, C111 and CEDAW) have lower gender wag gaps, while those signing international protective laws (C45 and C89) have higher gender wage differentials. The dependent variable is a measure of the gender

[7]The review does not pretend to be exhaustive, rather it focuses on a number of influential studies.

wage differentials that is unexplained after controlling for productivity differences (covering 62 countries between 1963 and 1997), estimates that come from a meta-analysis on the gender wage gap based on 263 papers.

Intensified economic competition has been hypothesized to reduce costly discrimination (Becker's 1957 model of discrimination). Discrimination is costly in the sense that discriminating employers must forego profits in order to indulge their "taste for discrimination". As long as firms have market power, they can afford to continue discriminatory practices. One form of increased competition is globalization. Scholars have focused on the impact of trade on the gender wage gap. For instance, Black and Brainerd (2004), using gender wage gap data in the manufacturing sector between 1976 and 1993 from the U.S. Currency Population Survey, show that increased trade benefited women. Specifically, they compare the trade effect in concentrated versus competitive industries, showing that the gender wage gap narrowed more rapidly in the former than in the latter. The dependent variable is calculated as the difference in the average residual wage for men and women (aged 18-64 in full time salaried employment) at the industry (or metropolitan) level.[8]

Oostendorp (2009) conducts a large cross-country study on the relationship between trade openness and the gender wage gap. Data come from the ILO October Inquiry database with information on wages (earnings and hours of work) for 161 occupations in over 80 countries for the period 1983-1999. The dependent variable is the female-male wage differential within an occupation in a given country and year.[9] The results are that occupational gender wage gap decrease with trade in developed countries, but no clear effect is found for developing countries.

To our knowledge, no study has looked at the impact of labor provisions in PTAs on

[8]The average residual wage for men and women are obtained by regressing the log wage on four categorical education variables, age, age squared, and a non-white dummy variable. The wage data refer to weekly or hourly earnings.

[9]The ILO October Inquiry does not have information on employment within occupations, preventing the calculation of an economy-wide measure of gender wage gap.

the gender wage gap. The study that comes closest to ours is Bastiaens et al. (2023), reviewed above. In that study, the outcomes variables for women's economic rights are the freedom from forced labor for women and a broad measure of women's economic rights.[10] As a reminder, Bastiaens et al. (2023) do not find any effect of labor provisions in PTAs on women's economic freedoms.

Regarding the domestic determinants, Weichselbaumer and Winter-Ebmer (2007) also focus on competition as a key determinant of interest. They show that higher economic freedom reduces the gender wage gap. Among other explanatory factors that have been considered in the literature are differences in education and job experience among men and women, social norms with respect to child-rearing and insufficient child care facilities that prevent women from combining family and work-life, differences in the selection of women into the labor market, the extent of overall wage inequality (and related wage-setting institutions), fertility rates, female participation rates, and religion.[11]

3 Data

3.1 LABPTA extension

3.1.1 LABPTA: the dataset

This study draws on the labor provisions in preferential trade agreements (LABPTA) dataset (Raess and Sari, 2018, 2023). The updated LABPTA dataset (v. 1.1) covers 610 preferential trade agreements (PTAs), of which 51 protocols or amendments, signed between

[10]This variable includes the following rights: equal pay for equal work, free choice of profession or employment without the need to obtain a husband or male relative's consent, the right to gainful employment without the need to obtain a husband or male relative's consent, equality in hiring and promotion practices, job security, non-discrimination by employers, the right to be free from sexual harassment in the workplace, the right to work at night, the right to work in occupations classified as dangerous and the right to work in the military and the police force).

[11]For a comprehensive overview of traditional and new domestic explanations of the gender wage gap at the national level, we refer the reader to the review article published by Blau and Kahn (2017).

1990 and 2021. The selection of PTAs included is based on a list of trade agreements compiled in the Design of Trade Agreements (DESTA) database (Dür et al., 2014).[12] Labor provisions (LPs) were considered in treaty texts, side agreements, memorandums of understanding (MoUs) and Action Plans, without distinguishing between these sources.

LABPTA uses a clear-cut definition of labor provisions as rules and regulations that aim to protect and/or promote workers' rights and working conditions. As a consequence, provisions relating to employment creation, the improvement of employability (such as training or active labor market policies), the free movement of workers and the treatment of migrant workers are excluded. Labor provisions in relation to investment typically found in investment chapters and which are a rare occurrence are also excluded.

The LABPTA coding scheme consists of 140 distinct items grouped in 6 overarching categories: (1) Aspirational statements in the preamble and/or objectives sections of the trade agreement (P); (2) Substantive commitments (S); (3) Obligations in relation to substantive commitments (O); (4) Enforceability of the substantive commitments (E); (5) Cooperation commitments (C); and (6) Institutions overseeing labor-related commitments (I). The coding is carried out manually.[13]

The LABPTA dataset v. 1.1 covering the period 1990-2021 extends the original LABPTA dataset (1990-2015) by incorporating a total of 119 PTAs. 91 PTAs signed in the period 2016-2021 were added as well as 28 PTAs (of which 26 contain no labor provisions) concluded in the earlier period. Of the 91, a handful (3) contain merely labor-related aspirational statements found in the preamble or objectives sections of the treaty text, which amount to shallow labor provisions, half (45) have labor provisions in the main body of text, indicating stronger commitments, while a little less than half (43) exhibit no labor provisions.

[12] See https://www.designoftradeagreements.org/. Raess thanks Andreas Dür and Manfred Elsig for sharing the legal texts of the trade agreements.

[13] For more details on the conceptual and methodological approach to the mapping of LPs in the LABPTA dataset, see Raess and Sari (2018).

Of the 45 new agreements with substantial labor provisions, there are two agreements of which the US is a party[14], seven EU agreements[15], seven signed by Canada[16], five by the European Free Trade Association[17], three by Australia[18] and two by New Zealand[19]. However, almost half of these agreements (22) are accounted for by a new actor in trade policy, namely the UK. It is worth stressing that the UK follows a strategy of trade-labor linkages at variable geometry, having concluded besides the above mentioned agreements, two PTAs with shallow LPs and 13 with no LPs whatsoever.

3.1.2 LABPTA: stylized facts

Over the course of the past three decades, labor provisions in PTAs have become increasingly prominent (figure 1). The contrast between the beginning and the end of the period under consideration is striking. In 1990, no newly signed PTAs (zero out of four) included labor provisions while in 1991 only four in nineteen PTAs (21 percent) had such provisions.[20] The share of new PTAs with labor provisions was 42 percent and 57 percent in 2020 and 2021, respectively. A similar picture emerges when the data is aggregated over ten-year periods. While more than one in two PTAs (53 percent) concluded in the 2010s included labor provisions, less than three in ten PTAs (29 percent) and about one third (32 percent) did so in the 1990s and 2000s, respectively.

[14]The Transpacific Partnership (TPP) 2016 and the U.S.-Mexico-Canada Agreement (USMCA) 2018.

[15]Canada-EC (CETA) 2016, EC-Southern African Development Community (SADC) 2016, Armenia-EC 2017, EC-Japan 2018, EC-Singapore 2018, EC-Vietnam 2019 and EC-UK (TCA) 2020.

[16]Canada-Ukraine 2017, Canada Israel Protocol 2018, Comprehensive and Progressive Agreement for Transpacific Partnership (CPTPP) 2018, Canada-UK 2020 as well as CETA, TPP, and USMCA.

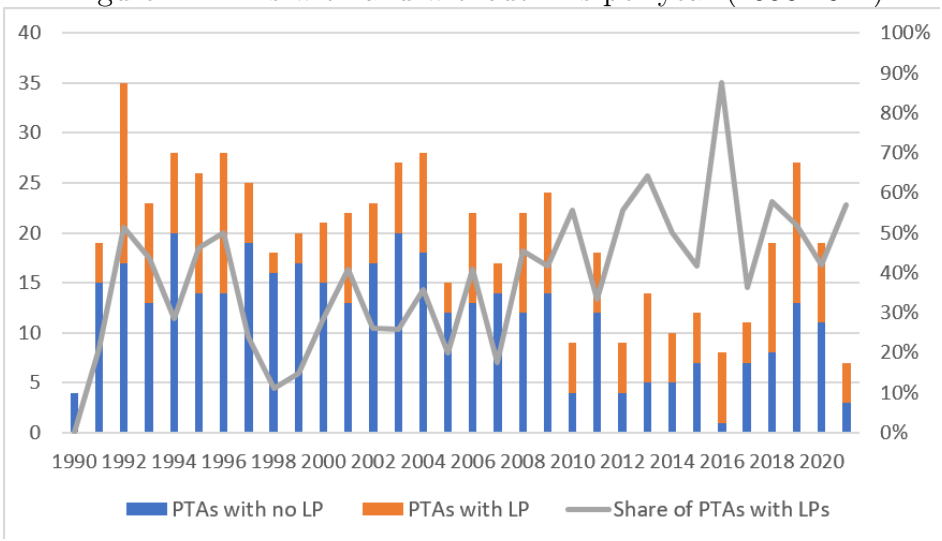
[17]EFTA-Philippines 2016, EFTA-Georgia 2016, EFTA-Indonesia 2018, Ecuador-EFTA 2018 and EFTA-Turkey 2018.

[18]Australia-Peru 2018 as well as TPP and CPTPP.

[19]TPP and CPTPP.

[20]The four PTAs with labor provisions signed in 1991 are: African Economic Community, EC-Hungary, EC-Poland, and EC-Faroe Islands.

