Potential for Inward Foreign Direct Investment in Japan[†]

Takeo Hoshi
Stanford University, National Bureau of Economic Research,
and Asian Bureau of Finance and Economic Research

Kozo Kiyota
Keio University, University of Hawaii,
and Research Institute of Economy, Trade and Industry

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Abstract

Promotion of inward foreign direct investment (FDI) into Japan has been an important policy in the Abenomics growth strategy. This paper examines if we observe positive impacts of the policy in the data. We first estimate a gravity model of bilateral FDIs using data for 35 OECD countries as destination countries. In estimating the model, we handle zero values for FDI stock explicitly. The model includes (origin and destination) country-specific effects as well as destination-country specific time trends. We take the model prediction as a reasonable counterfactual and compare that to the actual inward FDI stock for Japan. Although the actual inward FDI stock has been growing and is likely to achieve the goal of 35 trillion yen by 2020, the growth under the Abe administration has been comparable to or slightly lower than the counterfactual suggested by the estimated model. We also estimate the model without Japan as a destination country and use the estimated model to calculate the counterfactual level of Japan's inward FDI. Although we expect the gap between the counterfactual and the actual become narrower if Abenomics policy has been successful, we fail to find that. These results cast a doubt on the effectiveness of the Abenomics policies to encourage inward FDI at least as of 2015.

Keywords: Inward foreign direct investment; Gravity model; Abenomics

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1. Introduction

An important motivation for corporations to expand into foreign countries is to use their advantage over the competitors in the host countries. Thus, foreign companies often have higher productivities than domestic companies.[1] From host country's point of view, allowing more foreign direct investment (FDI) may lead to higher economic growth through productivity spillovers from foreign companies, which would ultimately increase social welfare.[2]

The benefit of increasing inward FDI for Japan may be especially large because Japan has been known for its very low level of inward FDI compared with other advanced economies. Table 1 presents the inward FDI stock to gross domestic product (GDP) ratio for 35 Organization for Economic Co-operation and Development (OECD) countries from 1985 to 2015.[3] The table indicates that the inward FDI stock to GDP ratio for Japan is 4.2 percent in 2015, far below the OECD average of 50.4 percent and the smallest among all the OECD countries.

=== Table 1 ===

Recently Japan has tried to promote inward FDI to enhance its potential growth. Promotion of inward FDI has been an important goal of the growth strategy under Abenomics. Since 2013, the Abe administration pursued the goal of increasing its inward FDI stock to 35 trillion yen (up from 19.2 trillion yen at the end of 2012) by 2020. Figure 1 plots the inward FDI stock for Japan from 1996 to 2017. By the end of 2017, Japan's inward FDI stock rose to 28.6 trillion yen. At this rate, the goal of 35 trillion yen will be easily reached by 2020. As Hoshi (2018) argues, however, Abenomics does not seem to have changed the long-run trend of Japan's inward FDI. The increase of inward FDI under Abenomics is almost exactly what the past trend would have predicted. Thus, Hoshi (2018) concludes that there is no evidence that the Abenomics policy to promote inward FDI has been effective.

=== Figure 1 ===

This paper also examines Japan's inward FDI under Abenomics, but goes beyond Hoshi (2018) by using more carefully constructed counterfactual than a simple extrapolation of the past trend. We estimate gravity models of FDI stock and use those to infer how Japan's inward FDI stock would have evolved in the absence of Abenomics policies. We implement two slightly different approaches.

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[1] Several studies found that the productivity of foreign companies is, on average, higher than that of domestic companies. See, for example, Doms and Jensen (1998) for the case of the United States and Kimura and Kiyota (2007) for the case of Japan.

[2] A number of studies found that knowledge brought by multinational firms spills over to domestic industries and increase their productivity. See, for example, Javorcik (2004) for the case of Lithuania and Todo (2006) for the case of Japan. Similarly, Fukao, Ito, Kwon, and Takizawa (2008) found that the acquisition by foreign firms improved target firms' productivity and profitability significantly more and quicker than the acquisitions by domestic firms in Japan.

[3] The list of countries and their abbreviations are presented in Table 3. For Japan, year 1995 data are missing in the OECD International Direct Investment Statistics database. Tables A1 and A2 presents the inward FDI stocks and GDP to compute Table 1. Table A3 presents the inward FDI flows. Section 2 presents a more detailed description of the data.

In the first approach, we estimate a model that assumes country fixed effects. We start by estimating the gravity model of inward FDI stocks for OECD countries from 1985 to 2012, noting that Abenomics was started in December 2012.[4] Then, we use the estimated model to predict inward FDI stock for Japan after 2013. We interpret the predicted values to be the inward FDI stocks that would have been observed if the Abenomics had not started its promotion of inward FDI. If the Abenomics policy of promoting inward FDI was effective overall, we would expect to find that the total inward FDI in Abenomics years exceeds the predicted values.

In the second approach, we exclude Japan as a destination country in estimating a gravity model. We then use the estimated model to calculate what Japan's inward FDI stock would be. We examine the gap between the counterfactual calculated in this way and the actual inward FDI to Japan. If Abenomics policy has been successful, we should find the gap has narrowed under the Abe administration.

Both of these analyses look for the changes in Japan's inward FDI after 2013 that cannot be explained by GDPs and other observables in the gravity model. These unexplained changes would certainly include the impacts of the Abenomics policy to promote inward FDI, but they may reflect many other factors that are not related to Abenomics. Thus, it is possible that we overestimate or underestimate the impacts of Abenomics policy, depending on what kind of factors that we are missing. This is a weakness of our approach.

Our paper adds to the growing literature on inward FDI into Japan. Several studies examined the determinants of inward FDI to Japan.[5] Kimino, Saal, and Driffield (2007) looked at FDI flows from 17 countries to Japan between 1989 and 2002. They found that source country characteristics such as political and economic stability were important determinants of inward FDI to Japan while exchange rates and labor costs were not.

Sato and Oki (2012) studied the distribution of US outward FDI from 1990 to 2009. They estimated a log-linear version of gravity model and found that the US FDI to Japan was low compared with other destination countries even after controlling for gravity variables such as the market sizes of the destination countries. They concluded that Japan was less attractive for the US investors than other countries, although they did not explore what made Japan less attractive.

Head and Ries (2005) also estimate the gravity model for Japan's FDI, but they put that on a solid theoretical ground. Based on the framework developed by Head and Ries (2008), they estimate a gravity model of FDI using the data for 181 countries from 1980 to 2002. Their results indicate that both inward and outward FDI shares of Japan is lower than the prediction of the model.

[4] The gravity model is used not only to explain the patters of bilateral trade but also those of bilateral FDI. See, Anderson (2011) and Head and Mayer (2015), for a literature review. Román, Bengoa, and Sánchez-Roble (2016) is a recent example of estimating the gravity model of FDI.

[5] For the earlier literature on inward FDI in Japan, see Yoshitomi and Graham (1996).

Our paper builds on these previous studies and asks if the low level of inward FDI stock in Japan has changed under Abenomics. The paper also introduces a methodological improvement on the previous studies, many of which estimated a log linear form of the gravity model. A problem is that many country pairs have no FDI between them. The previous studies usually dealt with this problem by dropping the country pairs with zero FDI. Throwing away the observations with zero FDI, however, leads to inconsistent parameter estimates. To solve this problem, we employ Pseudo-Poisson Maximum Likelihood model proposed by Santos Silva and Tenreyro (2006). In addition to the explicit treatment of zero FDI, our study covers a longer and more recent period than the previous studies.

The paper is organized as follows. The next section provides a brief overview of the policies to promote inward FDI to Japan under Abenomics. We argue that success of any of those policies is likely to show up as a structural shift of the relation between Japan's inward FDI and its standard determinants in a gravity model such as distances and sizes of the origin countries. Section 3 introduces gravity models of FDI and the estimation method that we use in this paper. The section also goes over the two approaches we use to examine the effectiveness of the FDI promotion under Abenomics. Section 4 describes the dataset we use and reports summary statistics. Section 5 reports the estimation results and discusses if the Abenomics FDI promotion policy has been successful. Section 6 concludes.

2. Inward FDI Promotion under Abenomics

Promotion of inward FDI has been a prominent part of the growth strategy of the Abe administration (*aka* the third arrow of Abenomics) from the start. The original growth strategy published in June 2013 stated:

> The government will develop an environment where all companies and human resources enjoy the benefits of global economy and facilitate full-fledged globalization in Japan in order to attract outstanding overseas manpower and technologies to Japan and to create employment and innovation. It will also aim to double inward FDI stocks to 35 trillion yen in 2020 (17.8 trillion yen at the end of 2012). (Headquarters for Japan's Economic Revitalization 2013, p.137)

The growth strategy has been revised every year since then, but the latest one that was published in June 2018 still includes promotion of inward FDI as one of the important policies. The Japanese government website dedicated for Abenomics (https://www.japan.go.jp/abenomics/, accessed July 3, 2018) features "Improve business environment to drive inward FDI" as one of the four main goals of Abenomics.[6]

From the late 2013 to date, the Abe administration has been trying several policies that are explicitly geared toward boosting inward FDI into Japan. In early 2014, Expert Group on Foreign Direct Investment in Japan was created and completed a report that recommends several policies to remove the impediments to inward FDI to Japan (Expert Group on Foreign Direct Investment in Japan, 2014). First, the report identified three important policy areas to promote

[6] The other three are "Boost productivity", "Pursue regulatory reforms", and "Build on international opportunities".

inward FDI. The first is a set of economic reforms to reduce the substantial differences between the Japanese system and the global system in several areas including (i) corporate tax system, (ii) employment system, (iii) corporate governance, (iv) system for corporate mergers, and (v) various regulations and administrative procedures. The second is establishing inter-governmental agreements including economic partnership agreements (EPAs), social security treaties, and tax treaties. The third is a set of policies to improve living conditions for foreigners in Japan. In addition to these three policy areas, the report also recommends expanding direct support for foreign firms entering Japan by government entities and expanding government efforts to promote the appealing aspects of Japan that are "not sufficiently understood."

