Investment Facilitation for Development Agreement: Potential Gains

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We investigate the potential effects of the newly negotiated WTO Investment Facilitation for Development (IFD) Agreement depending on the coverage of implemented provisions. The analysis is methodologically based on a multi-region general equilibrium simulation model including bilateral representative firms, foreign direct investment (FDI) and monopolistic competition. The results suggest substantial global welfare gains ranging between 0.63% for the IFD binding provisions and 1.73% for all IFD provisions. Countries in the group of Friends of Investment Facilitation for Development (FIFD) as well as low and middle-income countries gain the most. The benefits for all regions increase together with the coverage of the implemented IFD provisions as well as with the rising number of participating countries. This provides a strong incentive for non-participating developing countries to join the IFD, reform their investment frameworks in line with the IFD agenda, and use the support structure contained in the section on special and differential treatment.

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1. Introduction

After the successful adoption of the Trade Facilitation Agreement (TFA) in 2014, investment facilitation is continuously gaining importance, especially as the next policy priority for a plurilateral agreement under the World Trade Organization (WTO). In fact, more than 110 WTO Members concluded the text negotiations on the Investment Facilitation for Development (IFD) Agreement in July 2023 after only three years of formal negotiations (WTO, 2023a,b). Investment facilitation refers to actions taken by governments to attract foreign direct investment (FDI) and maximize the effectiveness as well as efficiency of its administration through all stages of the investment cycle. The IFD Agreement focuses on allowing investment to flow efficiently for the greatest benefit, particularly to developing and least developed member countries, with the aim of fostering sustainable development. The flow of efficiency is improved through transparency, predictability and streamlined procedures. In addition, the Agreement aims at improving intragovernmental coordination and international cooperation on investment matters. It does not, however, incorporate investment liberalization and protection, or investor-state dispute settlement - these issues remain a subject of bilateral and regional investment agreements (Berger, Gsell, and Olekseyuk, 2019).

To provide policymakers with essential information for the last stage of negotiations, to support outreach activities, especially addressing non-participating WTO Members, and to contribute to the relatively scarce research on investment facilitation, we examine the economic effects of the negotiated IFD Agreement. Generally, quantifying such impacts is predicated on an assessment of current frictions that limit investment on an international basis and the mechanism by which policy impacts these frictions. One consideration of the IFD is the ability to reduce regulatory and non-tariff barriers (NTBs). These barriers are sometimes difficult to quantify because they come in the form of idiosyncratic regulatory regimes. We leverage the updated Investment Facilitation Index (IFI) developed at the German Institute of Development and Sustainability (IDOS), which evaluates the adoption of over 100 investment facilitation measures, clustered into six policy areas, across 142 economies (Berger et al., 2023). The IFI data illustrates clearly that there is significant variation across countries and considerable gaps between the current practices of many WTO Members and the provisions of the IFD Agreement (Berger et al., 2024; Berger, Gitt, and Dadkhah, 2024). In particular, the total IFI score ranges from a low of 0.22 for Central African Republic to 1.76 for the Republic of Korea (with an upper bound of 2.00).[1] Thus, based on this data, we are able to simulate several scenarios of the newly negotiated IFD Agreement representing different depths and country coverage, which helps to determine the degree of commitments needed to create a substantial economic impact.

In this paper we apply an economic model of global interactions incorporating

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[1] See Appendix A.8 for the IFI scores of included countries.

monopolistic competition and FDI both in services and manufacturing to quantify the potential benefits of the IFD Agreement. The model is calibrated to the recent GTAP 11 data characterizing trade and the social accounts (Aguiar et al., 2022). Hereby, we aggregate the world into 20 regions including 96 economies currently participating in the negotiations.[2] While we focus on the group of countries called Friends of Investment Facilitation for Development (FIFD), which are driving the negotiation process at the WTO (Sauvant, 2022), we aggregate all other IFD participants into five regions: EU-27, high-income participants as well as low and middle-income participants from Asia, Africa and Latin America, respectively.[3] Apart from members of the WTO negotiations, we also include the USA and India into our analysis.[4] Given this level of geographic resolution, our country sample covers around 95% of world FDI stocks with the rest of countries included in the rest of the world (ROW) aggregate region.

To the best of our knowledge, Balistreri and Olekseyuk (2024) is the only other empirical study that quantifies the effects of a potential agreement on investment facilitation. That study is based on several proposals submitted at the very beginning of the structured discussions on investment facilitation in 2017 and 2018.[5] Including around 60 economies driving the structured discussions, their results suggest global welfare gains between 0.56% and 1.74% depending on the depth of a potential agreement. Compared to that study, we provide an advanced assessment based on the recent data (GTAP 11b, updated IFI), improved scenarios derived from the IFD Agreement's text and refined country coverage including over 80% of the participating WTO Members. Moreover, we conduct a large number of robustness checks and extend the model with a comparative steady-state mode to illustrate the upper bound of the potential long-run effects from the policy reforms.

Given the tremendous progress of the IFD talks and recent conclusion of the text negotiations in July 2023, there is an urgent need in empirical research highlighting the benefits of the specific provisions included in the final Agreement's text. Mapping the latest text to the updated IFI, we simulate implementation of different types of IFD provisions based on their legal language and find that implementation of binding commitments provides only limited gains. Instead, a full implementation of conditional and best endeavor provisions is crucial for reaching the high benefits. Moreover, the overall gains increase significantly when

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[2] The list of IFD participants is available at https://www.wto.org/english/tratop_e/invfac_public_e/invfac_e.htm.

[3] See Appendix A.8 for the modeled regions and a mapping of the component GTAP 11 countries.

[4] India has repeatedly signaled its opposition to plurilateral talks on investment facilitation based on a set of legal and philosophical objections. See e.g. Jose (2023); Manak and Miller (2024).

[5] Balistreri and Olekseyuk (2021) is the corresponding working paper.

additional economies join the Agreement, which supports the call for a broader WTO Membership in view of the incorporation of the proposed IFD Agreement into the WTO rulebook as a stand-alone agreement. Thus, we provide important and timely information at the point of policy formation, which should support the outreach activities planned in the run-up to the MC13 (WTO, 2023b; Sauvant, 2023).

2. Model and Data

To analyze the impact of the newly negotiated IFD Agreement, we apply an innovative multi-region Computable General Equilibrium (CGE) simulation model with 20 regions (Table A.8) and four sectors, namely agriculture (AGR), manufacturing (MFR), services (SER) and energy (ENR).[6] We choose this high level of sectoral aggregation due to the fact that investment facilitation applies horizontally to all sectors of each economy (WTO, 2023b; Sauvant, 2023). The model is generally based on the standard GTAPINGAMS structure presented by Lanz and Rutherford (2016) and is calibrated to GTAP 11 data characterizing bilateral trade and the social accounts (Aguiar et al., 2022). In addition, the standard GTAPINGAMS model is extended with a consideration of FDI and imperfect competition in a multi-region setting following Balistreri, Tarr, and Yonezawa (2015). Similarly to Balistreri and Olekseyuk (2024), our model considers FDI both in goods and services. For this purpose we calculate bilateral shares of foreign affiliate sales for model-specific sectors and regions using the data from Fukui and Lakatos (2012) and the consistent GTAP 9 data for 2007 (Aguiar, Narayanan, and McDougall, 2016).[7] Thus, we distinguish between products supplied either by domestic firms or by foreign firms both operating in the host country (FDI case) and abroad (cross-border supply).

Following empirical literature, we model the agricultural and energy sectors as perfectly competitive sectors with constant returns to scale. This standard approach of contemporary quantitative trade models applies the Armington assumption (ARM) of differentiated goods by region of origin (Armington, 1969). In such a framework firms produce under the same technology within a region (firms homogeneity), while goods from different regions are imperfect substitutes. Thus, in each region agents consume domestic as well as foreign (imported) va-

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[6] Agriculture includes 14 GTAP sectors (1-14), energy aggregates 6 GTAP sectors (15-17, 32, 46-47), services include 18 GTAP sectors (48-65) and manufacturing covers 27 GTAP sectors not mentioned elsewhere (18-31, 33-45), the corresponding list of GTAP sectors is available at https://www.gtap.agecon.purdue.edu/databases/v11/v11_sectors.aspx.

[7] In addition, we apply new foreign affiliates sales data provided by Bekkers et al. (2024) together with the GTAP 11 data for 2017. The corresponding results are illustrated in appendix (A.10) and show comparable, but somewhat lower effects due to higher domestic sales shares for the majority of countries and regions (i.e., weaker bilateral FDI links) compared to the data based on Fukui and Lakatos (2012).

rieties of the same good, which are aggregated to a composite commodity using the Armington elasticity of substitution. Assuming regionally homogeneous firm-level goods for agricultural and energy products seems to be appropriate as these sectors have rather low shares of intra-industry trade and rather high elasticities of substitution between different varieties.

For manufacturing and services we apply a monopolistic competition structure with FDI.[8] In this framework we assume differentiated goods and services on the firm level, meaning that each small firm sells a unique variety. Following Balistreri, Böhringer, and Rutherford (2018), we incorporate the bilateral representative firms (BRF) structure and extend it with FDI to investigate the effects of investment facilitation. Hereby, the supply on a given bilateral cross-border trade link or supply through bilaterally-designated FDI is provided by a bilateral representative firm. A stable equilibrium is achieved with bilateral entry (selection) by designating a portion of observed capital payments to a bilateral specific-factor earning rents. Thus, we apply a hybrid monopolistic competition model that is computationally tractable like the relatively simple homogeneous-firms Krugman model (Krugman, 1980), but includes bilateral selection of firms and rents associated with each market like the heterogeneous-firms Melitz structure (Melitz, 2003).