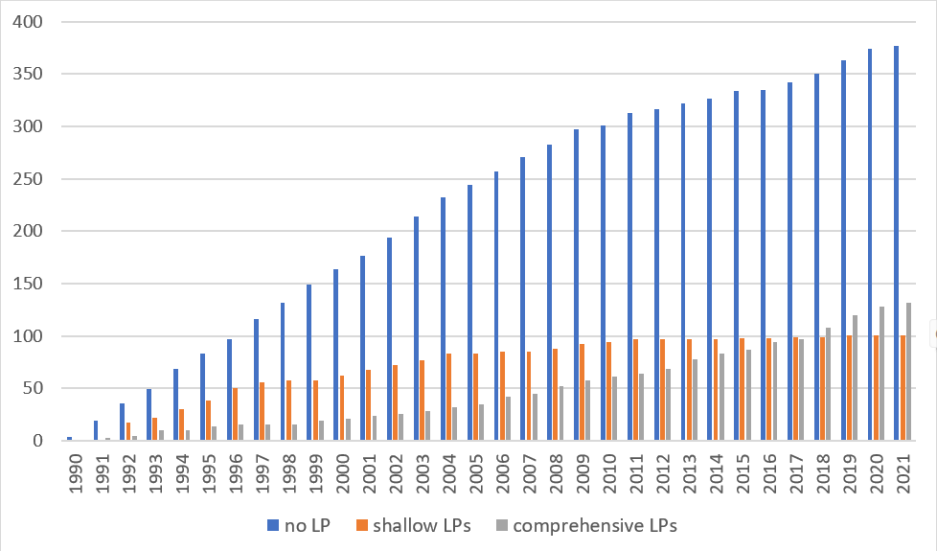
Figure 1: PTAs with and without LPs per year (1990-2021)



While the number of PTAs with no labor provisions has continued to grow over time, albeit at a slower pace since 2010, the evolution of the number of PTAs with "shallow LPs" (i.e., those found exclusively in preambule/objectives) and with "comprehensive LPs" (i.e., those found in the main body of the treaty text) has followed distinct trajectories (figure 2). While the number of PTAs with shallow LPs increased steadily in the 1990s and 2000s, it plateaued in the 2010s and early 2020s. By contrast, the growth of the number of PTAs with comprehensive LPs has been steady over the entire period, with the cumulative number of PTAs with comprehensive LPs surpassing that of PTAs with shallow LPs in 2018.

Taken together, figures 1 and 2 show an increase in the coverage and depth of labor provisions in PTAs over the period 1990-2021.

Figure 2: PTAs with no LP, shallow LPs and comprehensive LPs (cumulative over 1990-2021)

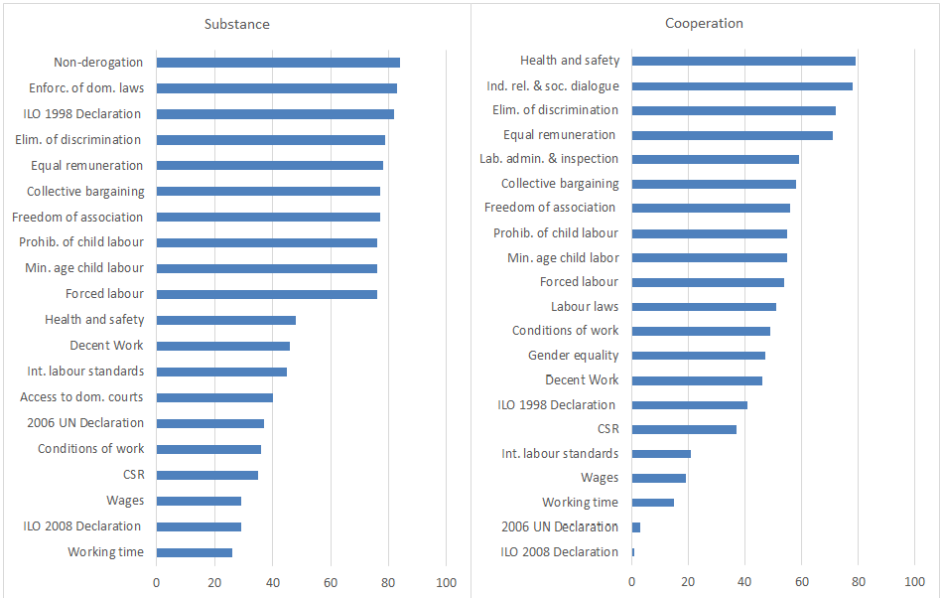


Across all PTAs with comprehensive LPs, the most frequently referenced substantive issues are the domestic commitments to effectively enforce labor laws (83 references) and to not derogate from existing levels of labor protections in order to boost trade (84), followed by the ILO 1998 Declaration on Fundamental Principles and Rights at Work (82) and the fundamental ILO Conventions (figure 3, left-hand side panel). Among these, references to the freedom from discrimination in employment and equal remuneration among men and women top the list (79 and 78, respectively), followed by the freedom to form and join a union and to bargain collectively (77) and the freedom from forced labor and from child labor (76 each). Provisions regulating working conditions are less frequent, with occupational health and safety (48) being mentioned about twice as often as working time (26). Commitments over wages and labor-related CSR lie somewhere in-between, with 29 and 35 PTAs mentioning the issues, respectively.

The most frequent items over which trade parties agree to cooperate are health and safety (79) and industrial relations & social dialogue (78) (figure 3, right-hand side panel). The issues of non-discrimination in general and of gender equality in particular feature

prominently, as can be seen by the high number of references to the core conventions on the elimination of discrimination (72) and equal remuneration (71) as well as to the specific objective of gender equality (47). References to other fundamental conventions are one-order of magnitude lower, ranging from 54 for the elimination of forced labor to 58 for the right to collective bargaining. Wages (19) and working time (15) are rarely singled out for cooperation activities, in line with these issues receiving low priority under substantive commitments. Finally, a key focus under cooperation is the strengthening of the labor administration & inspection system (59) as well as reform of labor laws (51).[21]

Figure 3: Incidence of substantive and cooperation-related issues (across all PTAs over 1990-2021

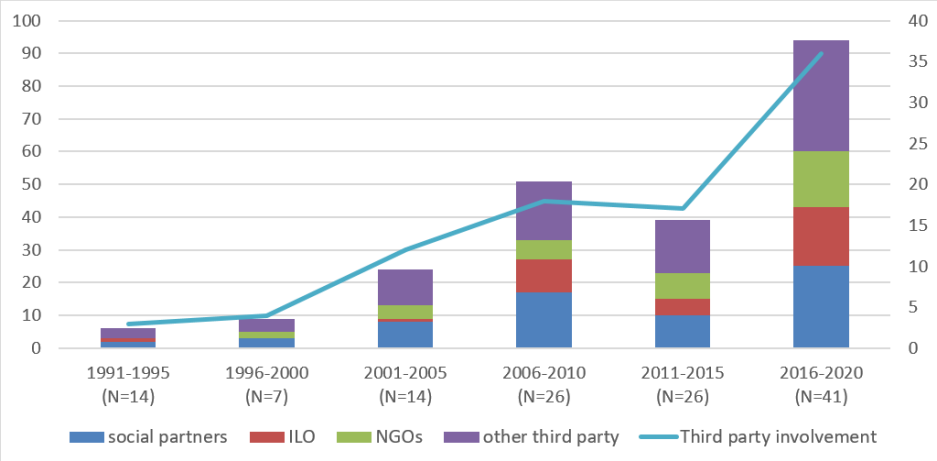


The institutional framework set up to monitor and enforce labor provisions in the implementation phase has become more inclusive of third-parties over time (figure 4). Over the period 1990-2021, the majority of references concern "other third party" (86 PTAs), followed by "social partners" (65), "non-governmental organizations" (37) and the "International La-

[21] These two items (as well as industrial relations & social dialogue and gender equality) have no equivalent under substance, that is, we only found references to these issues under cooperation activities agreed upon by the parties.

bor Organization" (35).

Figure 4: Incidence of third party involvement (under institutions) per five-year windows



Two design features that are arguably associated with effective enforcement are labor provisions with strong enforcement mechanisms and those with deep institutions (Raess and Sari, 2018; Carrère et al., 2022).[22] The former – the sanction-backed model – entails a robust dispute settlement system, such as the establishment of a panel of experts to adjudicate a dispute (i.e., third party arbitration), combined with the possibility to impose unilateral sanctions (e.g., monetary fines, trade sanctions). The latter – the deep cooperation model – consists of a specialized body in charge of the monitoring and enforcement of labor provisions (such as a Labor Advisory Committee) that, additionally, is inclusive with respect to at least one of the third parties (social partners, NGOs, ILO, other third party).

PTAs including labor-related strong enforcement mechanisms were more prevalent in the 1990s than those including labor provisions with deep institutions, a trend that has reversed in the last two decades (figures **??** and 6). The salience of PTAs with strong enforcement in the 1990s is accounted for by the many PTAs signed by the EU with Central and Eastern European countries, providing not only for arbitration-based dispute settlement regarding

[22]Recent PTAs have made more effort to ensure that the labor provisions included set standards for all workers in the economy, and not just for the workers in export-driven firms/sectors. For instance, the 2021 EU Korea labor dispute panel ruled that the EU-Korea PTA covered standards for all workers in Korea and was not restricted to only exporting industries.

a limited number of substantive labor issues, but also the possibility for the use of "other appropriate measures" as sanctions in case of non-compliance. It is noteworthy that the US, the paragon of the sanction-backed model, did only sign two new PTAs after 2007 (TPP and USMCA).

Figure 5: Share of PTAs with strong enforcement (left panel) and deep institutions (right panel) (per five-year windows over 1990-2020)

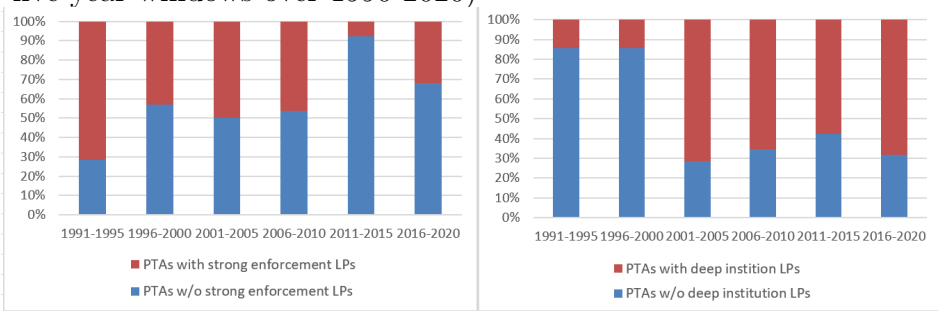
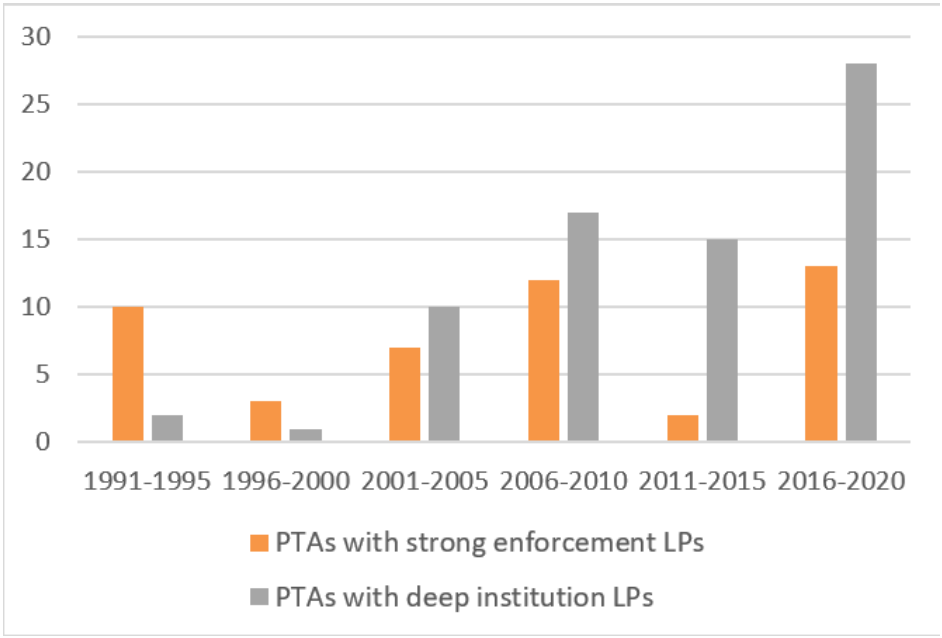