The report is very helpful in describing and understanding the FDI promotion policies in Abenomics, because it identifies almost all the issues that are taken up in the policy discussion and implementation that followed. In particular, we can compare a particular policy intervention implemented to the three policy areas identified by the report and see in which area the efforts progressed most rapidly and effectively.

The first comprehensive policy document for inward FDI promotion was "Five Promises for Attracting Foreign Businesses to Japan" published in March 2015. The Japanese government promised (1) to make it easier to live in Japan without Japanese language skills, (2) free public Wi-Fi access points everywhere in Japan, (3) business jet access to any regional airport in Japan with a short advance notice, (4) to enrich educational environment for children from overseas and ensure Japanese students can communicate in English, and (5) to establish "Investment Advisor Assignment System" that provides foreign business direct access to state ministers of Japan.

The Five Promises are mostly on the third policy area identified in the expert group report, which is improving living conditions for the foreigners. The Promises are silent on the other two policy areas, which are reforms to achieve harmonization to the global standard and promotion of inter-governmental agreements.

In May 2016, the government announced "Policy Package for Promoting Foreign Direct Investment into Japan to Make Japan a Global Hub," which now included policies to improve "regulations and administrative procedures." Thus, the Package addresses the first policy area that the expert group report emphasized, but that was only a small part of the package. The other measures continued to focus on improving the living environment for foreign nationals and government promotion and PR to attract foreign companies.

The regulatory reform aspect of the inward FDI promotion policy finally started to receive emphasis by creation of the Working Group for Revising Regulations and Administrative Procedures in late 2016. The working group completed the final report in April 2017 and identified the regulatory and administrative issues that foreign companies face in Japan and proposed policies to mitigate those.[7] The issues include (1) difficulty of incorporating and registering companies, (2) problems for foreign nationals to set up legal residency, (3) lack of

[7] The final report (English version) is available at http://www.invest-japan.go.jp/policy/simplify_regulations_and_procedures/compilation_report_en.pdf (accessed on July 3, 2018).

one-stop administrative services, (4) paucity of business and administrative information in foreign languages, and (5) administrative burdens in following necessary procedures for imports.

3. Gravity Model of Foreign Direct Investment

Our approach uses a gravity model of FDI that is developed by Head and Ries (2008). They model FDI as a consequence of managers of one country bidding to acquire production units in another country.[8] In their model, managers in home country monitor managers at overseas subsidiaries by incurring monitoring cost. The monitoring cost is assumed to be proportional to the distance between the home country and the country where subsidiaries are located. Thus, the probability of winning bid falls as the distance between the manager's country and the target country increases. With additional assumptions (e.g., the numbers of managers and production units are both proportional to the economy's GDP), they derive a gravity model of FDI stock.[9]

Letting i and j denote the origin and the destination of FDI respectively, the gravity equation for FDI stock is:

$$FDI_{ij} = \exp\left(\mathbf{O}_i'\alpha + \mathbf{D}_j'\beta + \mathbf{w}_{ij}'\gamma\right) \times \varepsilon_{ij}, \quad (1)$$

Here exp(•) denotes exponential function, $\mathbf{O}_i$ and $\mathbf{D}_j$ are the vectors of the origin- and destination-country dummies to capture the fixed effects.[10] $\mathbf{w}_{ij}$ is the vector of characteristics of the origin-destination pair (such as distance) and ε_{ij} is the disturbance term.

Note that the disturbance term is assumed to multiply the exponential function. Traditionally, researchers specified the gravity model by including the disturbance as an extra additive term in the argument for the exponential function. This allowed them to take the log of both sides of the equation and estimate a linear regression model. The problem of this approach is that country pairs with zero FDI stocks are dropped from the estimation because the log of zero is not defined. By specifying the disturbance multiplicatively and assuming the expected value is equal to one, we can estimate the gravity model directly by employing Pseudo-Poisson Maximum Likelihood (PPML) estimation proposed by Santos Silva and Tenreyro (2006). Although the estimation can be done by non-linear least square, the PPML estimator is known to be more efficient than non-linear least square estimator (Santos Silva and Tenreyro, 2006).[11]

Since our dataset is a panel data, we introducing time dimension to get:

[8] De Sousa and Lochard (2011) showed that the model can be applied also to greenfield investment by considering firms selecting the best investment projects across all potential host countries.
[9] Note that their gravity model explains the bilateral FDI stocks rather than FDI flows because the model is based on the ownership of assets.
[10] The origin and destination country fixed effects are analogous to the "multilateral resistance term" in the gravity model of trade (Anderson and van Wincoop, 2003).
[11] Another option is to use the negative binomial estimation, but the estimates are known to be sensitive to the units of the measurement for the dependent variable. For more details, see Bosquet and Boulhol (2013).

$$FDI_{ijt} = \exp\left(\mathbf{O}_i'\alpha + \mathbf{D}_j'\beta + \mathbf{w}_{ij}'\gamma + \mathbf{x}_{ijt}'\lambda + \mathbf{y}_{it}'\delta + \mathbf{z}_{jt}'\zeta\right) \times \varepsilon_{ijt}, \quad (2)$$

where $\mathbf{x}_{ijt}$ is the vector of time-variant country-pair specific factors; $\mathbf{y}_{it}$ and $\mathbf{z}_{jt}$ are the vectors of origin- and destination-country-year specific variables respectively. The origin- and destination-country-year specific variables that we consider are population (POP_{it} and POP_{jt}) and per-capita GDP ($PGDP_{it}$ and $PGDP_{jt}$). In this paper, we estimate the equation (2) using the PPML estimation.

Although our dataset has time dimension, we do not examine dynamics of FDI. This is consistent with the approach of Head and Ries (2008), who uses a static model to motivate the gravity model of FDI. Thus, our regression analysis ignores some factors such as exchange rate fluctuations that mostly influence the timings of FDI. We do not concern the lag-lead relationship between FDI and its determinants, either. One may argue that FDI responds to the future (expected) levels of population and GDP, but examining this is beyond the scope of this paper.

We choose to use FDI stocks rather than FDI flows as dependent variables for the same reason: we do not attempt to explain the dynamics. By using FDI stocks, we also avoid the problem that FDI flows often have negative values. Nonetheless, we estimate the models using FDI flows (and dropping the observations with negative values) or lagged explanatory variables as robustness check.

As we saw above, Japan's inward FDI relative to GDP has been very low compared with other OECD countries. This is partly expected because Japan has high labor costs, does not share a common language with any other country, and is located far away from other advanced countries such as the United States and the Western European countries. All of these are important factors that would lower the inward FDI according to the gravity model. The previous studies using the gravity model, however, found that Japan's inward FDI is abnormally low even controlling for these standard gravity variables. If this is also the case for our data, we expect to see the destination specific effect of Japan to be lower than many other countries. Thus, we expect to find the coefficient β_j for Japan to be low.

If Abenomics has been effective in increasing inward FDI to Japan drastically, that would show up as an increase in the destination specific effect for Japan in the gravity model. To check this, we consider two similar but different approaches.

The first approach starts by estimating the equation (2) using the data up to 2012. Then, we use the estimated model to predict Japan's inward FDI stock for 2013 and after. If Abenomics successfully increased the destination specific effect for Japan, the estimated model that has low Japan specific destination effect would under-predict the growth of inward FDI for 2013 and after. If this under-prediction is substantial, we can infer that Abenomics was effective in promoting inward FDI.

The second approach also starts by estimating the equation (2) but the estimation drops all the observations that involve Japan as the destination. We use the entire sample period to estimate the model. Then, we use the estimated model to predict the FDI stocks from each

country to Japan in each year. Since we do not have an estimate for the destination specific effect for Japan, we use zero. This means that we calculate what the Japan's FDI stocks would have been if Japan's destination specific effect was the same as the reference country in the regression (the U.S. in the estimation below). We can compare that to actual FDI stocks of Japan. If the Abenomics policy to promote inward FDI had been successful, we would find the growth of actual value was larger than that of predicted value after 2012. The choice of the destination-country specific effect is arbitrary but does not influence our inference on the effects of Abenomics policy, because we examine if the growth after 2012 exceeded the counterfactual.

As we report below, our best fit gravity model includes the destination-country-specific trend. Thus, we need to decide the destination-country-specific trend to use in predicting FDI stocks for Japan in the second approach. The choice of destination-country-specific effect is important because it matters for the growth of predicted FDI after 2012, which is our focus. Assuming too high trend would obviously overestimate the FDI growth under the counterfactual scenario and would underestimate the contribution of the Abenomics FDI promotion policy. Assuming too low trend would underestimate the FDI growth and overestimate the contribution of Abenomics. Below we use a couple of different values for the Japan specific trend in producing the counterfactual values in the second approach and examine how the choice influences our inference on the effectiveness of the Abenomics.