In the following we only document the extensions of our model with respect to the monopolistic competition structure of bilateral representative firms and FDI, given the consistency of other model features with the standard GTAPINGAMS formulation (Lanz and Rutherford, 2016).

2.1 A theory of Bilateral Representative Firms (BRF) and FDI

To describe the BRF model consider that supply of a good indexed by $i \in I$ (where I is the set of BRF goods included in the model) in region $r \in R$ (where R is the set of countries and aggregate regions) will include different varieties depending on the mode of supply. Denote the quantity of a given firm-level variety as q_{isrf}, where $s \in R$ is a potential source region and $f \in \{1, 3\}$ indicates the mode of supply. Under mode 1 production takes place in the source region. If the source region is the same as the destination region ($r = s$) when $f = 1$ we have domestic supply. If, however, $r \neq s$ and $f = 1$ then we have typical *cross-border* international trade. Under mode 3 ($f = 3$ and $r \neq s$) we have FDI.[9] That is, a firm from source region s has a commercial presence in destination r where it supplies

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[8] For an extended discussion of monopolistic competition in computational simulation models see Balistreri and Rutherford (2013).

[9] Currently we do not include the case of $f = 3$ and $r = s$. This would only be logical in the case of an aggregated region where there is mode-3 (FDI) provision between the subaggregate countries.

the good or service.[10]

Given the quantities of a representative variety, q_{isrf}, and the weight on the number of varieties (firms), N_{isrf}, of good i supplied in region r with nationality s by mode f we have the Dixit-Stiglitz CES aggregator:

$$A_{ir} = \left[\sum_s \sum_f N_{isrf} q_{isrf}^{(\sigma_i-1)/\sigma_i} \right]^{\sigma_i/(\sigma_i-1)}, \tag{2.1}$$

where σ_i is the elasticity of substitution. We generally represent this aggregation in its dual (price) form which embeds consumer optimization. In the dual we have the minimized unit cost of good i in region r, which indicates the ideal price index

$$P_{ir} = \left[\sum_s \sum_f N_{isrf} p_{isrf}^{1-\sigma_i} \right]^{1/(1-\sigma_i)}. \tag{2.2}$$

As a convention, we define representative-firm prices, p_{isrf}, on a gross basis. That is, these prices are gross of trade, regulatory, and tariff costs.[11]

Typical of a model of monopolistic competition we assume that the firm's fixed and variable costs are incurred in terms of a composite input. What is different here is that the cost includes a bilateral specific-factor payment. Denote the price of a given representative firm's composite input c_{isrf}. This price is given by a CES cost function where the minimized production cost local to the production activity (in region s if $f = 1$; or in region r if $f = 3$) is combined with the specific-factor rental payment. This formulation allows us to control the elasticity of supply of the composite input, as shown by Balistreri, Jensen, and Tarr (2015) in their Appendix G. The unit-cost is

$$c_{isrf} = \left[\theta_{isrf} r_{isrf}^{1-\tilde{\eta}_{isrf}} + (1 - \theta_{isrf}) z_{isrf}^{1-\tilde{\eta}_{isrf}} \right]^{1/(1-\tilde{\eta}_{isrf})}, \tag{2.3}$$

where r_{isrf} is the bilateral specific-factor rental price. We denote z_{isrf} as the standard GTAPinGAMS unit-cost function local to region s for mode 1 and local to region r for mode 3 (FDI), but we maintain the full set of bilateral and mode

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[10] The model is simplified to only consider modes 1 and 3. Modes 2 and 4, which includes consumption abroad and services provided by natural persons in a foreign country, would generally be subsumed into mode 1 as represented in standard measures of imports and exports. We do not consider complex multinational supply where a foreign affiliate (FDI firm) might engage in supplying back to the source country or any other third country.

[11] We do not manipulate tariffs in this analysis, so we suppress there representation for exposition of the core structure. Benchmark tariffs, as indicated in the GTAP data, are included in the computational model.

indexes because for FDI firms there is a specialized imported (headquarters) input from the source region (as elaborated in the calibration section below).[12] The parameter θ_{isrf} is the benchmark value share of the specific factor under our convention of choosing benchmark physical units such that r_{isrf} and z_{isrf} are one at the benchmark. The substitution elasticity ($\tilde{\eta}_{isrf}$) controls the general-equilibrium supply response given an inelastic specific factor. To facilitate the exposition consider denoting x_{isrf} as the production level associate with the composite input. That is, x_{isrf} is the total composite input-supply produced under the technology embodied in equation (2.3), and this composite input is used by all of the firms (of type $isrf$) for their fixed and variable costs.

Firms of each type produce a unique, yet symmetric, variety priced at p_{isrf}. Applying the envelope theorem to (2.2) we can derive firm level demand:[13]

$$q_{isrf} = A_{ir} \left(\frac{P_{ir}}{p_{isrf}} \right)^{\sigma_i}. \tag{2.4}$$

Faced with this demand a firm will maximize profits by setting marginal revenue equal to marginal cost. This results in the standard markup formula:[14]

$$p_{isrf} = \frac{\tau_{isrf} c_{isrf}}{1 - 1/\sigma_i}. \tag{2.5}$$

We have introduced the policy instrument τ_{isrf} here as an adverse productivity cost associated with firm type $isrf$. This is a typical formulation often referred to as *iceberg* trade costs associated with cross-border (mode 1) provision. We adopt a parallel formulation of policy reform for mode 3. An IFA will reduce $\tau_{isr,'3'}$ increasing the competitiveness of FDI firms.

There is free entry, so profits are driven to zero. Under zero profits fixed cost payments will equal operating profits:

$$c_{isrf} F_{isrf} = \frac{p_{isrf} q_{isrf}}{\sigma}. \tag{2.6}$$

We can finalize the BRF structure by equating the real resource cost across all N_{isrf}

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[12] The standard GTAPinGAMS unit-cost as a function of primary factors and intermediates is covered in Lanz and Rutherford (2016). Domestic and FDI firms located in the same market (r) have different unit costs because of the imported specialized input representing headquarter services.

[13] When taking the derivative of (2.2) with respect to p_{isrf} it is important to note that N_{srf} is neither an argument or a parameter in the function. N_{srf} represents the number of identical price arguments in the function, so it drops out when taking the derivative of just one of those prices.

[14] We assume that there are a large number of firms such that from the perspective of any one firm $\partial P_{ir}/\partial p_{isrf}$ is approximately zero.

firms to the supply of the composite input

$$x_{isrf} = N_{isrf} \left(F_{isrf} + \tau_{isrf} q_{isrf} \right). \tag{2.7}$$

2.2 Operationalizing the BRF and ARM structures

Including the BRF structure in the model used in this study takes advantage of a key simplification, apparent in the theory going back to Krugman (1980). The fact that the inputs used in fixed costs have the same price as inputs used in variable costs indicates that the real resources used by each firm is a constant (fixed firm-level output). While firms have an increasing-returns-to-scale technology they never realize any rationalization gains in terms of reductions in average cost.[15] It is a model of external economies. To show this notice that we can use the markup equation given by (2.5) and the zero profit condition given by (2.6) to show that the firm-level quantity (gross of policy or transport costs) is a constant:

$$\tau_{isrf} q_{isrf} = F_{isrf}(\sigma_i - 1);$$

so the only margin of adjustment in the model is in entry and exit of varieties. N_{isrf} is the only variable that moves on the right-hand side of equation (2.7). The insight here is that the only thing required for incorporating the implied variety impacts is a measure of the proportional changes in N_{isrf} so they can be incorporated into the price index (2.2), but by equation (2.7) we know that proportional changes in N_{isrf} must equal proportional changes in x_{isrf}. Furthermore, proportional changes in x_{isrf} are already given in a standard GTAPinGAMS formulation.

Adapting the GTAPinGAMS model (Lanz and Rutherford, 2016) to the BRF structure is thus relatively simple. Consider a typical GTAPinGAMS Armington price index as it would be modified to include all of the firm types included in our analysis:

$$P_{ir}^{\text{ARM}} = \left[\sum_s \sum_f \lambda_{isrf} (\tau_{isrf} c_{isrf})^{1-\sigma_i} \right]^{1/(1-\sigma_i)}, \tag{2.8}$$

where the λ_{isrf} are typical calibration (CES weight) parameters that adjust to accommodate the benchmark accounts. Now let $\hat{x}_{isrf}$ indicate the proportional changes in x_{isrf}. The only change in the formulation is to include this variety adjustment in the price index:

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[15] The size of each *small* firm stays the same so there is no decrease in the average cost of production.

$$P_{ir}^{\text{BRF}} = \left[\sum_s \sum_f \lambda_{isrf} \hat{x}_{isrf} (\tau_{isrf} c_{isrf})^{1-\sigma_i} \right]^{1/(1-\sigma_i)}. \tag{2.9}$$

We do not need to incorporate the marked up price from equation (2.5) as it enters equation (2.2), because the markup is constant and it would simply show up as a compensating adjustment in the calibration of the λ_{isrf}, which are constant. Thus, the price index can instead be defined directly with the unit costs (c_{isrf}) as arguments, as we do in equation (2.9). Of course, $\hat{x}_{isrf}$ must be tracked as a variable in the non-linear system as it has an external-economies effects on the price index. Increases in $\hat{x}_{isrf}$ indicate the standard extensive-margin gains associated with new varieties. Notice also that this formulation facilitates a clean structural sensitivity analysis by holding $\hat{x}_{isrf}$ at the benchmark value of one in equation (2.9), so the price index reverts back to equation (2.8).