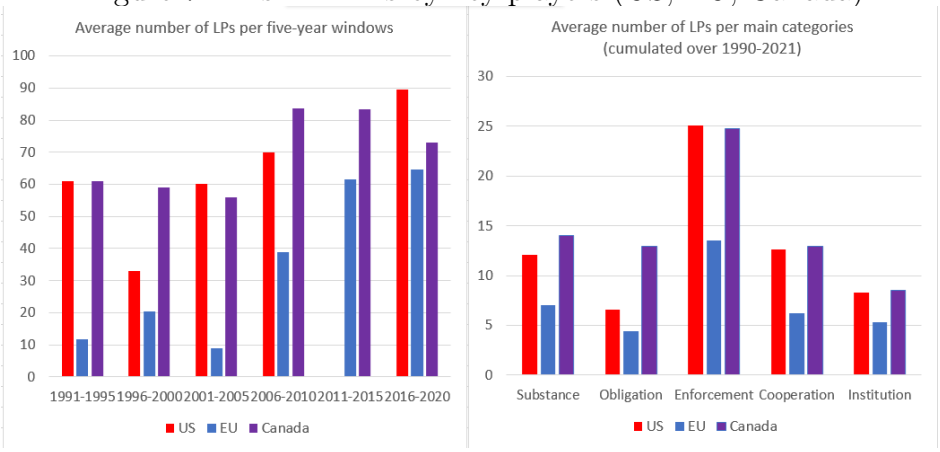
Figure 6: LPs with strong enforcement and deep institution designs (five-year windows over 1990-2020)



Among the main global players that have shaped the design of labor provisions are the United States, the EU and Canada. The United States tends to have on average more labor provisions in its PTAs with comprehensive labor provisions than the EU, while the

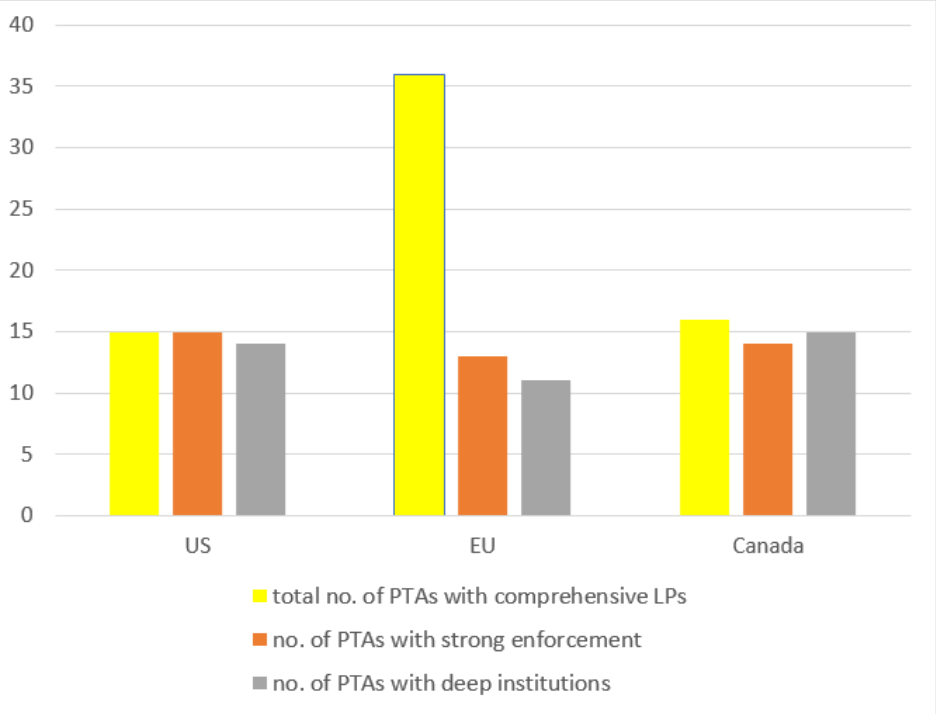
United States and Canada are more similar in this respect (figure 7, left panel). The gap between the United States and the EU has significantly narrowed with the introduction of the new generation EU PTAs starting with EU-Korea in 2010. Looking at the entire period 1990-2021, the gap between the United States and the EU pertains to all categories, not just obligation and enforcement (i.e., dispute settlement) but also institutions and especially cooperation (figure 7, right panel).

Figure 7: LPs in PTAs by key players (US, EU, Canada)



The United States stands out as the only major player that negotiated labor provisions with strong enforcement mechanisms in all its PTAs (15 in total over 1990-2021) (see figure 8. The same holds for Canada, with the exception of Canada-EU (CETA) of 2016 (later reproduced in Canada-UK agreement). The United States and Canada also feature deep institutions in all but one of their respective PTAs (Jordan-U.S. 2000 and Canada-UK 2020). Although the last generation EU agreements have increased the number of PTAs with deep institutions, the EU still had more PTAs with strong enforcement than deep institution provisions by 2021. In stark contrast to American and Canadian PTAs, only a good third of EU PTAs with comprehensive labor provisions include strong enforcement mechanisms and just under a third deep institutions.

Figure 8: PTAs with strong enforcement and deep institution designs, by key players (US, EU, Canada)

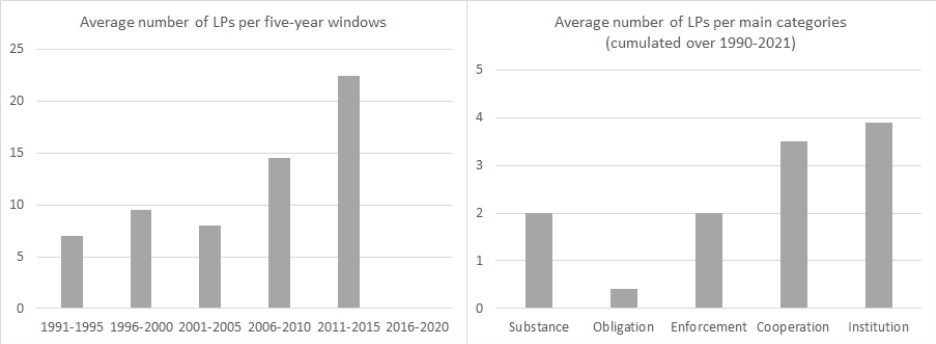


While the bulk of South-South PTAs contain no labor provisions, a small number (10) include comprehensive labor provisions.[23] These are: African Economic Community 1991, Common Market for Eastern and Southern Africa (COMESA) 1993, Economic Community of West African States (ECOWAS) 1993, Eurasian Economic Community (EAEC) 1999, East African Community (EAC) 1999, Caribbean Community (CARICOM) revised 2001, China-Peru 2009, East African Common Market 2009, Colombia-Panama 2013, Eurasian Economic Union (EAEU) Vietnam 2015. While South-South PTAs with comprehensive labor provisions have become more stringent over time (Figure 9, left panel), provisions regarding cooperation and institutions dominate (figure 9, right panel). None of the ten agreements is

[23]The sorting of countries into North or South is based on the World Bank's 2017 Country and Lending Groups classification. High-income countries and OECD members belong to the North, all other countries to the South. As per this definition, Chile and Uruguay, some Caribbean states (Antigua and Barbuda, The Bahamas, Barbados, Trinidad and Tobago) as well as most states from the Arabian Peninsula belongs to the North, Russia to the South.

characterized by strong enforcement and only four provide for deep institutions (COMESA 1993, CARICOM revised 2001, China-Peru 2009 and Colombia-Panama 2013).

Figure 9: LPs in PTAs signed by countries from the South



3.2 PTAs of Developing Countries in Sample

Section 3.1 provides an overview of the PTAs included in LABPTA and how they have evolved in recent years. In this section, we shift our focus to developing countries and see how the emergence of PTAs with labor provisions has varied across regions and years. We first take stock of how PTAs are differentiated by labor provisions across regions and countries.

Figure 10 looks at the East Asia and Pacific region and how the countries are currently positioned in terms of PTAs with labor provisions. We can see that for this group, Malaysia has the largest number of PTAs followed by China and Vietnam. Conversely, Pacific Island countries have the fewest number of PTAs for this region. While most countries in the region have PTAs without any labor provisions, there are some countries such as China and Malaysia that do have several PTAs with comprehensive labor provisions.

For Europe and Central Asia region, figure 11 shows that Bulgaria, through its association with the EU, has the largest number of PTAs, followed by Turkey and Ukraine. Central Asian countries such as Turkmenistan have the fewest number of PTAs in the region. Bulgaria is also well represented in countries having PTAs with comprehensive labor provisions, with most other countries in the region having a large share of the PTAs with no labor provisions.

For Latin America and the Caribbean region, figure 12 shows that Mexico and Colombia have the largest number of PTAs followed with Peru and Brazil. Caribbean countries had comparatively fewer PTAs for the region, with Haiti having the smallest number of PTAs. Peru has the largest share of PTAs with comprehensive labor provisions followed by Colombia and Costa Rica. Bolivia, Cuba, and Venezuela are the only countries in the region that do not have any PTAs with comprehensive labor provisions.