4. Data

The data for inward FDI stock (FDI_{ijt}) from 1985 to 2015 are obtained from the OECD International Direct Investment Statistics database. In the database, the inward FDI stock is defined as the nominal value of foreign investors' equity and net loans to enterprises resident in the economy. In 2015, the dataset covers inward FDI from about 200 origin countries to 27 OECD destination countries.

In the OECD database, zeros and missing values are distinguished, so we follow the distinction of the database. For a small number of countries, inward FDI stocks are negative. This can happen if the total amount of foreign parent companies' borrowings from their subsidiaries in the country exceeds the total amount of foreign companies' investments and loans to the subsidiaries. For the analyses of this paper, we replace them with missing values.

There are two types of origin countries reported in the OECD database: immediate counterpart and ultimate counterpart. Although only immediate counterpart is available in many countries, we use ultimate counterpart as an origin country when available. If ultimate counterpart is not available, we use immediate counterpart as origin country.

The OECD database changed the benchmark definition from the 3rd to the 4th edition in 2013. In the 4th edition, more detailed classifications of the type of entity is available. The database distinguishes the difference between special purpose entities (SPEs) and non-SPEs. SPEs are used by multi-national enterprises to channel investments through several countries before reaching their final destinations. We exclude investments by foreign SPEs from inward FDI stock when the data allow.

For time invariant country-pair specific variables ($\mathbf{w}_{ij}$), we use a standard set of gravity variables such as distance, common language dummy, common religion dummy, and colonial relationship dummy. These variables are obtained from the CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) gravity data.

The time variant country-pair variables ($\mathbf{x}_{ijt}$) are the RTA (Regional Trade Agreement) dummy, the WTO membership, and the common currency dummy. We use the Mario Larch's Regional Trade Agreements Database (Egger and Larch, 2008) to judge if a country pair belongs to common RTA. The RTA in this database includes customs union (e.g., European Union), free trade agreement and economic integration agreement (e.g., North America Free Trade Agreement and Japan-Singapore economic partnership agreement), and partial scope agreement (e.g., South Asian Preferential Trade Arrangement). The WTO and common currency dummies take 1 if both countries are members of the GATT/WTO and a common currency union respectively. Both come from the CEPII gravity data.

We also include a dummy variable that takes 1 if the two countries have bilateral investment treaties (BIT) (Egger and Pfaffermayr, 2004; Neumayer and Spess, 2005; Busse, Königer, and Nunnenkamp, 2010). The BIT data are obtained from the World Bank Database of Bilateral Investment Treaties. The database reports the signature date and entry into force date. We use the entry into force date to construct the BIT dummy.[12]

Population (POP_{it} and POP_{jt}) and per-capita GDP ($PGDP_{it}$ and $PGDP_{jt}$) are the destination and origin country-specific characteristics ($\mathbf{y}_{it}$ and $\mathbf{z}_{jt}$). GDP is measured in current thousand US dollars and the population is measured in thousand. These variables are also obtained from the CEPII gravity data.

Data on FDI often include outliers, which are presumably caused by the lumpiness of FDI. For example, Table 1 indicates that the inward FDI stock to Ireland increased by 88 percent from 2014 to 2015. To prevent estimation results to be driven by outliers, we drop the observations with the changes in inward FDI stock from the previous year falling in the top 1 percent or the bottom 1 percent of all observations in the estimations below.

=== Table 2 ===

Table 2 provides summary statistics for the data used for this paper. Note that the median of inward FDI stock is zero. This suggests how to treat these observations with zero values can influence the estimation results.

5. Has Abenomics been successful in promoting Japan's inward FDI?

[12] The World Bank Database of Bilateral Investment Treaties (BIT) sometimes report the signature and entry into force dates more than once because the database lists treaties concluded on a multilateral basis or as chapters in a free trade agreement separately. We define the first entry into force date as the beginning of the BIT. Thus, the BIT dummy takes one after the first entry into force date and zero otherwise.

Table 3 shows the estimation results of the gravity model (equation (2)) for the period from 1985 to 2012. We consider three types of the gravity model that differ in consideration for country-fixed effects and country specific time trends. The model in column 1 does not include origin- and destination-country fixed effects, but the model in column 2 does include those fixed effects. For country fixed effects, we set the United States as a reference country. The model in column 3 includes the destination-country specific time trends in addition to the country fixed effects.

=== Table 3 ===

We first examine whether the estimate models are adequate or not. Following Santos Silva and Tenreyro (2006), we perform a heteroskedasticity-robust RESET test. This is a test for the correct specification of the conditional expectation, which is performed by investigating the significance of an additional regressor constructed as the square of the fitted value. Table 3 reports the corresponding *p*-values. The test does not reject the hypothesis that the coefficient on the test variable is zero for all specifications. Thus, the RESET test provides no evidence of misspecification of the gravity equations estimated using PPML.

To select the best model out of these three to use for our inference, we perform the HPC test proposed by Santos Silva, Tenreyro, and Windmeijer (2015) for selection between alternative models for non-negative observations with many zeros such as the dataset that we examine. The HPC test is built on the tests of non-nested hypotheses developed by Davidson and MacKinnon (1981). The HPC test in essence examines whether the prediction of the dependent variable generated by a model can be improved by using the predictions from an alternative model. If that is found to be the case, it is considered to be an evidence against the original model. We test each model taking each of the other models as the alternative. The *p*-value for the null hypothesis (the null model is better than the alternative model) for each alternative is presented at the bottom of each column. The HPC tests clearly reject model (1) against model (2), model (1) against model (3), and model (2) against model (3) at 1 percent level. This suggests that the model (3) is the most preferred model. Including both country fixed effects and destination-country specific time trend seem important.

We also use HPC tests to confirm that including observations with zero values is important. When we test the log-linear specification that drops all observations with zero values against the model (3) as the alternative, the *p*-value for the test is 0.000, suggesting the model (3) is better. When we test the reverse (taking the log-linear as the alternative), the *p*-value is 0.058, suggesting that the log-linear specification is not better. These results suggest that handling zero values explicitly is important.

The model (3) is also attractive in that most of the estimated coefficients take the values that are considered *a priori* plausible. Having RTA, common currency, common language, common religion, and colonial relationship have significantly positive effects on inward FDI whereas distance has significantly negative effects. The per-capita GDP of both origin and destination countries has significantly positive effects on inward FDI. This implies that inward FDI is more likely to be observed between high-income countries. The size of the origin and destination countries, measured by population, also matters as the coefficient of population is

significantly positive. Somewhat surprisingly, the coefficients of BIT and GATT-WTO membership dummies are statistically insignificant. This may be due to the fact that destination countries in our sample are all OECD countries, which do not have much variations.

Compared with the model (3), some of the results in columns (1) and (2) are difficult to explain. For example, model (1) has significantly negative coefficient on the BIT dummy. In model (2), destination country's population enters the model insignificantly. Because model (3) is preferred in terms of the coefficients as well as the specification test, we use this model as our baseline model to generate the counterfactual.

Japan's inward FDI relative to GDP has been very low compared with other OECD countries. Our estimation result confirms that the standard gravity factors alone cannot explain the low inward FDI into Japan. We can see this by comparing the estimated coefficients on destination-country dummies ($\hat{\beta}_j$ in equation (2)). Table 4 provides such comparison.[13] A negative coefficient on a destination-country dummy shows that some factor specific to the host country tends to reduce its inward FDI compared with the reference country (the U.S. in this case). The table shows that the coefficient estimate for Japan is significantly negative and the magnitude is one of the largest in the sample. The estimated value -2.573 means that Japan's inward FDI stock would be about 7.6% ($e^{-2.573} = 0.0763$) of the US inward FDI stock holding other factors (such as distances to host countries) equal. This is roughly the same order of the ratio of the average FDI stocks for the two countries for the sample period (6.5%).

=== Table 4 ===

Now we are ready to ask the central question of the paper. Has Abenomics been successful in promoting inward FDI in Japan? In the first approach, we answer this by looking at the growth of inward FDI for Japan after 2012, noting Abenomics was started in December 2012. When we use our model estimated using the sample before Abenomics to predict the FDI into Japan after 2012, we would under-predict the growth if Abenomics policy for FDI promotion has been effective.

Figure 2 presents the result of our first approach. The solid line indicates the actual inward FDI in Japan while the dotted line is the prediction from the estimated model. To remove unwanted effects of exchange rate fluctuations on US dollar value of the FDI stock, we plot the level of inward FDI stock divided by GDP in current prices. Figure 2 clearly shows that, although inward FDI stock increased under the Abe administration, the actual growth was lower than what the model predicts. The model predicts the inward FDI stock to GDP ratio would have increased by 1.42 percentage points from 2012 to 2015, while the actual increase was 0.88 percentage points.

=== Figure 2 ===

[13] Latvia is not included in this estimation because Latvia has been a member of the OECD since 2013 and its FDI stocks before 2012 are not included in the database.

One may be concerned that the global financial crisis in 2008 distorts the estimation of the gravity model. Table 1 indicates that the inward FDI stock relative to GDP declined significantly in many European countries. Because majority of OECD countries are European countries, our results may be sensitive to whether or not the estimation period includes the financial crisis. To address this concern, we estimate the gravity model using only the data before the financial crisis (1985-2007) and use the estimated model for prediction.