2.3 Data Extensions and FDI-BRF Calibration

Calibrating the simulation model as outlined follows closely Lanz and Rutherford (2016), but given our extensions to include FDI some additional information is needed and a description of how it is used is warranted. For a description of the basic GTAP 11 social accounts again we refer the reader to Aguiar et al. (2022).

The GTAP base accounts do not consider FDI, and therefore need to be augmented for our purposes. As mentioned we compute bilateral shares of foreign affiliate sales for model-specific sectors and regions using the data from Fukui and Lakatos (2012). To capture features explored in the theory of multinationals we allocate a portion of bilateral cross-border (mode 1) trade directly into the cost functions of the FDI firms. The theory as outlined by Markusen, Rutherford, and Tarr (2005) includes the reliance of foreign affiliates on *headquarter* services provided by the source country. As a central assumption we assume that 40% of cross-border trade of a corresponding FDI good is supplied to the corresponding bilateral FDI firms.

The addition of the bilateral specific-factor rents and FDI also require adjustments in the in flows of income, as well as an assumption about how any changes in the rents are allocated internationally. This is a fundamental question of how FDI income is shared between value added payments in the host country and the value of the multinational firm from the perspective of the source country. Before turning to the issue of rental allocation across countries, we have to establish the rental payment. To establish the calibrated value share of the specific factor (θ_{isrf}) we simply assume that a portion of observed capital payments in the host country

are specific-factor payments owned by an international mutual fund.[16] The mutual fund, in turn, is owned by each region such that income is consistent with the social accounts. In this way concentrated FDI profits on a given bilateral link are dissipated through an integrated financial market. Each region earns a common rate of return on its FDI ownership, where the rate of return is the diversified (average) return across all bilateral rents.

The final assumption needed for the calibration is the local supply elasticity. With the value share of the specific factor established, θ_{isrf} from equation (2.3), Balistreri, Jensen, and Tarr (2015) show that we can calibrate $\tilde{\eta}_{isrf}$ to match the assumed supply-elasticity η using the formula

$$\tilde{\eta}_{isrf} = \eta_{isrf} \frac{\theta_{isrf}}{1 - \theta_{isrf}}.$$

For our central analysis we assume that $\eta_{isrf} = 1$, and note that the results are sensitive to this assumption.[17] In the results section we illustrate the sensitivity by showing the impact of $\eta_{isrf} = 2$. Informing the value of η is a priority for future research.

3. Scenarios

According to the detailed work on quantification of the current practice in investment facilitation as well as identification of reforms gaps with respect to the IFD Agreement by Berger et al. (2023, 2024); Berger, Gitt, and Dadkhah (2024), we use the country-level improvements in the Investment Facilitation Index (IFI) induced by different types of IFD provisions (binding, conditional and best endeavour) as an assumption for the relative reductions in ad valorem equivalents (AVEs) of non-tariff barriers (NTBs). Using this data *at an assumed scale* we simulate five scenarios representing different depth of Agreement's implementation and extended country coverage. The mapping of the current IFD text to the IFI measures and classification of provisions are illustrated in Table A.9, whereas Table 1 provides detailed assumptions about reductions of the AVEs for the model-specific countries and regions.

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[16] The portion of capital payments reallocated is the minimum of 5% of gross output (across all firms producing the FDI good in the host country) or capital's gross of tax share in gross output. This conditional ensures that the allocation is neither zero nor exceeds observed capital payments. The portion of capital payments allocated to specific-factor payments indicates the CES weights in equation (2.3).

[17] In contrast, the model is not particularly sensitive to the *ad hoc* generation of θ_{isrf} as outlined in footnote 16. This is because for a given η different value shares will imply different $\tilde{\eta}$ which generate the same local supply response. That is, higher value shares of the fixed specific factor will require a compensating higher elasticity of substitution so the supply response is the same.

Table 1. Policy shock assumptions under different IFD scenarios

Countries and regions		Assumed reduction of AVE, %				
		IFD binding (*IFD_B*)	IFD conditional (*IFD_C*)	IFD binding and conditional (*IFD_B_C*)	IFD all (*IFD_all*)	Extended IFD all (*IFD_all_X*)
ARG	Argentina	18.10	27.33	45.43	64.46	64.46
BRA	Brazil	5.90	8.07	13.98	18.46	18.46
CHL	Chile	15.27	12.03	27.30	39.58	39.58
CHN	China, incl. Hong Kong	16.31	16.46	32.77	42.96	42.96
COL	Colombia	13.78	19.12	32.90	46.23	46.23
KAZ	Kazakhstan	13.67	10.47	24.15	30.01	30.01
KOR	Korea, Republic of	3.71	3.68	7.39	10.78	10.78
MEX	Mexico	5.42	8.08	13.50	19.33	19.33
NGA	Nigeria	31.41	27.49	58.89	70.47	70.47
PAK	Pakistan	18.49	20.15	38.64	52.01	52.01
QAT	Qatar	23.86	25.94	49.80	65.31	65.31
URY	Uruguay	25.85	33.71	59.56	77.34	77.34
E27	EU27	6.96	7.34	14.30	19.74	19.74
HIC	High-income participants	7.33	7.10	14.43	19.05	19.05
LAS	Low & middle-income Asia	18.83	22.07	40.90	55.53	55.53
LAM	Middle-income Latin America	28.93	34.10	63.03	88.33	88.33
LAF	Low & middle-income Africa	50.70	51.88	102.58	134.43	134.43
USA	USA					12.49
IND	India					44.65

Source: Berger et al. (2023) and authors' calculations. The values for aggregate regions (CHN, E27, HIC, LAS, LAM and LAF) are calculated as a GDP weighted average according to the mapping provided in Table A.8 and using GTAP 11 data for weights.

Given the newly negotiated IFD text, we define the following scenarios depending on different types of provisions and country coverage:

1) **IFD binding** (*IFD_B*): This scenario assumes an implementation of binding (i.e. "shall") IFD provisions that correspond to 27 measures in the IFI. The majority of binding provisions is allocated to the policy area of regulatory transparency and predictability. Among these binding measures are establishment of enquiry point, publication of different investment related information, protection of personal information, notification to the WTO of laws, regulations, websites, contact points and other information. The rest of binding provisions is allocated to the policy areas of electronic governance (acceptance of copies), focal point and review (e.g. basic focal point functions and judicial appeal/review related measures), application process (e.g. information about the status or decision of an application, evaluation of fees and charges), as well as responsible business conduct

and anti-corruption (adoption of the United Nations Convention against Corruption and the Combating Bribery of Foreign Public Officials in International Business Transactions). The only policy area that does not include any binding provisions is cooperation. In general, binding provisions are quite clear about the way of implementation. For example, with regard to the publication of information the Agreement states that each Member shall make available *via electronic means* all information relevant to investors. Thus, the assumed reduction of FDI barriers induced solely by binding provisions ranges between 3.71% for the Republic of Korea (the country with the highest score of 1.76 in the IFI data set) and 50.70% for the low and middle-income countries from Africa (LAF, see Table 1). The LAF region highlights the highest decline of FDI barriers across all scenarios due to the low level of current practice in the region with the high number of low-income and least-developed countries (Table A.8).[18]

2) **IFD conditional** (*IFD_C*): This scenario assumes a full implementation of conditional IFD provisions. These provisions are also binding given their wording with "shall, to the extent practicable", "shall encourage", "shall endeavor" or "shall endeavour, to the extent practicable". However, their implementation depends on capacities and opportunities available within countries, so that participants may choose different ways to comply with. In total, this scenario covers 20 IFI measures which stretch through all policy areas except for focal point and review. The examples include availability of information on the purpose and rationale of laws and regulations, publication of legal drafts prior to entry into force, electronic payment system, simultaneous submission of all documents necessary for an investment application, measures related to an incomplete application, staff training, sharing of best practices and information on investment opportunities, adoption of the UN Guiding Principles on Business and Human Rights as well as ILO Ratification of fundamental Conventions concerning Freedom of Association, Forced Labour, Discrimination and Child Labour. Taking these conditional provisions into account, our assumed reductions of FDI barriers range between 3.68% again for the Republic of Korea and 51.88% for the low and middle-income countries from Africa (LAF). Moreover, one can see that for majority of countries and regions the decline of barriers is higher compared to the binding provisions only. This illustrates the fact that binding provisions are generally

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[18] In fact, according to the special and differential treatment, developing and particularly least-developed countries can self-designate the implementation process on an individual basis, being temporarily exempted from implementing provisions where external assistance and capacity building support are needed.

better adopted among considered countries.[19]