Turning to the Middle East and North American region, figure 13 shows that Jordan has the largest number of PTAs with Egypt and Morocco as the second and third ranked countries for this region. Yemen and Iraq have the fewest number of PTAs in the region. Most countries in the region have a small share of their PTAs having either comprehensive or shallow coverage of labor provisions. Iran, Iraq, Syria, Yemen, and Palestine, in fact, do not have any PTAs with any type of labor provisions covered.

For the South Asian region, figure 14 finds that India has the most PTAs in the region followed by Pakistan and Sri Lanka. Maldives has the fewest number of PTAs in South Asia. None of the countries in the region have any PTAs with either shallow or comprehensive labor provisions—a start contrast with the other regions examined in LABPTA.

For the Sub-Saharan region, we distinguish between low- and middle-income countries. For low-income SSA countries, figure 15 shows that Mozambique has the largest number of PTAs, followed by Malawi and then Uganda and Madagascar. South Sudan has the fewest number of PTAs in the region. All of the low-income countries with the exception of South Sudan have at least 1 PTA with comprehensive labor provisions with the greatest share seen for Mozambique and Uganda. However, none of the low-income SSA countries have a PTA with shallow labor provisions.

For medium-income SSA countries, figure 16 shows that Namibia has the largest number of PTAs, followed by Swaziland and Lesotho. Nigeria has the fewest number of PTAs for medium-income SSA countries. Again, all the middle-income SSA countries have at least 1

PTA with comprehensive labor provisions with the greatest share seen for Kenya, Swaziland and Lesotho. Medium-income SSA countries such as Botswana and South Africa also have PTAs with shallow labor provisions.

Figure 10:

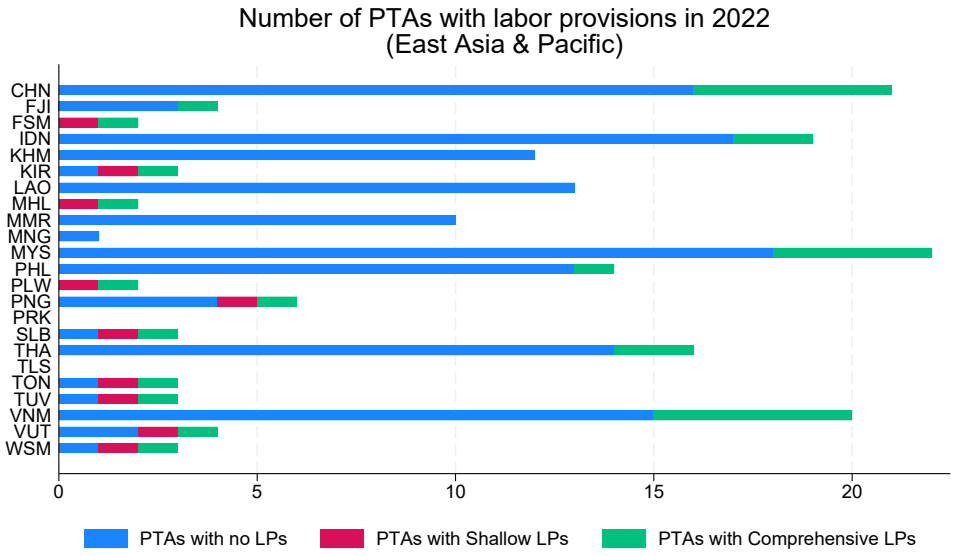


Figure 11:

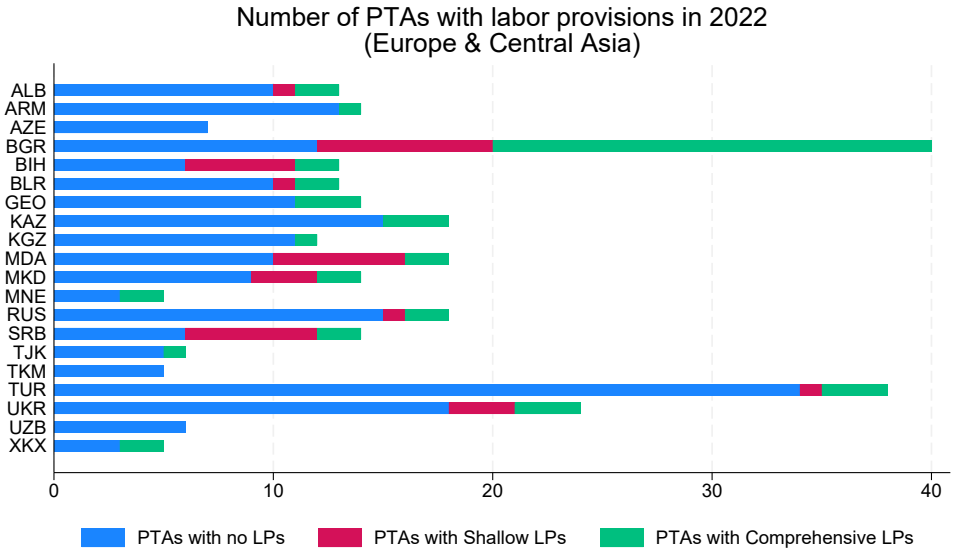


Figure 12:

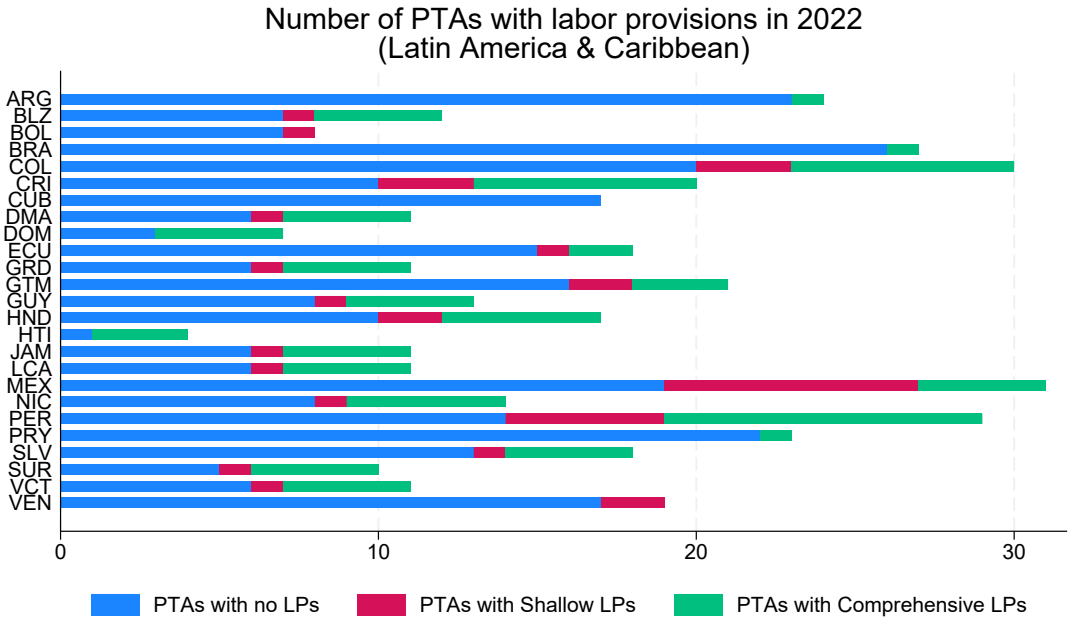


Figure 13:

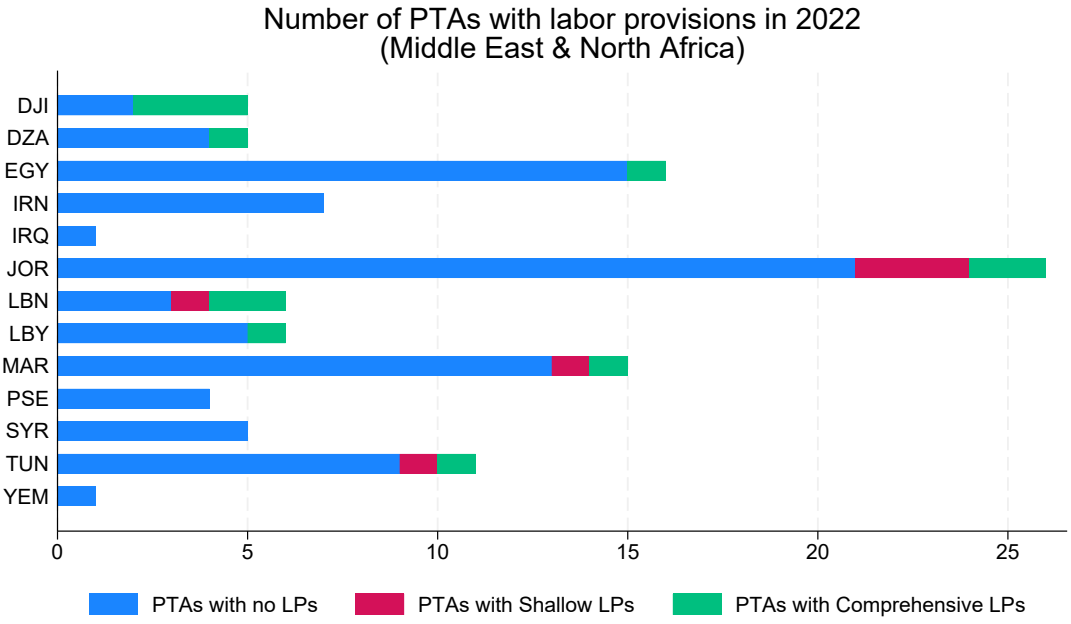


Figure 14:

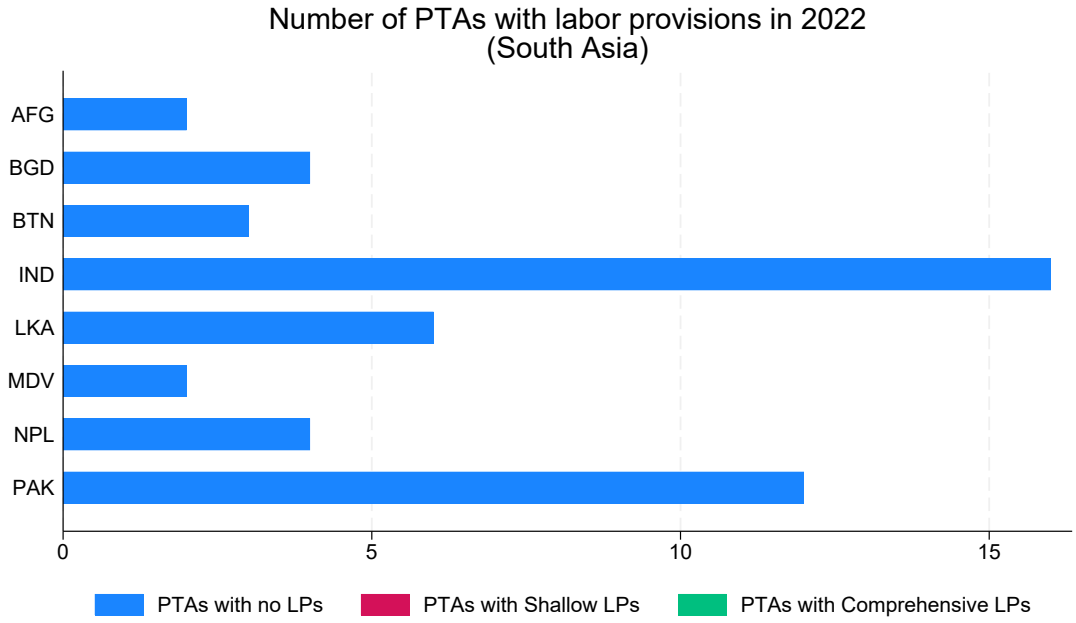


Figure 15:

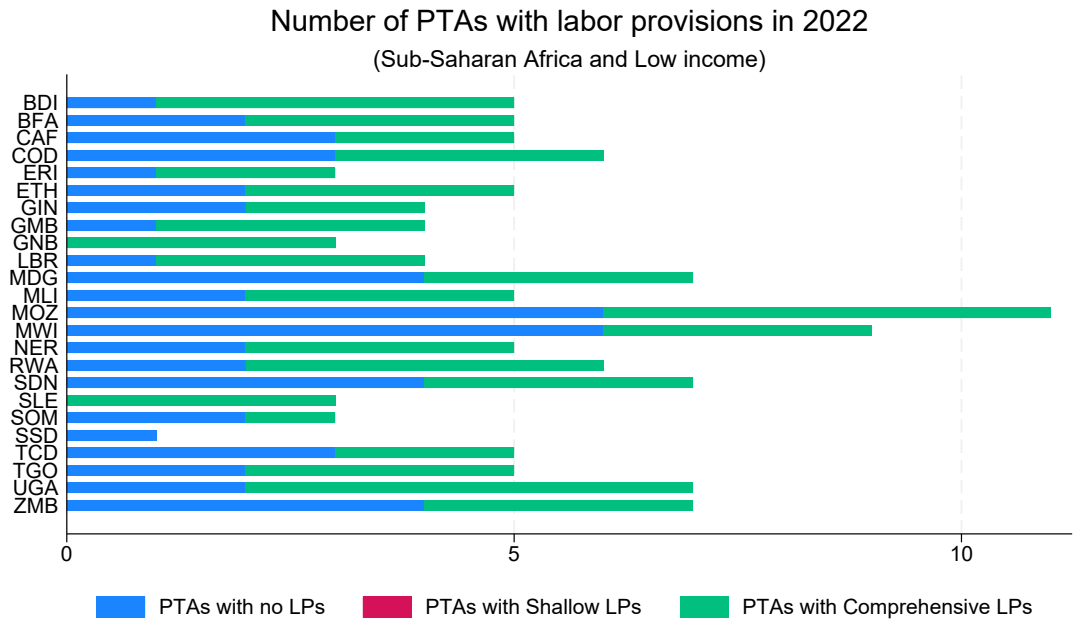
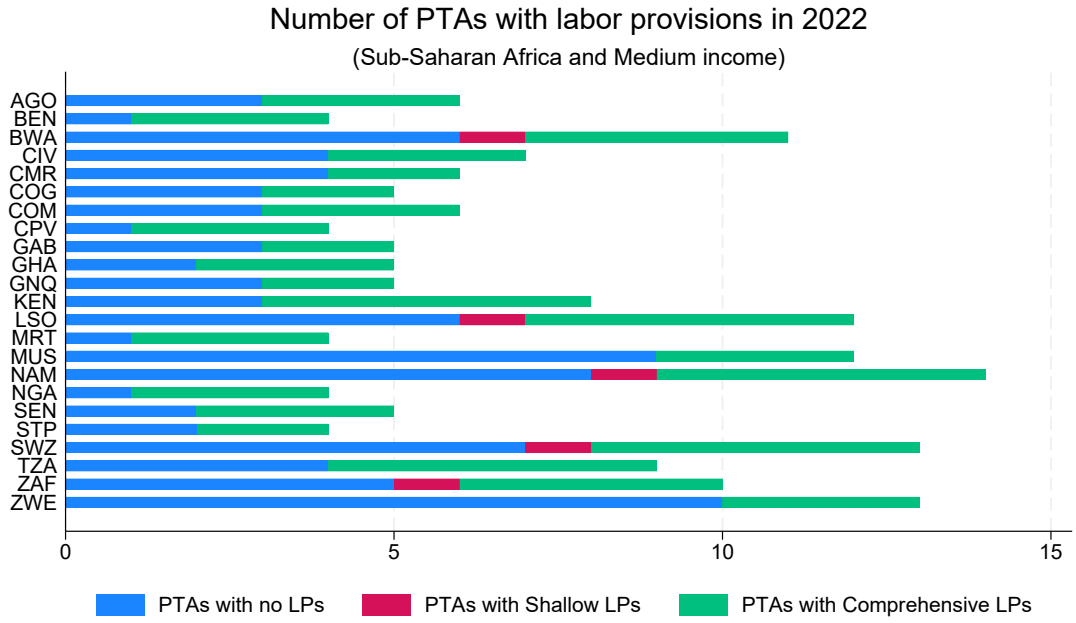


Figure 16:



Next, we look at how the average number of PTAs with labor provisions within a region has evolved over time. Along with variation across countries, our identification strategy on the effects of labor provisions in PTAs on the gender wage gap relies on there to be sufficient time variation in countries joining PTAs with comprehensive labor provisions. We thus check if our data matches our expectations.

Figure 17 looks at the cumulative average of the number of PTAs each country in the East Asia and Pacific region has from 1991 to 2022. We can see that there has been a steady increase in the number of PTAs with no labor provisions for this group over the sample period time with countries seeing an increase from around 1 PTA with no labor provisions in the mid-90s to having an average of 8 PTAs with no labor provisions in 2020. On the other hand, the average number of PTAs with comprehensive labor provisions for this region has increased much more slowly with a modest increase from having 1 PTA in 2000 to 2 PTAs in 2020 with comprehensive labor provisions. Further, the trend for PTAs with shallow coverage of labor provisions has seen very little change over time for this region.

For Europe and Central Asia, figure 18 shows a strong growth in the average number of PTAs with comprehensive labor provisions for this group with countries seeing, on average, an increase from around 2 PTAs with labor provisions in 2000 to around 15 PTAs with labor provisions in 2020. On the other hand, the average number of PTAs with no labor provisions for this region has increased much more slowly from having 5 PTAs in 2000 to around 10 PTAs in 2020 with no labor provisions. The average number of PTAs with shallow coverage of labor provisions has seen very little change over time for this region. Thus, the data indicates that countries in Europe and Central Asia were more likely to agree to agreements with labor provisions in recent years.

For Latin America and Caribbean, figure 19 shows that there has been a steady increase in the number of PTAs with no labor provisions for this group over time with countries seeing an increase from around 1 PTA with no labor provisions in the mid-90s to having an average of 8 PTAs with no labor provisions in 2020. On the other hand, the average number of PTAs with comprehensive labor provisions for this region has increased much more slowly with a modest increase from having 1 PTA in 2000 to 2 PTAs in 2020 with comprehensive labor provisions. The average number of PTAs with shallow coverage of labor provisions has also seen very little change over time for this region. A similar trend is seen in figure 20 for the Middle East and North African region.

For the South Asian region, figure 21 shows that there has been a steady increase in the number of PTAs with no labor provisions for this group over time with countries seeing an increase from around 1 PTA with no labor provisions in the mid-90s to having an average of 6 PTAs with no labor provisions in 2020. However, countries in these region see no increase in either PTAs with shallow labor provisions or PTAs with comprehensive labor provisions. Lastly, figure 22 focuses on the Sub-Saharan African region and we see a sustained increase in the average number of PTAs with comprehensive labor provisions and the average number of PTAs with no labor provisions over this time period.

Figure 17:

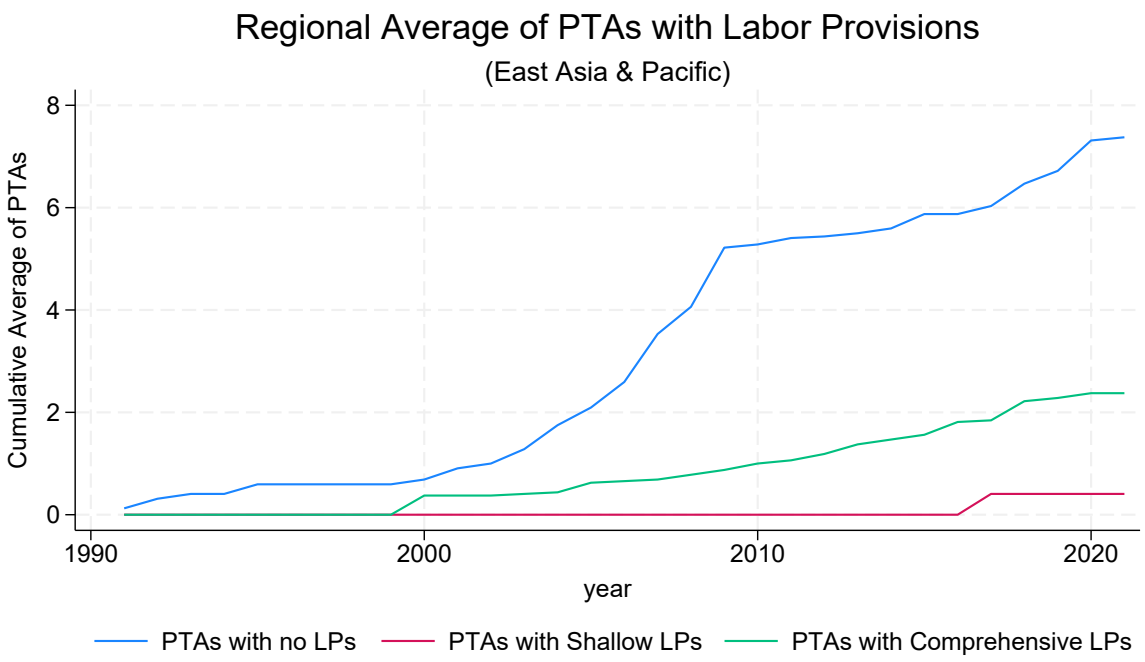


Figure 18:

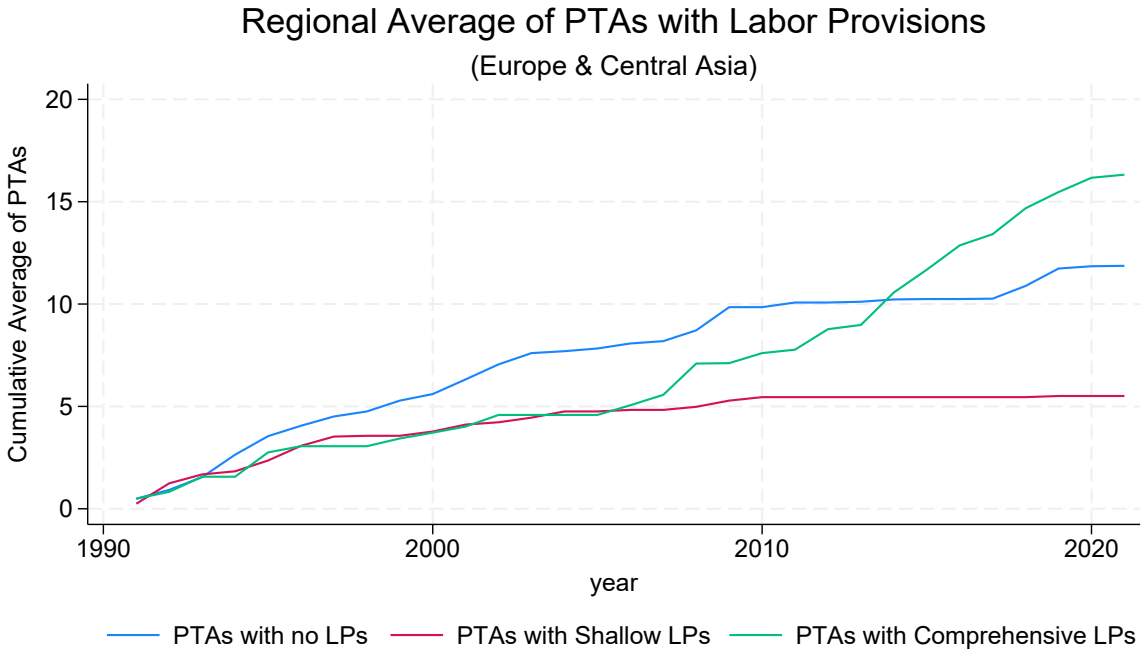


Figure 19:

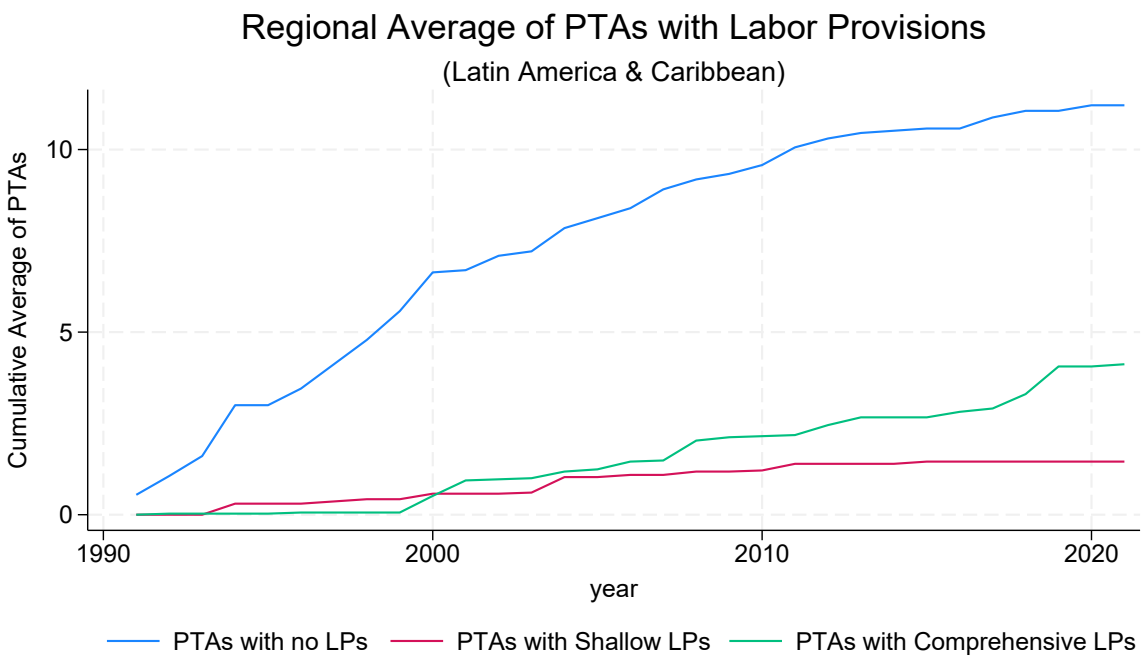


Figure 20:

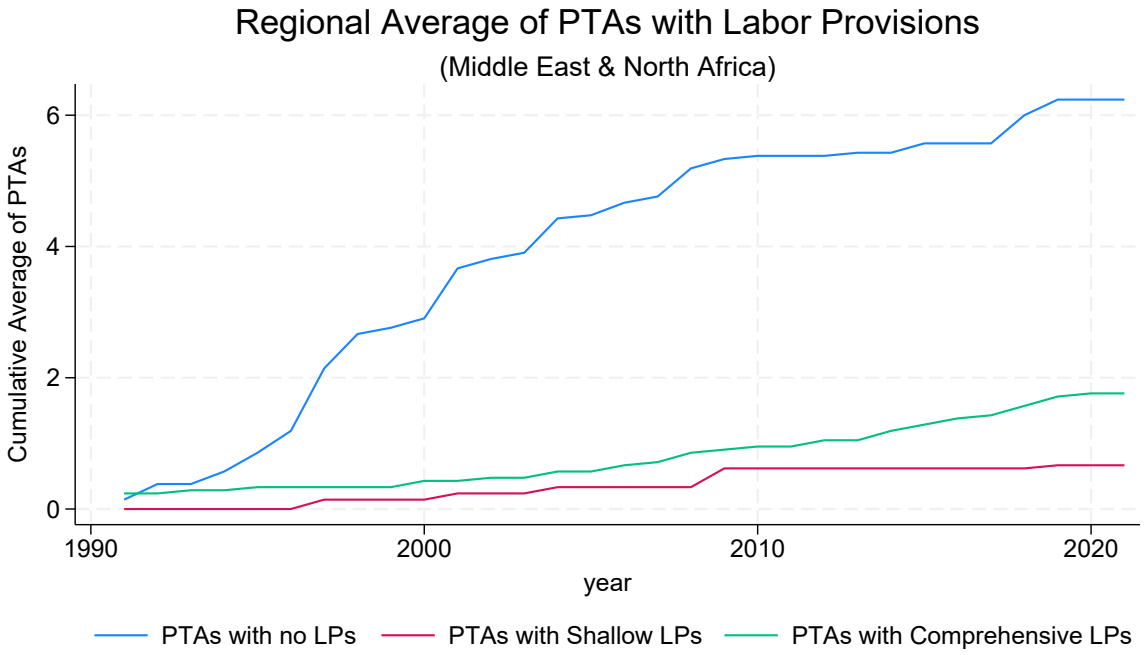


Figure 21:

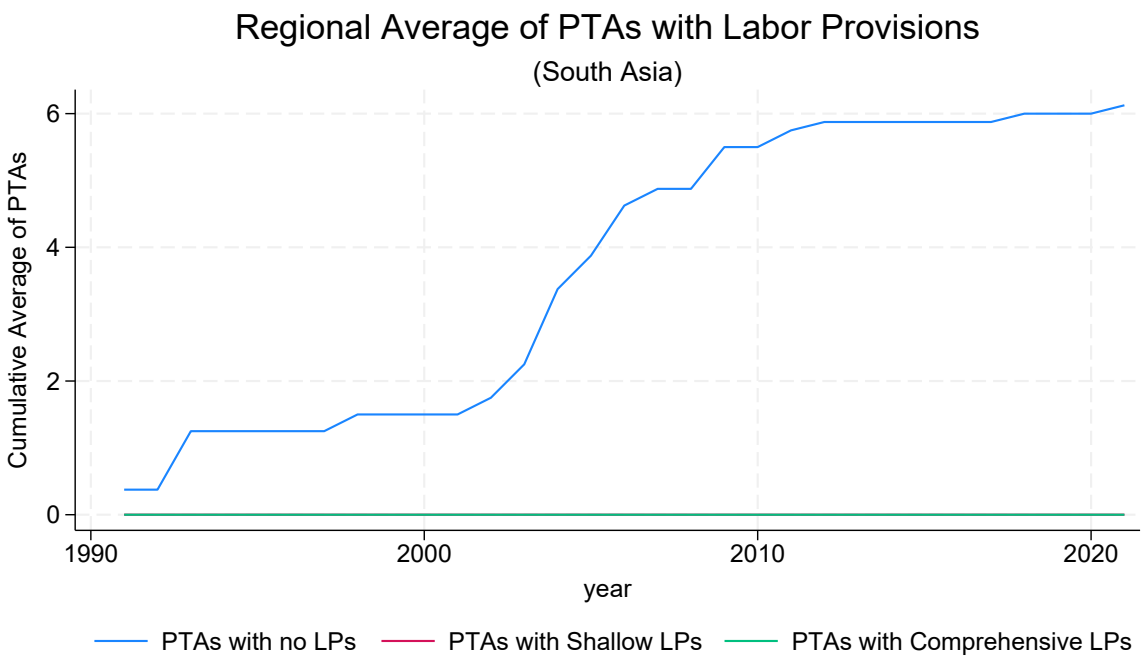
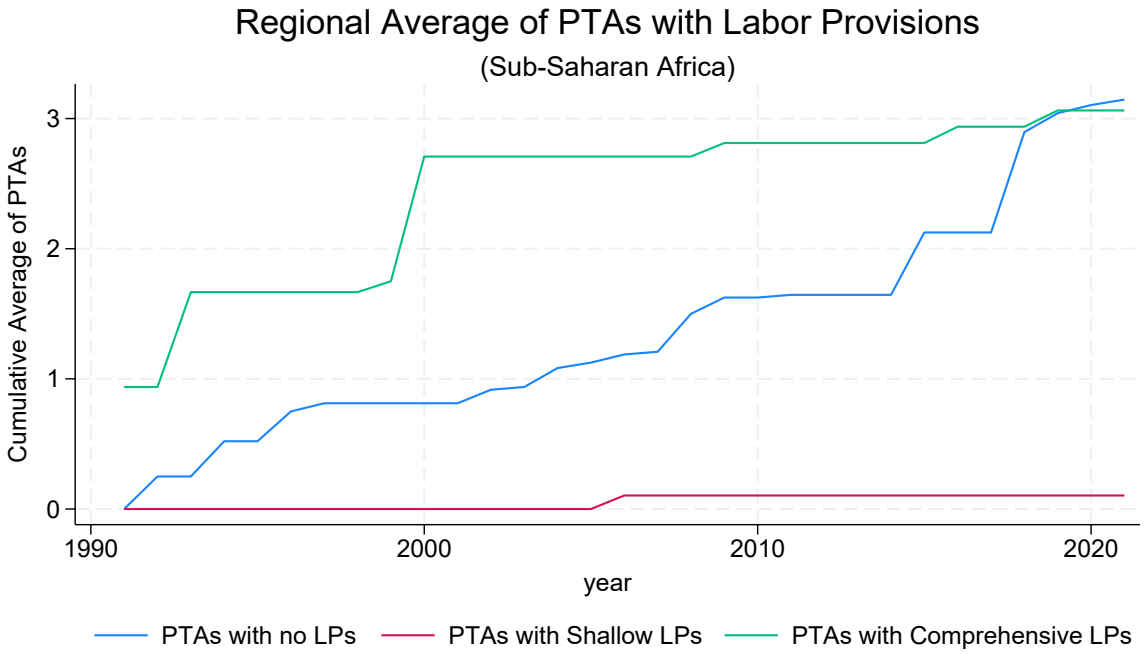


Figure 22:



3.3 Labor Outcomes of Interest

The gender wage gap, as discussed above, is an indicator of gender equality and women's economic rights. For this study, we use the ILOStat gender wage gap series. The ILO publishes wage gap data in two series, from 1991 to 2011 ("historical" series), and from 2011 to 2022 ("current" series).[24] For both the current and historical series, ILO compiles and standardizes the data from various national labor surveys, and provides a total wage gap plus wage gaps for different occupations. The coverage varies over time by country, with some countries having more regular data reporting. Some studies, including Oostendorp (2009) and Harsch and Kleinert (2011) have used a different ILO dataset, the "October Inquiry", which covers more occupation and industry series for earlier time periods.

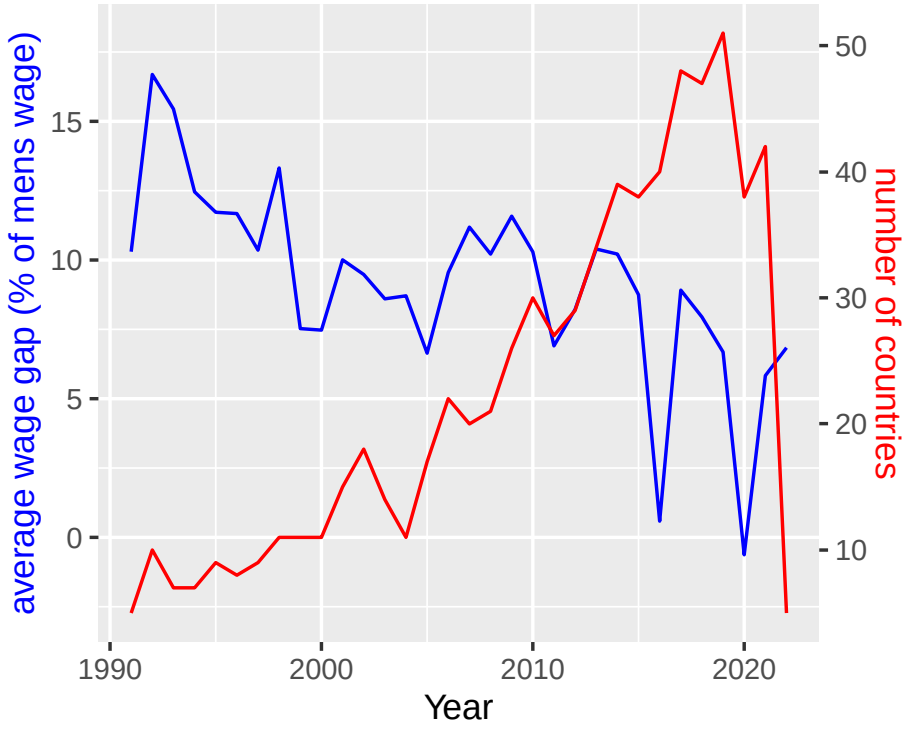
The wage gap is measured as the difference between the women's and men's average wages divided by the men's wage. A wage gap above zero indicates the men's wage is higher than the women's, and a negative wage gap indicates the women's wage is higher than the men's. There are 105 countries with at least one year of wage gap data, but on average each country has 6.9 years of observations (see tables 1 and 2).[25] There are more observations in the later part of the sample, which hits its highest number of observations in 2019 (figure 23). The average wage gap declines over time (figure 23).

About 23 percent of the observations had negative wage gaps (i.e. the women's wage is higher than the men's wage). The wage gap measured in the data ranges from-336.96 (Timor-Leste in 2016) to 67.6 (Egypt in 2009). In addition to the average wage gap declining over time (figure 23), the wage gap varies by region and income group (see tables 1 and 2). The wage gap is highest, on average in high and low income countries, and in SubSaharan Africa and Europe and Central Asia (there is substantial overlap in the countries in these groups).

[24]The current series is the data series EAR_GGAP_OCU. Where there is overlap in country-year between the historical and current series, we select the current series.

[25]ILO also collects data for dependent territories, but these are not in our FTA databases, so are not included in this sample.

Figure 23: Average wage gap and number of countries in sample, 1990-2022



[26]

Table 1: Wage Gap by Income Group

	Number of countries	observations per country (mean)	wage gap (mean)	Std. Dev. (Mean)
Total	105	6.9	8.1	18.6
High Income	24	8.6	13.3	8.9
Upper Middle Income	32	9.4	5.4	9.7
Lower Middle Income	37	4.6	5.9	31.4
Low Income	11	2.5	17.3	32.8

We are particularly interested in studying the impact of the RTA provisions in developing countries. The ILO wage gap series covers ten low income countries and 37 lower middle

[26]The income groups and regions are as defined by IMF. The Americas region is North America, of which we observe only the United States, plus Latin America and the Caribbean. I did not deal correctly with Venezuela in the income groups.

Table 2: Wage Gap by Region

	Number of countries	observations per country (mean)	wage gap (mean)	Std. Dev. (Mean)
Total	105	6.9	8.1	18.6
Americas	25	11.8	3.9	10.8
East Asia and Pacific	16	5.1	5.5	41.0
Europe and Central Asia	26	7.6	12.2	9.1
Middle East and North Africa	5	6.0	3.9	19.1
South Asia	7	5.1	9.6	25.0
SubSaharan Africa	26	3.0	17.3	13.4

income countries. Of the 26 SSA countries, 23 are considered low or lower-middle income by the IMF. The other 44 countries in these two groups are spread globally, including East Asia and Pacific (9) and South Asia (6).

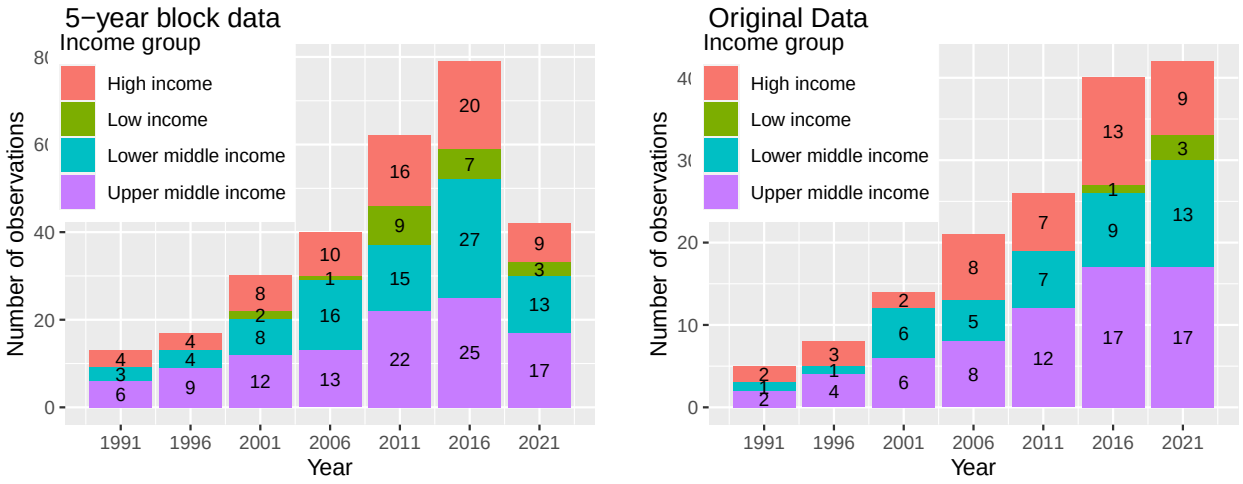
The sparseness of the data, particularly from the developing countries, presents a challenge to our estimation strategy. Now we will explore whether the observations for a given country are spaced throughout the sample or clustered in a specific period. One way to potentially overcome sparse observations is by blocking the data into periods. Figure 24 shows that by blocking the data into five-year periods, we have more observations in a given year than in a given year of the full data (or any other year, see figure 23).