The results are presented as the dashed line in Figure 2. The dashed line indicates that the levels predicted by the model for the period after 2012 using 1985-2007 data only are lower than those predicted by the model that is estimated for 1985-2012. Nonetheless, the growth from 2012 to 2015 was not much lower (0.77 percentage points). These results suggest that the growth of the inward FDI in Japan under Abenomics has been driven mainly by explanatory variables other than the destination specific effects for Japan. Given the increases in GDPs and populations for many countries and the past trend, the model predicts that growth of inward FDI stock for Japan after 2013 would have been higher than or at least comparable to the actual growth. Thus, there is no clear evidence that the Abenomics policies to promote inward FDI were effective.

The second approach estimates the gravity model without observations that involve Japan as the destination country and use the estimated coefficients to calculate what Japan's inward FDI would be if Japan had the same destination country specific effect as the reference country (the U.S. in this case). Because our preferred specification of the gravity model includes destination country specific trend, we need to decide what trend we use in calculating counterfactual level of Japan's inward FDI. We have tried both (1) the trend for Japan estimated in the first approach and (2) the trend for the reference country (U.S.) estimated in the second approach.[14] Too large value for trend would overestimate the counterfactual FDI growth and hence underestimate the contribution of the Abenomics policies, while too small value for trend would underestimate the counterfactual FDI growth and overestimate the contribution of Abenomics.

Figure 3 shows the counterfactual predictions of Japan's inward FDI stock calculated in this way as well as the actual values. The dotted line shows the counterfactual prediction using the trend estimated for Japan in the first approach, and the broken line shows the counterfactual prediction using the trend estimated for the reference country in the second approach. The solid line shows the actual level of inward FDI stock.

If we use the trend for the U.S. in calculating the counterfactual prediction (broken line), the predicted FDI increases by 1.40 percentage points, clearly larger the actual growth (0.88%). When we use the trend for Japan estimated in the first approach (dotted line), the predicted increase is much larger (8.38 percentage points). Thus, our second approach also fails to find an evidence that Abenomics policy to promote inward FDI was successful.

=== Figure 3 ===

[14] We also calculated predicted values imposing zero trend. Under this extreme assumption, the predicted value for Japan's inward FDI stock becomes *lower* than the actual value every year since 2007, implying Japan's inward FDI would have been even lower if Japan had been like other OECD countries.

Note that the inward FDI in Japan was dominated by some OECD countries. Figure 4 presents the share of Japan's inward FDI Stock in 2016 by origin country. The largest origin country of inward FDI to Japan is the United States (25.2 percent), followed by the Netherlands (13.6 percent), France (12.0 percent), the United Kingdom (8.1 percent), Singapore (7.9 percent), and Switzerland (4.6 percent). These six countries together account for more than 70 percent of inward FDI stock in Japan. How do actual and predicted growth calculated in our second approach differ for inward FDI from each of the six origin countries?

=== Figure 4 ===

Table 5 presents the actual and predicted growth of inward FDI stocks to Japan from the six countries from 2012 to 2015. For the predicted values, we use the ones generated assuming the U.S. trend. The numbers are represented as a percentage of Japan's GDP. The table also reports the difference between the actual and predicted values, which we call "gap," for each country each year. Table 5 shows that the gaps were almost zero in both 2012 and 2015 for the Netherlands, Singapore, and Switzerland. Thus, Japan's inward FDI from those countries were not necessarily low. The gap was zero for France in 2012 but it dropped below zero in 2015. This may have resulted from the FDI promotion in Abenomics, though we need to examine this further to be confident. For the U.S. and the UK, the gaps were positive and did not shrink between 2012 and 2015. Especially for the U.S., the gap was big, suggesting that there is still unrealized potential for inward FDI from the U.S.

=== Table 5 ===

We use FDI stocks in our analysis for several reasons. FDI stocks are widely used in estimating gravity equation in the literature. The goal of Abenomics FDI promotion policy is also stated in stock. Our interest is mainly in the steady state level of FDI rather than the dynamics. For these reasons, we believe the stock measure is the right measure to use, but we have also conducted robustness check using FDI flow variables instead.

One problem of using flows instead of stocks is that the FDI variable can become negative. For the estimation for robustness check, we dropped all the observations with negative FDI flows.

Table 6 replicates the gravity equation estimation in Table 2 by replacing FDI stocks with FDI flows. The most preferred model is again the one with origin and destination fixed effects and destination country specific time trend. The distance tends to reduce inward FDI flow, while having colonial relationship, common religion and regional trade agreement tend to increase FDI flow. These results are qualitatively the same as those in Table 2, but there are some differences as well. Population of the origin country and per-capita GDP of the destination country have positive influences on FDI flow, but we do not find the impacts of per-capital GDP of the origin country and population of the destination country. We also fail to find that common official language increases FDI, while we find bilateral investment treaty tends to increase FDI.

=== Table 6 ===

We have also applied our two approaches to see if the Abenomics FDI promotion policies increased inward FDI using flow data instead of stock data. Figure 5 shows the result of the first approach (out of sample prediction) and Figure 6 shows the result of the second approach (prediction from estimation without Japan). In Figure 5, the increases for the predicted values (0.16 percentage points for the dotted line and 0.28 percentage points for the broken line) are larger than the actual increase of FDI flow from 2012 to 2015 (0.11 percentage points). In Figure 6, the increases for the predicted values (1.31 percentage points when the trend estimated for Japan is used and 9.86 percentage points when the trend estimated for the U.S. is used) are again larger than the actual growth of FDI flow. Thus, the analysis using FDI flows instead of stocks suggests the same conclusion: the increase of inward FDI from 2012 to 2015 can be explained by the factors captured in the gravity model other than an increase in Japan's destination country specific effect. In this sense, we fail to find the impact of Abenomics FDI promotion policies.

=== Figure 5 ===
=== Figure 6 ===

Another robustness check that we conducted concerns the timing of the explanatory variables in the gravity equation. We use contemporaneous variables rather than lagged values mainly because we are not concerned with the dynamics. Table 7 replicates the gravity equation estimation in Table 2 by using one-year lag for the explanatory variables that change over time. The results in Table 7 are very similar to those in Table 2. The preferred model is again the one with origin and destination fixed effects and country specific time trends. The only qualitative difference is that we do not find the impact of per-capita GDP of the destination country when we use lagged explanatory variables. The result is puzzling because the estimated coefficient on per-capital GDP is positive and statistically significant in the specifications without destination country specific time trend. It is possible that per-capita GDP may look too much like time trend, but if that is the case we would expect a similar problem to arise when we use contemporaneous explanatory variables.

=== Table 7 ===

We also applied our two approaches to examine the effectiveness of Abenomics FDI promotion policies using lagged explanatory variables. Figure 7 shows the results of the first approach and Figure 8 shows the results of the second approach. In Figure 7, the increases for the predicted values (2.15 percentage points for the dotted line and 1.26 percentage points for the broken line) are much larger than the actual increase (0.88 percentage points as we saw earlier). In Figure 8, the increases for the predicted values (3.14 percentage points when the U.S. trend is used and 7.64 percentage points when the Japan trend is used) are again much larger than the actual growth. Thus, the use of lagged explanatory variables leads us to the same conclusion: we do not find obvious impacts of the FDI promotion policies of the Abe administration.

=== Figure 7 ===
=== Figure 8 ===

Increasing inward FDI to Japan has been touted as one of the most important policy goals of Abenomics, and the amount of inward FDI stock has been rising toward the goal of 35 trillion yen by 2020. Yet, our analysis using the gravity model of inward FDI suggests that the increase in Japan's inward FDI from 2012 to 2015 was not larger than the predictions of the model.

Why did Abenomics FDI promotion fail to deliver obvious results? One possibility is that it takes a long time before the policy leads to visible impacts. Two or three years may not be long enough. We cannot exclude this possibility. If the policy lag is the only reason that we did not observe obvious impacts of Abenomics in our sample period, all we have to do is to just wait: Japan's inward FDI stock will start growing above the trend eventually.

It is also possible, however, that the lack of acceleration in Japan's inward FDI is indeed a result of ineffective or incomplete policies. For example, as we discussed in Section 2, the implementation of FDI promotion has been skewed to the measures to make it easier for foreigners to live or stay in Japan. The deregulation measures to make it easier to foreign (and domestic) businesses to do business in Japan has been slow. This may have limited the effectiveness of the Abenomics policy so far.

Improving Japan's rank in the World Bank Doing Business Ranking to one of the top three among OECD has been another goal of Abenomics growth strategy, but there has been no progress as Haider and Hoshi (2015) point out. The lack of progress in improving the condition for doing business may be related to no visible impacts of Abenomics on Japan's inward FDI stock. This can be checked by examining if the World Bank's doing business indices (measured as distance to frontier) matters for inward FDI after controlling for the gravity and other variables. The distance to frontier measure of the World Bank doing business index is higher if the country has better business condition (e.g., 90% to the frontier is better than 60% to the frontier). Thus, we would expect the doing business index enter the regression with a positive coefficient.

=== Table 8 ===

Table 8 reports the estimation results of the equation (2) augmented by the doing business indices. Since the doing business indices are available only after 2005 for many categories (e.g., paying taxes) and only after 2009 for overall index, the sample size here is smaller. The results indicate none of the coefficients on doing business indices are significantly positive, either when the indices are put in the gravity model one by one or all at the same time. Thus, we cannot argue that Japan's low ranking in the World Bank doing business condition is an important factor to discourage inward FDI.