3) **IFD binding and conditional** (*IFD_B_C*): In this scenario we assume an implementation of both legally binding types of provisions, namely pure "shall" provisions and the conditional ones. This increases the number of covered IFI measures to 47. Due to the broader coverage of IFD provisions, the assumed reduction of FDI barriers increases and ranges between 7.39% for the Republic of Korea and 102.58% for LAF, the low and middle-income countries from Africa region.[20]

4) **IFD all** (*IFD_all*): This scenario assumes a full implementation of all IFD provisions mapped to the IFI. In addition to the binding and conditional provisions, best endeavour or non-binding commitments are assumed to be fully operational in the participating countries. Such best endeavour provisions are characterized by the wording "should", "should, to the extent practicable", "may", "encouraged" or "encouraged, to the extent practicable". Examples of such provisions stretch through all policy areas (except for responsible business conduct and anti-corruption) and include, e.g., provision of information through a single information portal; periodic review of investment regulations, fees and charges; assignment of additional functions to the focal point; or establishment of a domestic supplier database. In total, this scenario covers 62 IFI measures and represents the broadest coverage of IFD provisions among all scenarios. This is also reflected by the highest reductions in FDI barriers ranging between 10.78% for the Republic of Korea and 134.43% for the low and middle-income countries from Africa (LAF).[21]

5) **Extended IFD all** (IFD_all_X): In this scenario we follow the assumptions of the *IFD_all* scenario including binding, conditional and best endeavour provisions, but we extend the country coverage by including India and the USA among participating countries. According to Manak and Miller (2024), India signals its strong opposition against plurilateral talks on investment facilitation, so we aim at illustrating its potential gains from participation. The USA is a major investor worldwide (accounts for over 23% of outward FDI stock worldwide according to UNCTAD (2023)), so

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[19] Only for Chile, Kazakhstan, Republic of Korea, Nigeria and high-income participants (HIC) the values are higher for IFD binding scenario compared to IFD conditional one.

[20] A barrier reduction of more than 100% is valid in that we define the reduction in terms of the increase in effective FDI. For example, in this case a dollar of FDI directed at LAF is 102.58% more effective, if the full amount of the reform were actionable. As explained below, however, in terms of translating the measured reductions into an ad valorem shock we assume only a fraction of the implied reforms as actionable. That is, for an actionable fraction of 5% and a barrier reduction of 102.58% indicates a productivity increase of LAF FDI of 5.13%, which is the ad valorem shock implemented in the computation model. See the sensitivity section for variations on the assumed actionable fraction.

[21] See footnote 20

we apply our assumptions also to this country. However, the reduction of FDI barriers is quite small for the USA with 12.49% (Table 1), given its high level of current practice with the IFI score of 1.66. In contrast, for India we observe a decline of FDI barriers by 44.65%, which illustrates a great opportunity to improve its investment facilitation framework.

Given the described scenarios, we assume a *scalar adjustment* to the IFI based values of 0.05 to arrive at an actionable ad valorem model shock related to the different provisions of the IFD Agreement. The reason is that not all measures covered by the IFI induce costs to FDI firms, so we assume that at least 5% of suggested reductions in investment barriers illustrated in Table 1 lead to actual cost reductions for FDI firms (see also further discussion in Section 5). Moreover, we assume that domestic firms in separately included countries also experience a reduction of costs due to improved procedures and regulations, but the applied shocks equal only to one quarter of the ones for FDI firms. For aggregate regions with intra-regional trade and FDI (CHN, E27, HIC, LAS, LAM, LAF), the shocks are calculated as weighted average using the share of foreign affiliates sales within the aggregate region (intra-regional FDI) to define the proportion of a full shock for FDI firms, while for domestic firms again only one quarter is applied.

4. Results

In general, implementation of the IFD Agreement improves investment regimes of participating countries and reduces existing investment barriers with a consequence, that more FDI firms enter the markets. Total output increases and additional gains come through the love-of-variety channel (extensive margin). This implies that consumers and producers additionally benefit from a number of new varieties unavailable before the implementation of the IFD Agreement. According to Figure 1, our model suggests significant gains from investment facilitation reforms in terms of welfare[22] and Gross Domestic Product (GDP). For the world as an aggregate, welfare increases range between 0.63% for the IFD binding provisions and 1.73% for all IFD provisions.[23] In case of India and the USA joining the Agreement, the potential welfare gains would be even higher with 2.22%. Consistently, the world GDP would also rise by 0.36% in case of IFD binding provisions and by 0.99% in the IFD all scenario (or even 1.26% for the extended IFD all sce-

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[22] The welfare is measured as equivalent variation and illustrates changes in households' utility driven by the adjustment of their consumption level after an external shock, such as a reduction in FDI barriers. According to Burfisher (2011, p. 97), it compares the cost of "pre- and post-shock levels of consumer utility, both valued at base year prices."

[23] Global welfare is measured as the sum of equivalent variation across regions relative to global benchmark private consumption. This is consistent with a *Bentham* global welfare function, in which each dollar of welfare change is weighted equally across regions. Thus, no consideration of inequality aversion is considered.

nario).

Figure 1. Aggregated regional welfare and GDP impact (%)

Note: Table A.8 provides country coverage for illustrated regions with low and middle-income participants including 41 countries from *LAS, LAM* and *LAF*. *FIFD* incorporates Argentina, Brazil, Chile, China (incl. Hong Kong), Colombia, Kazakhstan, South Korea, Mexico, Nigeria, Pakistan, Qatar, Uruguay.
Source: Authors.

The results clearly illustrate that the benefits increase together with the coverage of implemented IFD provisions. In particular, binding commitments (*IFD_B*) allow for limited gains as they are generally better adopted among participating countries and the corresponding IFD-induced decline of investment barriers is the lowest among all scenarios for the majority of countries (Table 1). Sole implementation of conditional IFD provisions (*IFD_C*) suggests also limited impact (0.66% welfare increase worldwide compared to 0.63% for *IFD_B*) due to still rather low reduction of FDI barriers. However, implementation of both types of provisions would double the worldwide benefits (1.29% for *IFD_B_C*), while adding best endeavour commitments (*IFD_all*) would further increase the impact to the global welfare gain of 1.73%.

Obviously, the benefits are concentrated in the regions participating in the Agreement with the highest proportional increase in welfare realized by the FIFD countries: 1.17% for the IFD binding provisions and 3.15% for the *IFD_all* scenario. Low and middle-income participants experience the second highest impact with

the welfare increase ranging between 0.93% and 2.53% for the IFD binding and all provisions scenarios, respectively. The EU and other high-income participants show lower welfare gains (with a maximum of 2.16% and 1.58% for the *IFD_all* scenario, respectively) due to already high level of adoption of investment facilitation measures and rather low IFD-induced reduction of investment barriers (Table 1). Concerning non-participants, we observe notable spillovers from applied investment facilitation reforms. In particular, their welfare gains equal to 0.26% in case of the *IFD_B* simulation and increase to 0.72% for the *IFD_all* scenario. However, joining the Agreement (*IFD_all_X*) would generate higher gains not only for outsiders, but for all considered regions (by 0.48 percentage points on average).

Table 2. Welfare impact for countries and regions of the model
(% equivalent variation)

	Countries and regions	IFD_B	IFD_C	IFD_B_C	IFD_all	IFD_all_X
ARG	Argentina	0.58	0.78	1.33	1.79	2.25
BRA	Brazil	0.40	0.46	0.87	1.17	1.46
CHL	Chile	0.82	0.74	1.51	2.06	2.59
CHN	China, incl. Hong Kong	1.74	1.78	3.49	4.60	5.39
COL	Colombia	0.60	0.76	1.34	1.84	2.25
KAZ	Kazakhstan	0.49	0.46	0.95	1.25	2.00
KOR	Korea, Republic of	0.66	0.69	1.36	1.87	2.39
MEX	Mexico	0.36	0.41	0.77	1.05	1.41
NGA	Nigeria	0.76	0.69	1.38	1.65	2.00
PAK	Pakistan	0.52	0.55	1.06	1.42	1.57
QAT	Qatar	1.51	1.62	3.05	3.98	4.50
URY	Uruguay	0.83	1.01	1.74	2.20	2.60
E27	EU27	0.77	0.81	1.58	2.16	2.58
HIC	High-income participants	0.58	0.59	1.18	1.58	1.98
LAS	Low & middle-income Asia	0.90	1.00	1.88	2.52	2.96
LAM	Middle-income Latin America	0.86	0.98	1.76	2.35	3.03
LAF	Low & middle-income Africa	1.47	1.51	2.59	3.07	3.68
USA	USA	0.24	0.25	0.49	0.67	1.16
IND	India	0.28	0.29	0.58	0.79	1.98
ROW	Rest of the world	0.32	0.34	0.67	0.91	1.13

Source: Authors.

Table 2 provides the decomposition of aggregate regional impacts for the individually modeled countries and regions. We can see that China and Qatar are the two countries gaining the most across all scenarios with the highest welfare impact of 5.39% and 4.50% under *IFD_all_X*, respectively. While both of these countries do have sizeable reductions in barriers, especially for Qatar, and have important initial FDI links, we find that the relatively large gains can be attributed to spillovers that compound the direct benefits. In a sensitivity run we eliminate the shocks for China and Qatar and find that the pure spillover gains to these countries are even larger than to non-participants such as India and the USA. We comment on these results in the sensitivity section below (see Table 6 and surrounding text). For the

rest of individually included participant countries the gains lie between 0.36% in Mexico (*IFD_B*) and 2.60% in Uruguay (*IFD_all_X*).