We can also consider a restricted data sample. Given that we rely on within group variation to identify our impacts (see discussion below), we consider including countries that have a least 10 observations. Compared to the full sample shown in the Table 1, the limited sample has a slightly lower wage gap and lower standard deviation of the wage gap (see table3. Additionally, no low income countries meet this observation threshold.

Table 3: Wage Gap by Income Group, limited sample

	Number of countries	observations per country (mean)	wage gap (mean)	Std. Dev. (Mean)
Total	29	18.8	7.6	11.6
High Income	8	20.9	13.1	9.6
Upper Middle Income	15	18.4	4.4	8.7
Lower Middle Income	6	16.6	7.3	17.1
Low Income				

Figure 24: Number of observations by income groups



4 Effects on the Gender Wage Gap

We next use the ILO data described in Section 3.3 to test if countries signing PTAs with strong labor provisions leads to a reduction in the gender wage gap. We rely on a simple fixed effects estimator in the empirical analysis that accounts for the unobserved individual country effects:

$$WageGap_{it} = \beta_1 TotalPTAs_{it} + \beta_2 TotalLaborPTAs_{it} + \Gamma X_{it} + \mu_{it} \quad (1)$$

where $WageGap_{it}$ is the gender wage gap in country i in year t. $TotalPTAs_{it}$ is the total number of PTAs country i has in year t while $TotalLaborPTAs_{it}$ is the total number of PTAs country i has with comprehensive labor provisions in year t. Note that $TotalLaborPTAs_{it}$ is a strict subset of $TotalPTAs_{it}$ with the main sources of variation in our analysis arising from a country entering into a new PTA that contains comprehensive labor provisions. We also include a set of other time-varying control variables that may influence the gender wage gap in X_{it}. Lastly μ_{ijt} is the independent and identically distributed error term.

Table 4 presents estimation results regarding the impact of PTAs with labor provisions on the gender wage gap without any control variables. Due to the high number of missing observations for most countries in our sample, we don't include any year effects in the estimations. In columns (1) to (3), we change the threshold on the minimum number of observations a country needs to be included in our estimation sample. Thus, column (1) with a minimum threshold of at least 10 observations has 21 countries in the sample, while column (3) with a minimum threshold of 20 observations has only 5 countries in the sample. Of course, restricting the estimation sample to a smaller set of countries might reduce the overall representativeness of the sample, especially if some countries and regions are more likely to have missing wage gap observations than others. However, in our data, we continue to see a diverse set of countries from the different regions even with the thresholds, mitigating this particular concern.[27]

In column 1, we see that the wage gap is only impacted by the total number of PTAs a country has, with no significant effect on the wage gap from the total number of PTAs a country has with strong labor provisions. However, as we increase the minimum threshold, the effect on the wage gap from the total number of PTAs a country has with strong labor

[27]For instance, the following countries have at least 10 non-missing observations for the wage gap in our sample: Argentina, Bosnia, Brazil, Cambodia, Colombia, Costa Rica, Egypt, El Salvador, Honduras, Jamaica, Malaysia, Mauritius, Mexico, Moldova, Pakistan, Paraguay, Peru, Sri Lanka, Turkey, Venezuela, and Vietnam.

Table 4: Effect of PTAs with labor provisions on the gender wage gape (no controls)

	(1)	(2)	(3)	(4)	(5)	(6)
Total PTAs	-0.586***	-0.511***	-0.509***	-0.564***	-0.511***	-0.453**
	(0.13)	(0.16)	(0.19)	(0.13)	(0.16)	(0.21)
Total PTAs with strong labor provisions	-0.301	-1.694**	-2.080**	-1.159*	-1.694**	-2.238**
	(0.51)	(0.66)	(0.80)	(0.59)	(0.66)	(0.87)
Total observations	336	191	123	292	191	103
Min observations/country	10	15	20	10	15	20
Countries having only negative wage gaps	Yes	Yes	Yes	No	No	No
Number of countries	21	9	5	17	9	4
R-square	0.13	0.24	0.27	0.16	0.24	0.27

Notes: All specifications include individual country fixed effects. Robust standard errors are shown in parentheses. Intercept and fixed effects not reported.
Significance level given as follows: *** p<0.01, ** p<0.05, * p<0.10

provisions becomes statistically significant. Importantly, the negative effect on the wage gap is nearly four times larger in magnitude from a country having PTAs with strong labor provisions than from just having PTAs. Thus, these initial estimates are suggestive that PTAs with strong labor provisions are more effective in reducing the gender wage gap disparity in developing countries than PTAs without any labor provisions.

In columns (4) to (6) of table 4, we exclude countries that only had negative wage gaps throughout the sample period. Since it is not clear if there is some coding issue in the ILO data that is causing these countries to have a negative wag gap, or if women are actually earning more than men in these countries, it seems advisable to test the robustness of our results once these countries are excluded from the sample. After removing countries with only negative wage gaps, we continue to see a strong negative effect on the wage gap from PTAs with strong labor provisions, including when the minimum threshold is set to at least 10 observations per country.

We next consider how the estimates in table 4 are affected by the presence of additional

control variables that can account for other important factors that may influence a country's gender wage gap over time. We included four control variables in the regressions: a country's level of total trade (as a share of its GDP), the level of inward Foreign Direct Investment (FDI) it receives (as a share of its GDP), the average female life expectancy as a proxy for living standards, and the share of a country' population that lives in an urban setting. We also experimented with other controls such as a country's real GDP per capita and its literacy rates for men and women, but these controls did not have much effect on the main estimates. Thus, for parsimony we focus only on the four main control variables in the subsequent empirical analysis.

The first three columns of table 5, as was also the case for table 4, vary on the minimum threshold for countries to be included in the sample and also do not exclude countries that only have negative wage gap observations. First, the number of PTAs a country has comprehensive labor provisions —our main variable of interest —continues to have a statistically significant effect in reducing the gender wag gap in samples where countries need to have at least 15 and 20 observations respectively. However, just the number of PTAs a country has, without distinguishing on whether it had comprehensive labor provisions, no longer leads to a reduction in the wage gap and in some cases actually leads to an increase. We hypothesize that the inclusion of the country's trade (as share of GDP) as a control in the estimation could be driving this observed change in the estimates for the $TotalPTAs_{it}$ coefficient since countries that trade a lot are also more likely to part of a large number of PTAs. We do see that having higher levels of trade does lead countries to have lower wage gaps. We also see a strong and significant negative effect on the wage gap from the female life expectancy, our proxy for a country's living standards. For the other control variables, we don't see a consistent effect on the gender wage gap across the different samples and thus we are unable to make any definitive statements on how they may be affecting a country's gender wage gap.

Table 5: Effect of PTAs with labor provisions on the gender wage gape with controls

	(1)	(2)	(3)	(4)	(5)	(6)
Total PTAs	0.110	0.470**	0.420*	0.027	0.470**	0.561**
	(0.19)	(0.22)	(0.25)	(0.20)	(0.22)	(0.28)
Total PTAs with strong labor provisions	0.053	-3.792***	-7.146***	-1.311*	-3.792***	-7.050***
	(0.62)	(1.05)	(1.35)	(0.80)	(1.05)	(1.45)
Trade (% of GDP)	-0.059	-0.128**	-0.210***	-0.057	-0.128**	-0.257***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.08)
FDI (% of GDP)	0.824***	0.276	-0.057	0.766**	0.276	0.265
	(0.29)	(0.33)	(0.51)	(0.31)	(0.33)	(0.68)
Female life expectancy	-1.978***	-4.243***	-4.595***	-2.123***	-4.243***	-4.569***
	(0.47)	(0.60)	(0.69)	(0.50)	(0.60)	(0.76)
Urban pop (% of total)	-0.485**	0.539*	1.365***	-0.0833	0.539*	1.177***
	(0.23)	(0.31)	(0.39)	(0.30)	(0.31)	(0.44)
Total observations	336	191	123	292	191	103
Min obs/country	10	15	20	10	15	20
Countries having only negative wage gaps	Yes	Yes	Yes	No	No	No
Number of countries	21	9	5	17	9	4
R-square	0.20	0.43	0.56	0.22	0.43	0.57

Notes: All specifications include individual country fixed effects. Robust standard errors are shown in parentheses. Intercept and fixed effects not reported.
Significance level given as follows: *** p<0.01, ** p<0.05, * p<0.10

In columns (4) to (6) of table 5, we remove countries that only had negative wage gaps from the sample. Most estimates are similar in magnitude and sign to the ones reported in columns (1) to (3). The only notable change is that the $TotalLaborPTAs_{it}$ coefficient is now statistically significant even when the threshold is reduced to a minimum of at least 10 observations per country. Overall, we see strong support for the view that PTAs with comprehensive labor provisions can help lower the gender wage gap for developing countries, even when accounting for other confounding factors in the empirical analysis.

5 Conclusions and Future Research

There remains strong interest among policy makers on the role trade and trade policy can play in improving working conditions in the developing world. With newer datasets such as LABPTA, which provide a detailed coding of labor provisions in PTAs, researchers are now able to utilize sound statistical methods to empirically test if PTAs with labor provisions are capable of generating positive labor outcomes for workers in developing countries. Empirical evidence of a positive effect on labor outcomes from labor provisions in PTAs should, in theory, encourage more countries to utilize trade agreements as a means to advance worker rights in developing countries.

We pursue such an objective by leveraging a recent update to the LABPTA dataset to investigate the effect of labor provisions in PTAs on the gender wage gap in developing countries. The persistent gender wage gap remains an issue of some interest to current policy makers. Our empirical results indicate that PTAs with strong labor provisions do lead to a reduction in the gender wage gap for the countries in our sample. However, it is important to note that the lack of observations on the wage gap for several of the countries in our sample limits the extent to which these results could be generalized for the broader developing world.

An interesting extension to our current analysis would be to explore if the ILO's historical wage data could help recover some of the missing observations that we have encountered in the current ILO dataset. Having a larger panel of developing countries in the analysis would help ensure a more representative sample. Another potential option with the ILO historical data would be to analyze the wage gap at the occupation level rather than at the aggregate level. Finally, the richness of the LABPTA dataset means that the labor provisions in PTAs could be distinguished by their likely impact on female workers and their wages, allowing for certain labor provisions to have a stronger impact on the gender wage gap than others.

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