6. Conclusion

Promotion of inward foreign direct investment (FDI) into Japan has been an important policy in the Abenomics growth strategy. This paper examined if we can observe positive effects of the inward FDI promotion policy in the data for inward FDI stocks in Japan. We have tried two approaches applying a gravity model of bilateral FDIs to data from 35 OECD countries by

origins of inward FDIs. In the first approach, we estimated the model assuming origin-country and destination-country fixed effects as well as destination-country specific time trends for 1985-2012. The destination-country fixed effect for Japan was estimated to be the third lowest of the 35 countries in our sample, reflecting unusually low level of Japan's inward FDI, which is well known in the literature. We then compared the predicted levels of Japan's inward FDI stocks for 2013-2015 to the actual levels. Although the actual inward FDI stock has been growing and is likely to achieve the goal of 35 trillion yen by 2020, we find that the growth was lower than the estimated model suggests.

The second approach started by estimating the gravity model excluding all the observations that involve Japan as the destination country. Then we constructed prediction from the estimated model for Japan's inward FDI. The actual inward FDI into Japan was found to be less than the counterfactual. The gap between the actual and the counterfactual were actually widened under the Abe administration.

Thus, our results suggest that Abenomics policies to encourage inward FDI did not have visible impacts. One shortcoming of our paper is that we do not test the impacts of Abenomics policies. Instead we try to look for indirect evidence of the impacts of Abenomics policies by examining any changes in Japan's inward FDI after 2012. Thus, we would fail to find the positive impacts of Abenomics policies if those were offset by any other changes that reduced Japan's inward FDI. But, we have difficulty coming up with some changes after 2012 that should have decreased Japan's FDI. Instead many changes that we can identify easily would have increased FDI flows into Japan. For example, the yen depreciated against other major currencies during our sample period. This must have contributed to raising Japan's inward FDI. Similarly, well known increase of foreign visitors should have led to increasing FDI if anything.

Another shortcoming of our paper is the fact that our dataset ends in 2015. Since Abenomics promotion of inward FDI seemed to have stepped up after 2016 especially in regulatory and administrative reforms, it is possible that those efforts may show up in future data. In fact, there is an optimistic interpretation of the results. Japan's inward FDI stock rose recently despite the unusually low destination-country effect for Japan is. This means that Japan's potential for inward FDI is much higher than what Abenomics targeted. If Japan can remove the impediments that make the inward FDI unusually low, Japan will be able to achieve the potential.

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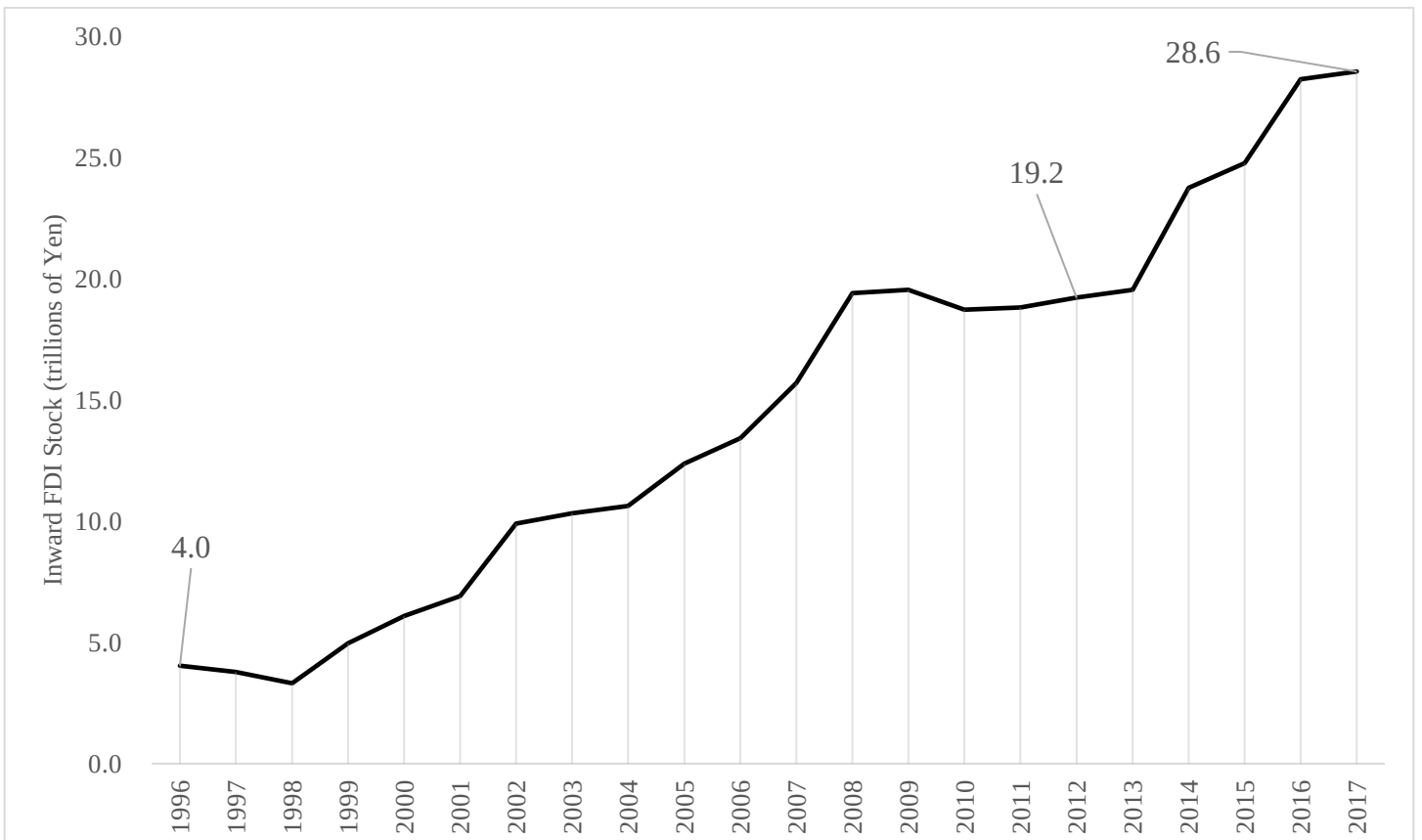
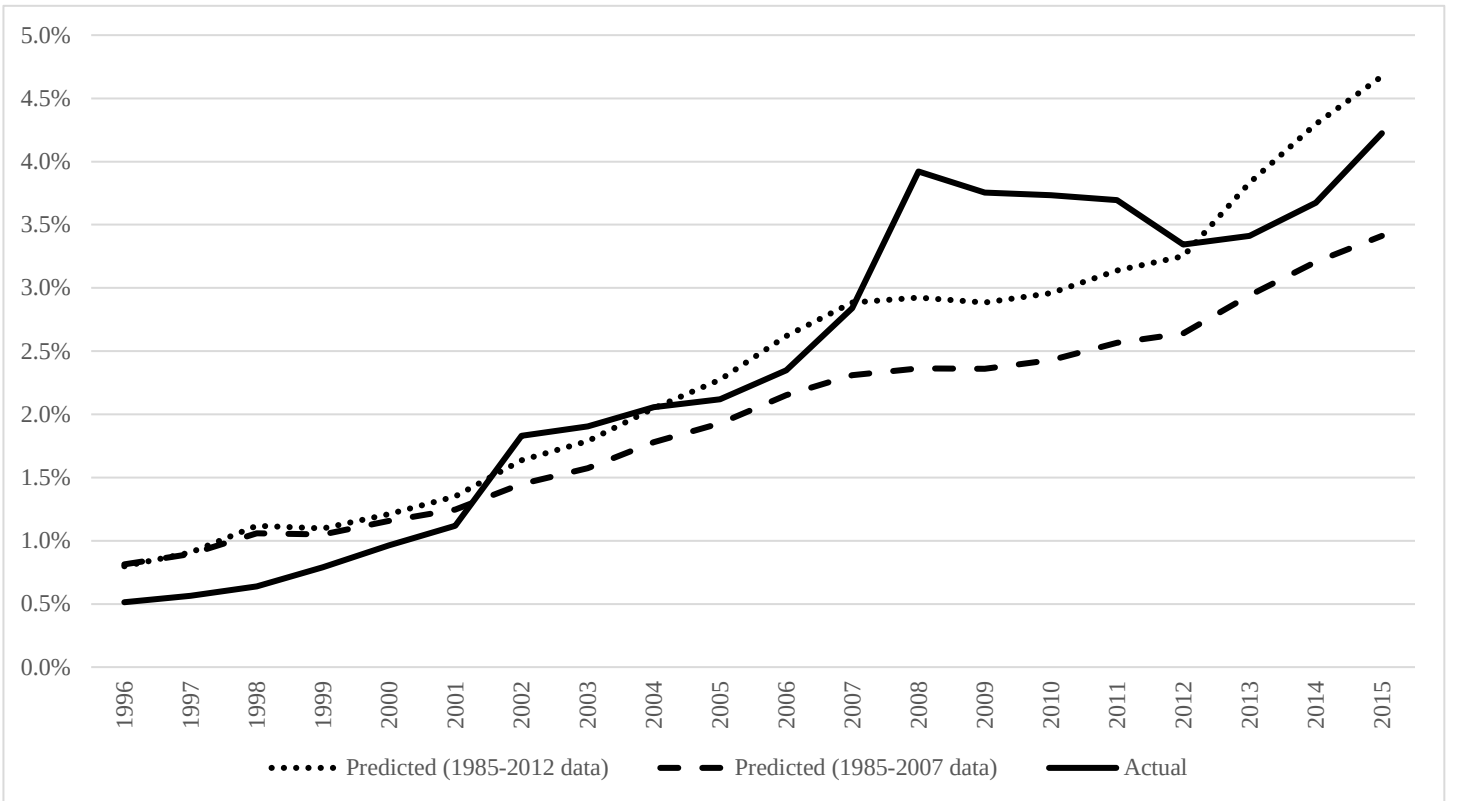
Figure 1. Inward FDI Stock for Japan, 1996-2016