Among the low and middle-income participants, the African countries experience the highest welfare gains with a maximum of 3.68% for the *IFD_all_X* scenario. According to Berger et al. (2024); Berger, Gitt, and Dadkhah (2024), Sub-Saharan Africa has the lowest level of current practice in investment facilitation with a median IFI score of 0.67 and, therefore, the highest reform gaps with respect to the IFD Agreement. Our aggregate *LAF* region comprises the poorest and mainly least developed countries (Table A.8)), which undergo the highest IFD-induced reduction in investment barriers across considered countries and regions (Table 1). However, these high potential gains are strongly dependent on the actual implementation of the IFD commitments, which is only realistic with a strong external technical and capacity building support from the world community.

Interesting is the fact that non-participating countries such as India and the USA have quite a lot to gain from investment facilitation reforms. Solely spillover gains reach 0.79% and 0.67% under the *IFD_all* scenario, respectively (Table 2). This is comparable to some participating countries like Mexico or Brazil in case of *IFD_B_C* scenario. However, if they join the IFD Agreement (*IFD_all_X*), their benefits would significantly increase. For India the welfare gain of 1.98% illustrates an increase by 2.5 times compared to the pure spillover effect. For the USA, one of the top three performing countries in the IFI (Berger et al., 2024), the impact is lower with a rise of welfare by 1.16%.

Figure 2. Aggregated regional welfare impact ($B)
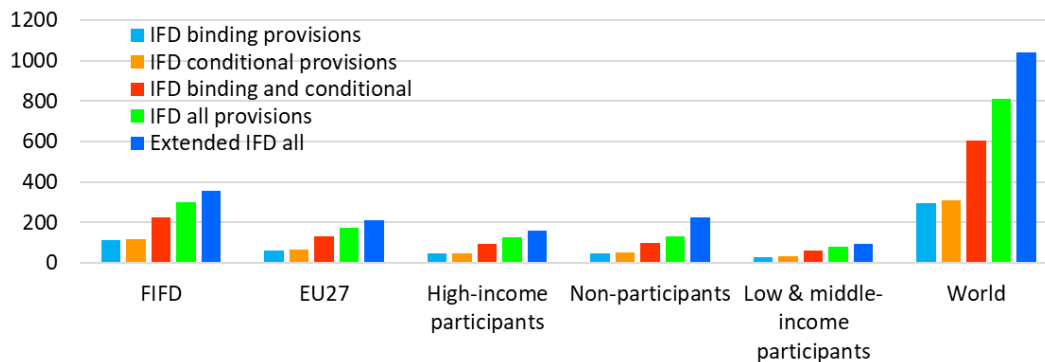
Note: Table A.8 provides country coverage for illustrated regions with low and middle-income participants including 41 countries from *LAS, LAM* and *LAF*. *FIFD* incorporates Argentina, Brazil, Chile, China (incl. Hong Kong), Colombia, Kazakhstan, South Korea, Mexico, Nigeria, Pakistan, Qatar, Uruguay.
Source: Authors.

The reports of the percentage welfare changes are somewhat lower for developed regions like the EU. This masks the value of the IFD in terms of dollars of benefits that accrue to these high-income regions. Figure 2 illustrates the wel-

fare increases in billions of dollars. We see that global welfare increases by more than \$295 billion under the IFD binding provisions (*IFD_B*) and reaches more than \$1041 billion in case of the extended scenario with all IFD provisions (*IFD_all_X*). Although FIFD countries still exhibit the highest gains with an average share of 37% from worldwide total across all scenarios, sizeable benefits accrue to the EU and other participating high-income countries. In particular, the EU accrue on average 21% of the total global benefits, for the other 15 high-income countries this share is lower with 16% on average across all simulations.

Our model does report changes in GDP or regional incomes. These are not our primary measures of policy impact because compared to the reported welfare measures, GDP changes are dependent on the particular price convention used to bring them into real units (the numeraire in economic terms). Since GDP is more familiar to policy makers, we also report GDP changes in Table 3 using each region's unit-expenditure-function index as the nominal unit. Thus, we use a different nominal unit of measure for each regional report. This is a pricing convention that generally gives results consistent with welfare. Proportional changes in GDP, however, tend to be somewhat smaller than welfare impacts. While welfare is based only on private consumption, GDP also includes government spending and investment, which explains the smaller proportional changes. Table 3 and Figure 1 reflect this. We emphasize that the previously reported welfare impacts are not numeraire dependent and are consistent with a rigorous theory of policy evaluation. GDP changes do not report a theory consistent welfare impact.

5. Limitations and Sensitivity

Exploring new research questions like the effects of the IFD Agreement requires a substantial collection of data inputs, which goes beyond the scope of this study. Thus, we make ad hoc assumptions and conduct robustness checks to illustrate the model's sensitivity to our structural and parametric assumptions.

As described above, we use a scalar adjustment of 0.05 to arrive at actionable ad valorem model shocks based on the IFI. This scalar adjustment preserves the relative variation in the IFI across countries, but its level is uncertain. Applying 5% of the IFI as actionable under the binding and conditional scenario (*IFD_B_C*) suggests the FDI weighted average ad valorem shock across participating countries of 0.5% (or 0.7% under the *IFD_all* scenario). This seems to be rather conservative compared to other studies applying FDI barriers[24] and gives us confidence that we

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[24] As summarized by Balistreri and Olekseyuk (2021, p. 17-18), other studies find larger Ad Valorem Equivalents (AVEs) and often apply 25-50% of those as an actionable model shock. For example, Jafari and Tarr (2015) find that average AVEs for least-developed countries range between 3% for retail trade and 764% for fixed line telephone services. A number of studies for single countries (e.g. Balistreri, Jensen, and Tarr, 2015; Balistreri, Olekseyuk, and Tarr, 2017; Jensen and Tarr, 2012; Jensen, Rutherford, and Tarr, 2010; Jensen and Tarr, 2008) also suggest a broad range for FDI barriers reaching 100%.

Table 3. GDP impact for countries and regions of the model (%)

	Countries and regions	IFD_B	IFD_C	IFD_B_C	IFD_all	IFD_all_X
ARG	Argentina	0.37	0.49	0.83	1.12	1.43
BRA	Brazil	0.25	0.30	0.56	0.75	0.94
CHL	Chile	0.49	0.44	0.91	1.24	1.56
CHN	China, incl. Hong Kong	0.66	0.68	1.32	1.74	2.06
COL	Colombia	0.39	0.48	0.86	1.17	1.44
KAZ	Kazakhstan	0.28	0.27	0.56	0.73	1.16
KOR	Korea, Republic of	0.30	0.31	0.62	0.85	1.07
MEX	Mexico	0.23	0.26	0.49	0.67	0.91
NGA	Nigeria	0.58	0.53	1.05	1.26	1.49
PAK	Pakistan	0.37	0.39	0.76	1.01	1.17
QAT	Qatar	0.47	0.51	0.96	1.25	1.34
URY	Uruguay	0.51	0.61	1.05	1.33	1.59
E27	EU27	0.42	0.44	0.87	1.18	1.41
HIC	High-income participants	0.33	0.33	0.67	0.90	1.12
LAS	Low & middle-income Asia	0.50	0.56	1.05	1.40	1.65
LAM	Middle-income Latin America	0.54	0.61	1.09	1.45	1.88
LAF	Low & middle-income Africa	0.71	0.72	1.17	1.33	1.52
USA	USA	0.18	0.19	0.37	0.50	0.83
IND	India	0.19	0.20	0.40	0.54	1.17
ROW	Rest of the world	0.21	0.22	0.43	0.59	0.73

Source: Authors.

are not exaggerating the economic impacts of the IFD Agreement. For example, Bekkers and So (2021) find a large and significant effect of investment facilitation on foreign affiliate sales and calculate AVE cost reductions associated with a potential investment facilitation agreement with the highest effects in low-income countries according to average reductions of 20% to 30% across sectors. Therefore, to illustrate the effects under a less conservative assumption, we include a set of sensitivity runs applying a scalar adjustment of 10%, effectively doubling the ad valorem shocks. The results in Table 4 highlight that a double scalar adjustment leads to welfare gains approximately twice as high as in our central simulations. In particular, the global welfare increases by 1.26% under the *IFD_B* and by 4.43% under the *IFD_all_X* scenarios, compared to 0.63% and 2.22% in the central simulations, respectively.