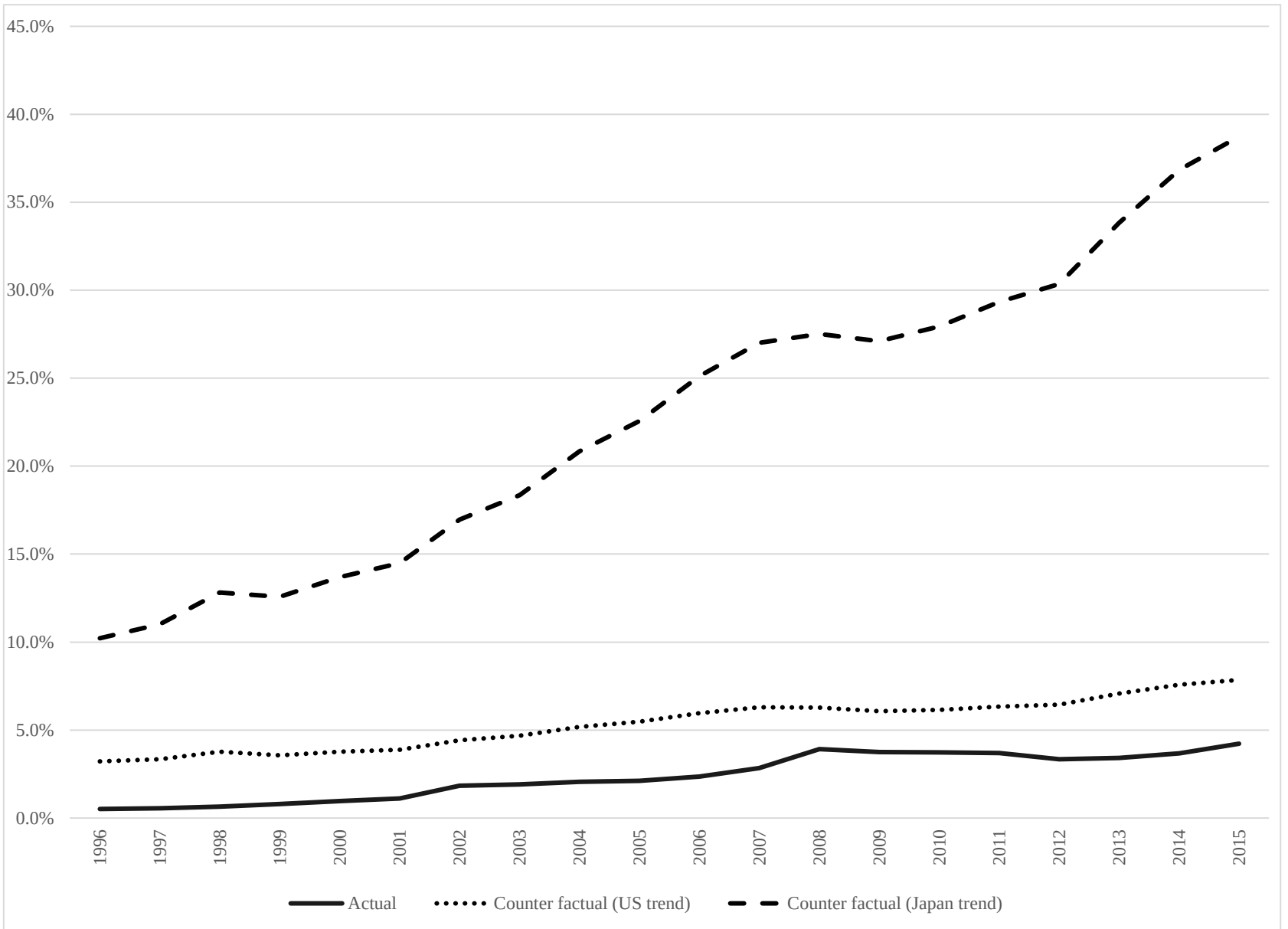
Source: Ministry of Finance (2018) International Investment Position (Historical Data).

Figure 2. Actual versus Predicted Inward FDI Stock for Japan (% of GDP)



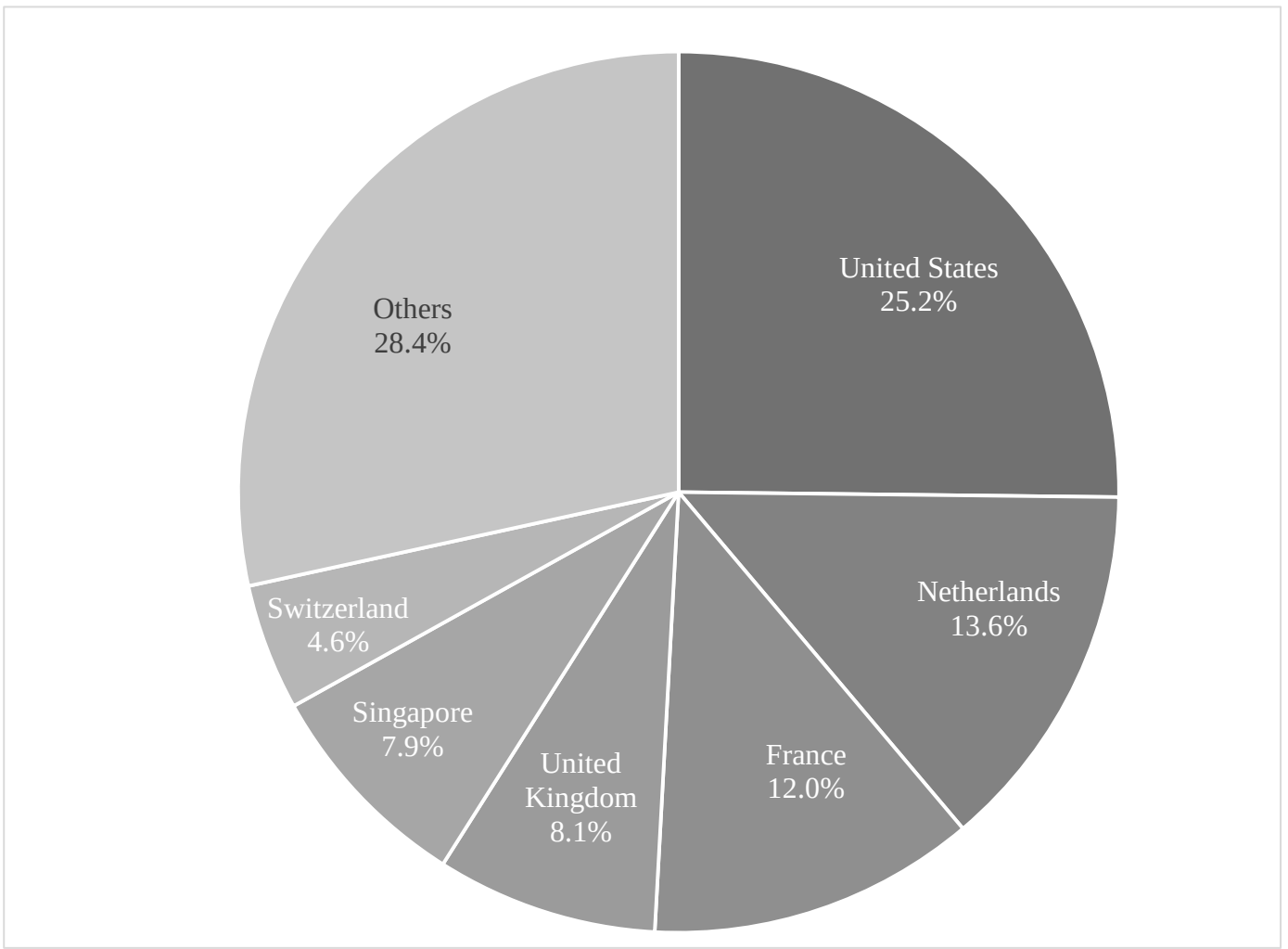
Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Figure 3. Actual versus Predicted Inward FDI Stock for Japan (% of GDP)