We also consider model's sensitivity with regard to our structural assumptions: the central BRF monopolistic structure versus full Armington approach (ARM)

Table 4. Sensitivity to different scalar adjustments (% equivalent variation)

	IFD_B		IFD_C		IFD_B_C		IFD_all		IFD_all_X	
	5%	10%	5%	10%	5%	10%	5%	10%	5%	10%
FIFD	1.17	2.33	1.22	2.43	2.38	4.68	3.15	6.13	3.75	7.35
EU27	0.77	1.54	0.81	1.62	1.58	3.21	2.16	4.39	2.58	5.27
High-income	0.58	1.17	0.59	1.19	1.18	2.39	1.58	3.24	1.98	4.06
Low & middle-income	0.93	1.81	1.03	2.01	1.91	3.59	2.53	4.63	3.02	5.40
Non-participants	0.26	0.52	0.27	0.55	0.53	1.11	0.72	1.53	1.23	2.55
World	0.63	1.26	0.66	1.32	1.29	2.57	1.73	3.45	2.22	4.43

Source: Authors.

with MFR and SER being perfectly competitive sectors.[25] Table 5 illustrates welfare results for the both structures in case of the IFD binding and conditional provisions (*IFD_B_C*). The BRF structure does indicate substantially larger gains from the IFD Agreement across all regions (around 39% higher on average). According to our experience, most of the added gains can be attributed to new variety gains (i.e. extensive-margin gains), which are not available under the Armington structure.[26] We can illustrate such impacts by reporting the weighted average (across participating WTO Members) change in entry of FDI varieties. In particular, for the *IFD_B_C* scenario the weighted average increase in FDI manufacturing varieties is 0.7%, while the weighted average increase in FDI service varieties is over 0.9%. This occurs under the BRF structure compared to no variety gains under the Armington treatment. These new varieties translate direct into productivity and welfare gains by better fulfilling the needs of firms buying intermediates and consumption by households.[27]

Another robustness check considers different assumptions for the local supply elasticity of monopolistically competitive inputs ($\eta = 1$ versus $\eta = 2$). This supply elasticity indicates the degree to which firms can substitute away from the bilateral

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[25] To provide a fair comparison of our central BRF structure with a pure Armington model, we apply an identical benchmark calibration with FDI in MFR and SER. Thus, we consider that the composite commodity might include additional varieties provided by multinational firms from different source countries with a physical presence in the host country (foreign affiliate sales). Therefore, we expand the standard Armington aggregation to include these FDI varieties, but in the spirit of Armington. This means that under perfect competition these firms produce with a constant returns technology and there is no extensive margin expansion.

[26] Calculating an exact attribution of welfare gains from newly available varieties is challenging, because relative prices of varieties are in flux in general equilibrium. For example, the complex computation of variety gains as suggested by Feenstra (2010) applies in the context of a one sector model without intermediate inputs.

[27] Following Dixit and Stiglitz (1977), the model includes a standard *love-of-variety* aggregation. Thus, producers and consumers of products provided by multinationals rank two of a given product below one each of different products (conditional on fixed prices).

Table 5. Sensitivity across structural and parametric assumptions for the *IFD_B_C* scenario (% equivalent variation)

	$\eta = 1$		$\eta = 2$	
	ARM	BRF	ARM	BRF
FIFD	1.72	2.38	1.89	2.65
EU27	1.10	1.58	1.18	1.72
High-income	0.83	1.18	0.82	1.16
Low & middle-income	1.40	1.91	1.63	2.28
Non-participants	0.40	0.53	0.25	0.33
World	0.93	1.29	0.93	1.31

Source: Authors.

specific factor. The model is sensitive to this elasticity as illustrated in Table 5 in case of the *IFD_B_C* scenario. In particular, doubling the local supply elasticity increases the gains for almost all participants, but mitigates the spillovers to non-participants.[28] Generally, the higher the elasticity, the more responsive is output, but the less revenues are allocated to the specific-factor rents. Thus, with a higher elasticity participants can take advantage of the reduced investment barriers, but it is also easier for non-participants to be squeezed out of the market. Therefore, competitive effects are exacerbated under higher elasticities.

Further limitations refer to our ad hoc assumptions that are not well informed by data. Following Balistreri, Tarr, and Yonezawa (2015), we assume the elasticity of substitution across BRF varieties equal to $\sigma = 3$. This parameter indicates the marginal value of a new variety (the lower its value, the more valuable is a new variety). The assumed value is rather on the lower end of many estimates, so that welfare impacts might be mitigated when the estimate is refined. Furthermore, for services and manufacturing we assume that 40% of observed cross-border provision is a specialized input for the associated multinational firm.[29] This specialized-input approach is suggested by Markusen, Rutherford, and Tarr (2005), however, the measurement of this parameter is difficult given only limited information from proprietary firm-level data.

In our central analysis we find surprisingly large welfare benefits for China and Qatar. These relatively large impacts are not directly attributable to relatively large reductions in barriers or to extreme FDI shares. Our results are, in

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[28] Here we compare the results for the BRF structure in case of different assumptions for the supply elasticity ($\eta = 1$ and $\eta = 2$) in Table 5. Only for the high-income countries the impact is slightly lower due to comparatively low reductions in the investment barriers and lower specific-factor rents in case of higher elasticity.

[29] For example, a US financial firm operating in Brazil has specialized cross-boarder imports of financial services from the USA, which are used to facilitate FDI supply.

fact, attributable to a combination of the sizeable direct effects combined with in-direct (general-equilibrium) effects. The specific GTAP 11b data characteristics, in terms of input-output accounts combined with trade flows, lead to spillovers where reforms in other countries carry over and compound benefits for China and Qatar in particular. These important indirect effects highlight the need for a general equilibrium analysis that consistently includes the data links among re-gions. Conceptually, these spillovers are an extension of the basic proposition of gains from trade. When trade and FDI partners of China and Qatar increase their productivity through reforms these gains are translated to China and Qatar, and other trade partners, through trade and FDI links independent of the actions of China and Qatar.

To explore the importance of these concentrated spillovers for China and Qatar we designed a sensitivity run where we include no barrier reductions for China and Qatar. Table 6 illustrates the large spillovers. In the run where we exclude bar-rier reductions for China and Qatar, we see that the spillovers from third countries on China and Qatar exceed those for both India and the USA. As a conservative estimate, we see that 20% to 25% of the welfare gains for China and Qatar can be attributed to spillovers. This is a conservative estimate because the spillovers likely compound the direct effects. It is also interesting to note from these sen-sitivity runs that the spillovers are substantially reduced for India and the USA when China is excluded. This is attributed to the importance of China in terms of the global scale of the IFD.

Table 6. Indirect spillover benefits for Qatar and China (% equivalent variation)

	IFD_B_C	*IFD_B_C* excluding CHN and QAT
CHN	3.49	0.86
QAT	3.05	0.61
IND	0.58	0.34
USA	0.49	0.30

Source: Authors.

In a final set of numeric exercises we explore the model under a comparative steady-state extension. In the central analysis the model is set in a transparent comparative-static mode. It is beyond the scope of our analysis to consider the evolution of the global economy over time. We can, however, consider a com-parative steady-state sensitivity run as Balistreri, Olekseyuk, and Tarr (2017) do in their analysis of Belarus. In such an exercise one assumes that the initial cali-brated equilibrium is in a dynamic steady-state (all activities grow at the economic growth rate and all present value prices decay at the discount rate). In the steady state, capital is accumulated such that the net return to capital equals the effec-tive discount rate. The discount rate is an invariant preference parameter, so one

might consider introducing the IFD shocks while at the same time allowing capital stocks to adjust such that the benchmark rate of return is achieved in the new equilibrium. Mechanically this indicates what the economy might look like in the long run with the policy reforms, but ignoring the real transition costs associated with the forgone consumption needed to accumulate capital. In that regard we can be sure that the results give us an upper bound on the potential long-run gains from the policy.[30]

Table 7. Upper bound gains under a comparative steady-state experiment
(% equivalent variation)

	IFD_B_C	Comparative steady state
FIFD	2.38	39.9
EU27	1.58	33.5
High-income	1.18	28.0
Low & middle-income	1.91	30.0
Non-participants	0.53	9.6
World	1.29	30.2

Source: Authors.

In our comparative steady-state runs we find that the gains associated with the IFD scenarios are at least an order of magnitude higher than in our central analysis. Table 7 shows that global welfare increases by 30%. These gains are rationalized by an increase in overall capital stocks of roughly 20%. Again, we caution the reader that this growth in capital stocks is not related to costly investment. The capital is freely allocated in a quantity sufficient to achieve the original rate of return. We view these results as illustrative of how the IFD might promote the expansion of capital stocks and thus increase per capita productivity. See Rutherford and Tarr (2003) for appropriate caveats in comparative steady-state interpretations. In fact, we interpret Rutherford and Tarr as indicating that the comparative static analysis (our central analysis) provides a better indication of the true welfare impacts, although the true dynamic impacts of the IFD are likely to be higher than our conservative comparative-static estimates.

6. Conclusion

In this paper we apply a general equilibrium simulation model for assessing the economic impacts of the newly negotiated Investment Facilitation for Develop-

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[30] See Rutherford and Tarr (2002) for additional discussion around transition costs and the substantial liberalization gains in dynamic Romer-style models with variety gains. See also Rutherford and Tarr (2003) for a demonstration of the upward bias inherent in a comparative steady-state exercise.

ment (IFD) Agreement at the WTO. We utilize the updated Investment Facilitation Index (Berger et al., 2023, IFI) to inform model shocks and simulate different IFD scenarios depending on the coverage of implemented provisions. The model is calibrated to the GTAP 11 accounts and incorporates an innovative monopolistic competition structure as well as FDI in manufacturing and services.

The results suggest that a full implementation of the IFD Agreement has the potential to generate substantial global welfare gains of 1.73%, exceeding those available from traditional trade liberalization. In particular, the group of Friends of Investment Facilitation for Development (FIFD) as well as low and middle-income countries would benefit due to their higher potential to reduce existing FDI barriers through implementation of the IFD Agreement. Based on the updated IFI, the overall IFD-induced improvements of investment facilitation frameworks range from 10% for the Republic of Korea to over 130% for low and middle-income participant countries from Africa.