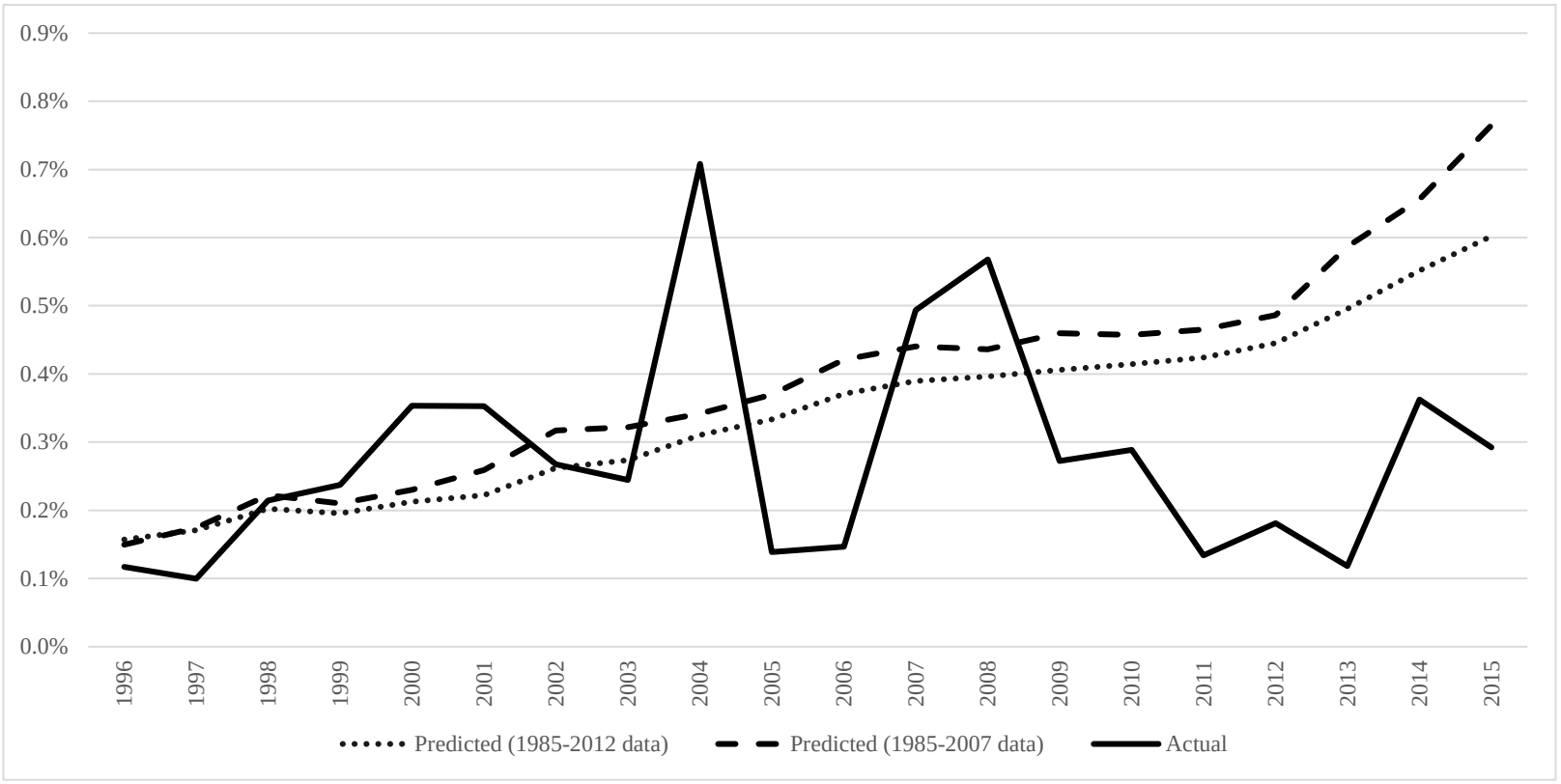
Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Figure 4. Share of Japan's Inward FDI Stock by Country (2016)



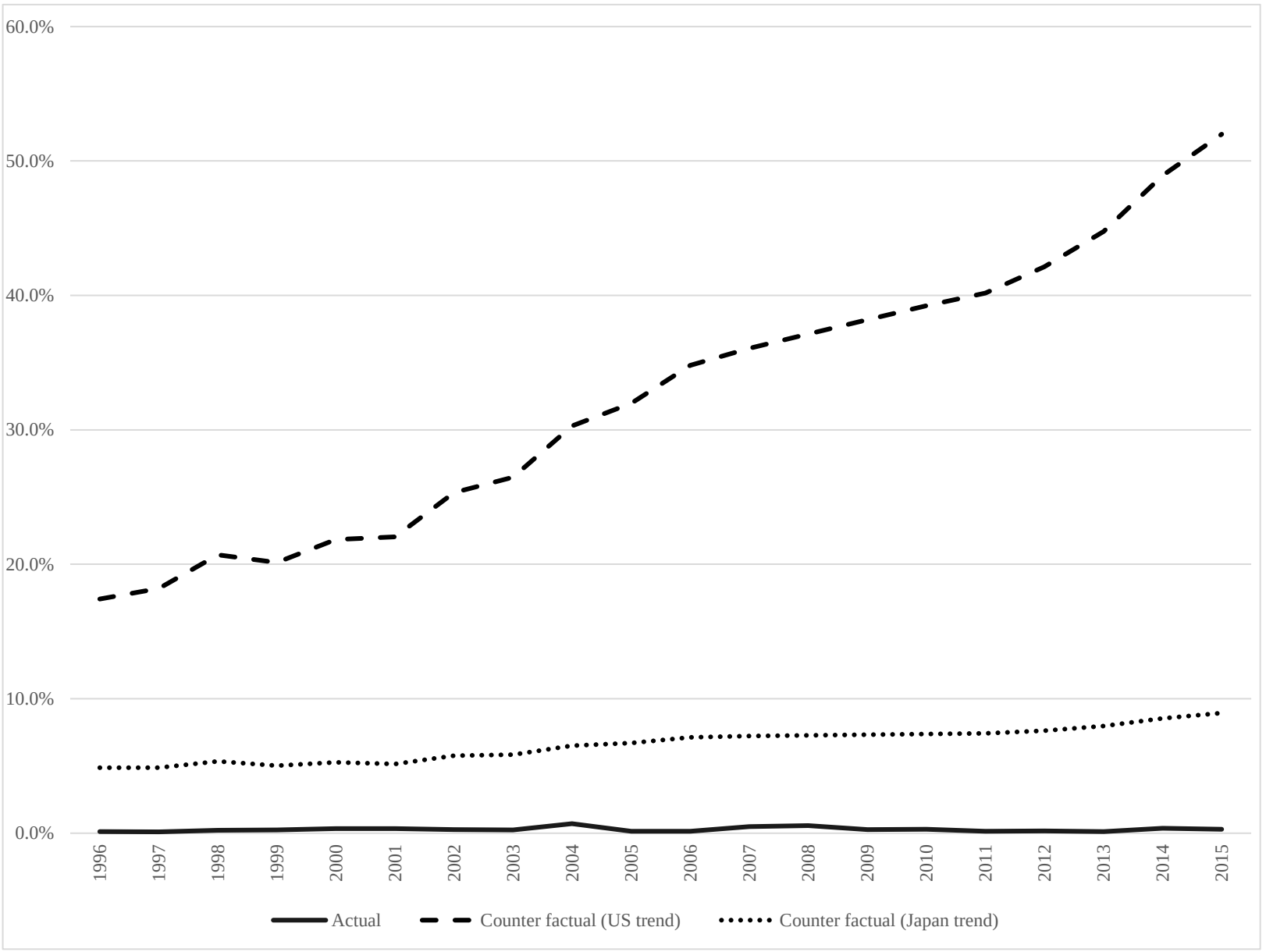
Source: Ministry of Finance (2018) International Investment Position.

Figure 5. Actual versus Predicted Inward FDI Flow for Japan (% of GDP)



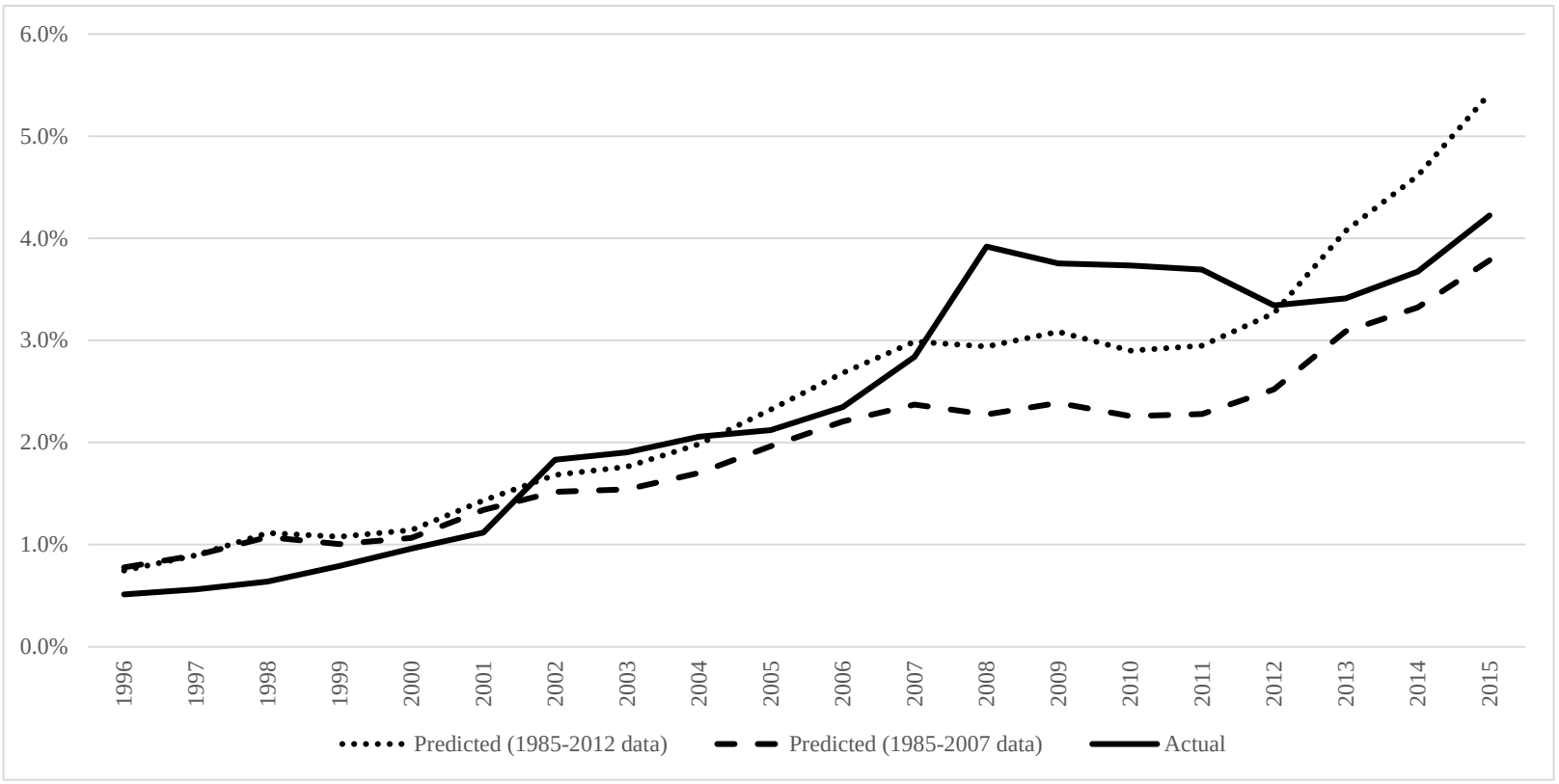
Sources: Inward FDI flow data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Figure 6. Actual versus Predicted Inward FDI Inflow for Japan (% of GDP)