The IFD Agreement covers a range of commitments from binding to best endeavor provisions. Generally, the benefits for all regions increase together with the coverage of the implemented IFD provisions. While the implementation of binding commitments alone provides only limited gains (increase of global welfare by 0.63%), a full implementation of conditional (i.e. with the wording "shall, to the extent practicable," "shall endeavor," or "shall encourage") and best endeavor provisions is crucial for reaching the high benefits. In particular, implementation of both binding and conditional IFD provisions would double the worldwide benefits (1.29%), while adding best endeavour commitments would further increase the impact to the aforementioned global welfare gain of 1.73%.

Our results also suggest that the gains increase significantly for all countries and regions when additional WTO Members join the Agreement. In particular, the worldwide welfare goes up by 2.22% when India and the USA become part of the deal. Moreover, WTO Members currently taking no action may substantially increase their gains compared to the relatively smaller spillover gains they would experience when staying outside the IFD Agreement. For example, for India the potential welfare gain of 1.98% illustrates an increase by 2.5 times compared to the pure spillover effect of 0.79%. This provides a strong incentive for non-participating developing countries to join the IFD Agreement, reform their investment frameworks and use the support structure contained in the section on special and differential treatment. Indeed, external technical assistance and capacity development programs will be essential for on–the-ground implementation of investment facilitation provisions. Thus, the expected benefits strongly depend on the actual implementation of the negotiated reforms.

The presented empirical results are in fact sensitive to our structural and parametric assumptions, but the strong positive impact of the IFD Agreement is proven to be robust in our extensive sensitivity analysis. What is more, we argue that illustrated effects are closer to the lower bound. In our central simulations we prefer

to be conservative by assuming a rather low ad valorem model shock. Doubling this shock indicates much higher gains with global welfare increase of 3.45% for all IFD provisions, or even 4.43% when India and the USA are considered among participants. Moreover, by applying a comparative steady-state model extension we provide the upper bound of the potential long-run gains from the policy reforms. This exercises indicates that global welfare goes up by 30% which is rationalized by an increase in overall capital stocks of roughly 20%. Given that this growth in capital stocks is not related to costly investment, this long-run impact might be overstatet, but the true dynamic impacts of the IFD are likely to be higher than our conservative comparative-static estimates.

Applying an innovative multi-region general equilibrium simulation model with bilateral representative firms, FDI and monopolistic competition, we contribute to the scarce research on investment facilitation. Our analysis provides policymakers with essential information at the point of policy formation, given the final stage of the IFD negotiations. Moreover, the results support the call for a broader WTO Membership in view of the incorporation of the proposed IFD Agreement into the WTO rulebook as a stand-alone agreement.

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Appendix

Table A.8. Regional Aggregation

Model region			GTAP countries	Code	IFI score	Income level	Development status
1	ARG	1	Argentina	ARG	0.99	Upper middle	Developing
2	BRA	2	Brazil	BRA	1.42	Upper middle	Developing
3	CHL	3	Chile	CHL	1.17	High	Developing
4	CHN	4	China	CHN	1.30	Upper middle	Developing
		5	Hong Kong, China	HKG	1.31	High	Developing
5	COL	6	Colombia	COL	1.16	Upper middle	Developing
6	KAZ	7	Kazakhstan	KAZ	1.34	Upper middle	Developing
7	KOR	8	Korea, Republic of	KOR	1.76	High	Developed
8	MEX	9	Mexico	MEX	1.50	Upper middle	Developing
9	NGA	10	Nigeria	NGA	1.01	Lower middle	Developing
10	PAK	11	Pakistan	PAK	1.13	Lower middle	Developing
11	QAT	12	Qatar	QAT	1.03	High	Developing
12	URY	13	Uruguay	URY	0.92	High	Developing
European Union (E27)							
13	E27	14	Austria	AUT	1.44	High	Developed
		15	Belgium	BEL	1.32	High	Developed
		16	Bulgaria	BGR	1.28	Upper middle	Developed
		17	Croatia	HRV	1.11	High	Developed
		18	Cyprus	CYP	1.14	High	Developed
		19	Czech Republic	CZE	1.19	High	Developed
		20	Denmark	DNK	1.52	High	Developed
		21	Estonia	EST	1.35	High	Developed
		22	Finland	FIN	1.51	High	Developed
		23	France	FRA	1.61	High	Developed
		24	Germany	DEU	1.62	High	Developed
		25	Greece	GRC	1.41	High	Developed
		26	Hungary	HUN	1.11	High	Developed
		27	Ireland	IRL	1.50	High	Developed
		28	Italy	ITA	1.43	High	Developed
		29	Latvia	LVA	1.22	High	Developed
		30	Lithuania	LTU	1.19	High	Developed
		31	Luxembourg	LUX	1.56	High	Developed
		32	Malta	MLT	0.83	High	Developed
		33	Netherlands	NLD	1.64	High	Developed
		34	Poland	POL	1.44	High	Developed
		35	Portugal	PRT	1.31	High	Developed
		36	Romania	ROU	1.14	High	Developed
		37	Slovak Republic	SVK	1.23	High	Developed
		38	Slovenia	SVN	1.39	High	Developed
		39	Spain	ESP	1.46	High	Developed
		40	Sweden	SWE	1.48	High	Developed
High-income participants of negotiations (HIC)							
14	HIC	41	Australia	AUS	1.52	High	Developed
		42	Bahrain, Kingdom of	BHR	1.04	High	Developing
		43	Canada	CAN	1.63	High	Developed
		44	Japan	JPN	1.65	High	Developed

Table A.8. Regional Aggregation

Model region			GTAP countries	Code	IFI score	Income level	Development status
		45	Kuwait, the State of	KWT	0.95	High	Developing
		46	Mauritius	MUS	1.30	Upper middle*	Developing
		47	New Zealand	NZL	1.47	High	Developed
		48	Norway	NOR	1.39	High	Developed
		49	Oman	OMN	1.11	High	Developing
		50	Saudi Arabia, Kingdom of	SAU	1.16	High	Developing
		51	Chinese Taipei	TWN	1.14	High	Developing
		52	Singapore	SGP	1.28	High	Developing
		53	Switzerland	CHE	1.42	High	Developed
		54	United Arab Emirates	ARE	1.11	High	Developing
		55	United Kingdom	GBR	1.74	High	Developed
Low and middle-income participants from Europe & Central Asia, East Asia & Pacific and South Asia (LAS)							
15	LAS	56	Afghanistan	AFG	NA	Low	Least developed
		57	Albania	ALB	1.04	Upper middle	Developed
		58	Cambodia	KHM	1.11	Lower middle	Least developed
		59	Georgia	GEO	0.90	Upper middle	Developing
		60	Indonesia	IDN	1.11	Upper middle	Developing
		61	Kyrgyz Republic	KGZ	0.79	Lower middle	Developing
		62	Lao PDR	LAO	0.74	Lower middle	Least developed
		63	Malaysia	MYS	1.20	Upper middle	Developing
		64	Moldova	XEE	0.89	Upper middle	Developed
		65	Mongolia	MNG	0.77	Lower middle	Developing
		66	Philippines	PHL	1.04	Lower middle	Developing
		67	Russian Federation	RUS	0.95	Upper middle	Developed
		68	Tajikistan	TJK	0.57	Lower middle	Developing
		69	Türkiye	TUR	1.26	Upper middle	Developing
Middle-income participants from Latin America & Caribbean (LAM)							
16	LAM	70	Costa Rica	CRI	1.15	Upper middle	Developing
		71	Dominican Republic	DOM	0.60	Upper middle	Developing
		72	Ecuador	ECU	0.65	Upper middle	Developing
		73	El Salvador	SLV	0.87	Upper middle	Developing
		74	Guatemala	GTM	0.79	Upper middle	Developing
		75	Honduras	HND	0.56	Lower middle	Developing
		76	Nicaragua	NIC	0.81	Lower middle	Developing
		77	Paraguay	PRY	NA	Upper middle	Developing
		78	Peru	PER	1.06	Upper middle	Developing
Low and middle-income participants from Middle East & North Africa and Sub-Saharan Africa (LAF)							
17	LAF	79	Benin	BEN	0.49	Lower middle	Least developed
		80	Central African Republic	CAF	0.22	Low	Least developed
		81	Chad	TCD	0.27	Low	Least developed
		82	Congo, Dem. Rep.	COD	0.58	Low	Least developed
		83	Gabon	GAB	0.67	Upper middle	Developing
		84	Guinea	GIN	0.66	Lower middle	Least developed
		85	Morocco	MAR	0.73	Lower middle	Developing
		86	Togo	TGO	0.53	Low	Least developed
		87	Uganda	UGA	1.12	Low	Least developed
		88	Yemen	XWS	NA	Low	Least developed
		89	Zambia	ZMB	0.94	Lower middle	Least developed
		90	Zimbabwe	ZWE	0.82	Lower middle	Developing

Table A.8. Regional Aggregation

Model region			GTAP countries	Code	IFI score	Income level	Development status
		91	Cabo Verde		NA	Lower middle	Developing
		92	Gambia		0.54	Low	Least developed
		93	Guinea-Bissau		NA	Low	Least developed
		94	Liberia		0.27	Low	Least developed
		95	Mauritania	XWF	NA	Lower middle	Least developed
		96	Sierra Leone		0.63	Low	Least developed
			Non-participants				
18	USA	97	USA	USA	1.66	High	Developed
19	IND	98	India	IND	1.20	Lower middle	Developing
20	ROW		All other GTAP countries not included above				

Sources: Berger et al. (2023) for total IFI scores (current practice); Aguiar et al. (2022) for GTAP countries; income level according to the World Bank for fiscal year 2024 (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups); development status according to UNCTAD (https://unctadstat.unctad.org/en/classifications.html).

Notes: This aggregation is based on the list of countries participating in the IFD negotiations (https://www.wto.org/english/tratop_e/invfac_public_e/invfac_e.htm). All separately included countries (except non-participating India and USA) belong to the Friends of Investment Facilitation for Development (FIFD) group (Sauvant, 2022; WTO, 2017). Some FIFD countries (Türkiye, Guatemala, Gambia, Liberia and Mauritania) are included in other regions of the model.

The following IFD participants are included in the rest of the world (ROW) region since they are not separately available in the GTAP 11 data: Antigua and Barbuda, Barbados, Burundi, Djibouti, Dominica, Grenada, Iceland, Macao (China), Maldives, Montenegro, North Macedonia, Myanmar, Papua New Guinea, Solomon Islands, Vanuatu, Seychelles, Suriname.

*Mauritius is in the high-income region (HIC) since it was classified as a high-income country for the fiscal year 2021, the year captured by the IFI data.

Table A.9. Mapping of the current IFD text to the IFI and classification of provisions

Measure	IFI measure description	Legal language	Binding	Conditional	Best endeavour
	IFI policy area: Regulatory transparency and predictability				
A.1	Establishment of enquiry points	shall	x		
A.2	Average time between publication of new or amended investment related laws and regulations and entry into force	shall endeavour, to the extent practicable		x	
A.3	Publication of information on procedural rules for appeal and review	shall, to the extent practicable		x	
A.4	Publication of information and procedures on laws, regulations and procedures affecting investment	shall	x		
A.5	Publication of information on investment incentives, subsidies or tax breaks	shall	x		
A.6	Laws and regulations are available in one of the WTO official languages	should, to the extent practicable			x
A.7	Publication of judicial decision on investment matters	shall	x		
A.8	Publication of international agreements pertaining to foreign direct investment	shall	x		
A.9	Information published on fees and charges	shall, to the extent practicable		x	
A.10	Publication of investment guidebook	shall	x		
A.11	Publication of the information on competent authorities including contact details	shall	x		
A.12	Publication of time frame required to process an application associated to any specific investment decision	shall, to the extent practicable		x	
A.13	An adequate time period granted between the publication of new or amended fees and charges and their entry into force	shall	x		
A.14	Information available on the purpose and rationale of the law or regulation	shall endeavour, to the extent practicable		x	
A.15	Regulations or administrative measures in place for the protection of personal information (confidential information)	shall	x		
A.17	Insurance and guarantees: Home country provides investment insurance and guarantees	encouraged			x
A.18	Drafts of investment regulations and acts are published prior to entry into force	shall, to the extent practicable		x	
A.19	Notification to the WTO of laws, regulations, and administrative procedures of general application	shall	x		
A.20	Notification to the WTO of the Uniform Resource Locators (URL) of the website where relevant information concerning investment is made publicly available	shall	x		
A.21	Notification to the WTO of enquiry/focal/contact points	shall	x		
A.22	Notification to the WTO of other relevant information (e.g. competent authorities)	shall	x		
A.23	Publication of lists or catalogues indicating which sectors are allowed, restricted or prohibited for foreign investment	shall	x		
	IFI policy area: Electronic governance				
B.24	Establishment of a national investment website for information purpose	encouraged, to the extent practicable			x

Table A.9. Mapping of the current IFD text to the IFI and classification of provisions

Measure	IFI measure description	Legal language	Binding	Conditional	Best endeavour
B.25	Electronic payment system for the investor to pay all fees, charges and taxes associated to the admission, establishment, maintenance, acquisition and expansion of investments	shall, to the extent practicable		x	
B.27	Copies of documents accepted	shall	x		
B.32	Single window: Availability of a national investment portal (or single window) for the submission and/or processing of applications online	encouraged, to the extent practicable			x
B.33	Single window: Is it possible to submit all documents necessary for investment applications simultaneously (e.g. business registry, national and/or state/municipal tax identification number, social security, pension schemes)?	shall endeavour		x	
B.36	Single window: Updating information	shall endeavour		x	
B.37	Single window: Does the website give phones or online contacts for complaints, for each mandatory registration?	encouraged, to the extent practicable			x
IFI policy area: Focal point and review					
C.38	Independent or higher level administrative and/or judicial appeal procedures available	shall	x		
C.41	Opportunity to support or defend respective positions in judicial review	shall	x		
C.42	Judicial review decision based on the evidence and arguments	shall	x		
C.43	Dispute prevention mechanism in place	may			x
C.45	Focal point: Establishment of a mechanism for coordination and handling of foreign investment complaints (focal point/ombudsman)	may			x
C.46	Focal point: Focal point provides guidance concerning related legislation, institutions, process, and responsible agencies	shall	x		
C.47	Focal point: Focal point accepts and/or forwards foreign investment complaints	may			x
C.48	Focal point: Focal point responses to enquiries of governments, investors and other interested parties	shall	x		
C.49	Focal point: Focal point assists investors in obtaining information from government agencies relevant to their investments	shall	x		
C.54	Focal point: Focal point recommends to the competent authorities measures to improve the investment environment (Policy Advocacy)	may			x
IFI policy area: Application process					
D.61	Periodic review of investment regulations and documentation requirements	encouraged			x
D.64	Publication of time frames to process an application	shall, to the extent practicable		x	
D.65	Inform the applicant of the decision concerning an application	shall	x		
D.66	Availability of information concerning the status of the application	shall	x		
D.67	Inform the applicant that the application is incomplete	shall, to the extent practicable		x	
D.68	Provide the applicant with an explanation of why the application is considered incomplete	shall, to the extent practicable		x	
D.69	Provide the applicant with the opportunity to submit the information required to complete the application	shall, to the extent practicable		x	

Table A.9. Mapping of the current IFD text to the IFI and classification of provisions

Measure	IFI measure description	Legal language	Binding	Conditional	Best endeavour
D.70	Provide the applicant with the opportunity to resubmit an application that was previously rejected	shall, to the extent practicable		x	
D.71	Competent authorities accept submission of an application at any time throughout the year	shall, to the extent practicable		x	
D.72	Adopting a silent 'yes' approach for administrative approvals	may			x
D.73	Evaluation of fees and charges	shall	x		
D.75	Time period between the publication of new or amended fees and charges and their entry into force	shall	x		
D.76	Fees for answering enquiries and providing required forms and documents	encouraged			x
D.77	Fees and charges periodically reviewed to ensure they are still appropriate and relevant	encouraged			x
IFI policy area: Cooperation					
E.86	Cooperation and co-ordination of the activities of agencies involved in the management of investment, with a view to improving and facilitating investment	should			x
E.87	Exchange of staff and training programs at the international level (technical assistance)	shall endeavour		x	
E.88	Cooperation in exchange of information with respect to investment opportunities and information on domestic investors	shall, to the extent practicable		x	
E.89	Establishment of a domestic supplier database	encouraged			x
E.90	Sharing of best practices and information on the facilitation of foreign direct investments	shall, to the extent practicable		x	
IFI policy area: Responsible business conduct and anti-corruption					
F.97	UN Guiding Principles on Business and Human Rights	shall encourage		x	
F.98	ILO Ratification of fundamental Conventions concerning Freedom of Association, Forced labour, Discrimination and Child labour	shall encourage		x	
F.100	United Nations Convention against Corruption	shall	x		
F.101	Combating Bribery of Foreign Public Officials in International Business Transactions	shall	x		

Source: Berger et al. (2023, 2024) and authors' considerations. Note that only mapped IFI measures are included in the table.

Table A.10. Aggregate results using foreign affiliates sales data by Bekkers et al. (2024)

	IFD_B	IFD_C	IFD_B_C	IFD_all	IFD_all_X
Welfare (% equivalent variation)					
FIFD	0.94	0.98	1.92	2.55	2.93
EU27	0.72	0.76	1.48	2.02	2.39
High-income	0.54	0.54	1.08	1.45	1.79
Low & middle-income	0.77	0.86	1.61	2.16	2.44
Non-participants	0.22	0.23	0.45	0.61	1.08
World	0.54	0.57	1.11	1.49	1.89
GDP (%)					
FIFD	0.43	0.45	0.88	1.18	1.36
EU27	0.40	0.42	0.81	1.10	1.31
High-income	0.30	0.31	0.61	0.82	1.02
Low & middle-income	0.43	0.48	0.90	1.21	1.37
Non-participants	0.16	0.16	0.32	0.44	0.74
World	0.31	0.33	0.64	0.86	1.08

Note: Table A.8 provides country coverage for illustrated regions with low and middle-income participants including 41 countries from *LAS, LAM* and *LAF*. *FIFD* incorporates Argentina, Brazil, Chile, China (incl. Hong Kong), Colombia, Kazakhstan, South Korea, Mexico, Nigeria, Pakistan, Qatar, Uruguay.
Source: Authors.