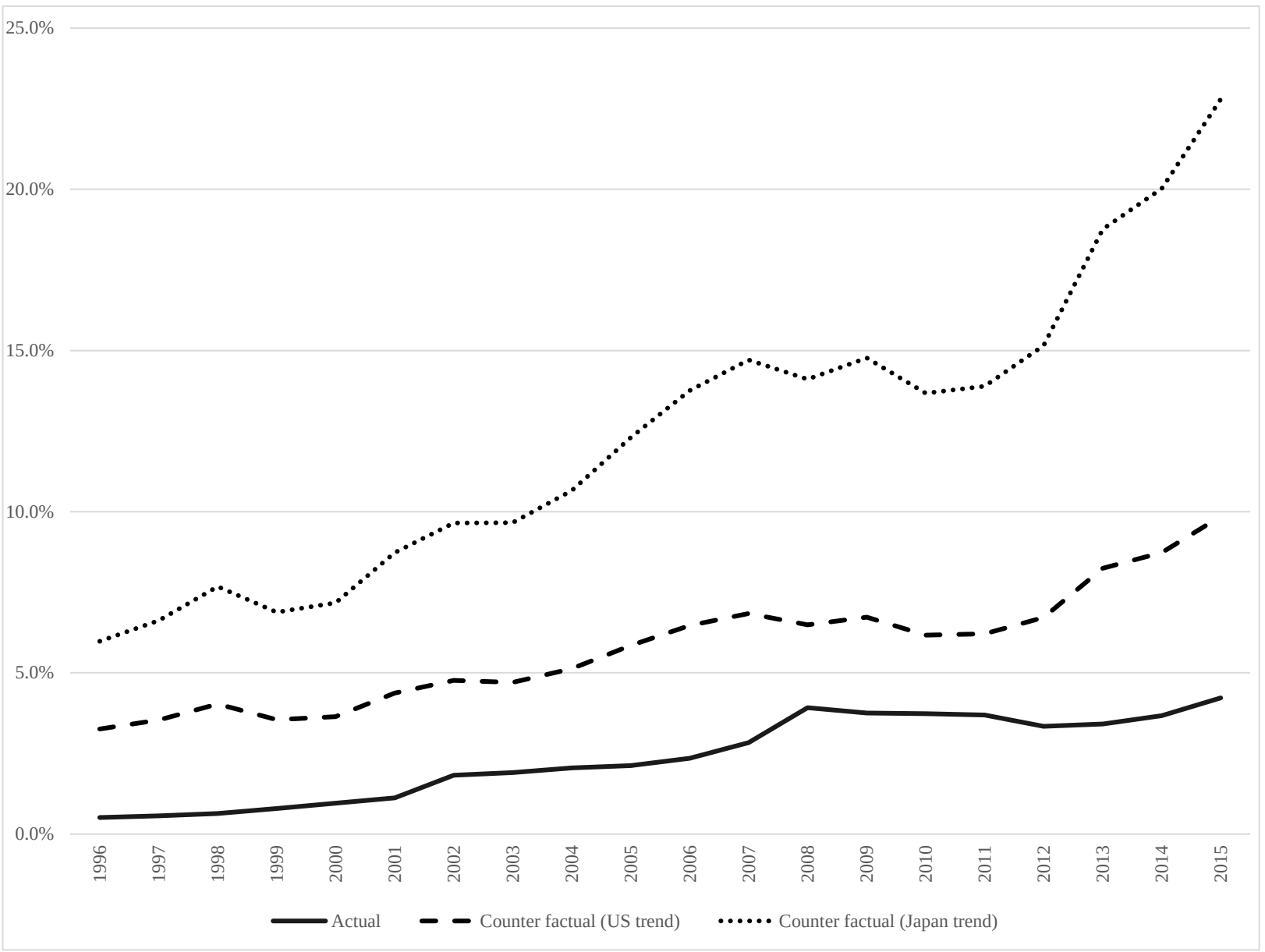
Sources: Inward FDI flow data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Figure 7. Actual versus Predicted Inward FDI Stock for Japan (% of GDP): Lagged Variables



Sources: Inward FDI flow data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Figure 8. Actual versus Predicted Inward FDI Stock for Japan (% of GDP): Lagged Variables



Sources: Inward FDI flow data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table 1. Ratio of Inward FDI Stock to GDP for OECD Countries, 1985-2015

	OECD	AUS	AUT	BEL	CAN	CHE	CHL	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IRL	ISL	ISR	ITA	JPN	KOR	LUX	LVA	MEX	NLD	NOR	NZL	POL	PRT	SVK	SVN	SWE	TUR	USA
1985	0.076	0.124	.	.	0.174	.	.	.	0.047	.	.	.	.	.	.	.	.	.	.	.	0.033	0.003	.	.	.	0.037	0.150	.	.	.	.	.	.	.	.	.	0.037
1986	0.072	0.132	0.046	.	0.181	.	.	.	0.045	.	.	.	.	.	.	.	.	.	.	.	0.032	0.003	.	.	.	0.056	0.146	.	.	.	.	.	.	0.033	.	0.043
1987	0.086	0.180	0.049	.	0.184	.	.	.	0.047	.	.	.	.	.	0.138	.	.	.	.	.	0.031	0.003	.	.	.	0.062	0.157	0.093	.	.	.	.	.	0.042	.	0.050
1988	0.083	0.219	0.046	.	0.186	.	.	.	0.042	.	.	.	.	.	0.136	.	.	.	0.015	.	0.034	0.003	.	.	.	0.078	0.143	0.086	.	.	.	.	.	0.040	.	0.056
1989	0.087	0.194	0.067	.	0.186	.	.	.	0.062	.	.	.	.	0.048	0.157	.	.	.	0.019	.	0.046	0.004	.	.	.	0.069	0.173	0.091	.	.	.	.	.	0.045	.	0.061
1990	0.088	0.208	0.064	.	0.188	.	.	.	0.065	.	.	.	.	0.060	0.182	.	.	.	0.022	.	0.043	0.004	0.018	.	.	0.076	0.187	0.104	.	.	.	.	.	0.039	.	0.062
1991	0.095	0.210	0.074	.	0.190	.	.	.	0.068	0.116	.	.	.	0.070	0.178	.	.	.	0.024	.	0.042	0.005	0.019	.	.	0.085	0.189	0.123	.	.	.	.	.	0.060	.	0.067
1992	0.084	0.191	0.066	.	0.181	.	.	.	0.058	.	.	.	0.029	0.090	0.143	.	0.111	.	0.017	.	0.032	0.005	0.019	.	.	0.099	0.174	0.096	.	.	.	.	.	0.048	.	0.064
1993	0.106	0.212	0.070	.	0.182	0.141	.	.	0.060	.	.	.	0.043	0.100	0.165	.	0.150	.	0.019	.	0.043	0.005	0.019	.	.	0.077	0.180	0.101	0.321	.	.	.	.	0.060	.	0.066
1994	0.116	0.257	0.074	.	0.189	0.158	.	.	0.069	0.124	.	.	0.060	0.115	0.160	.	0.162	.	0.020	.	0.046	0.005	0.018	.	.	0.067	0.216	0.121	0.393	0.025	.	.	.	0.091	.	0.070
1995	0.157	0.232	0.084	.	0.199	0.159	.	.	0.071	.	.	.	0.060	0.118	0.154	.	.	.	0.021	.	0.050	.	0.017	0.771	.	0.114	0.215	0.117	0.392	0.054	0.121	.	.	0.110	.	0.074
1996	0.158	0.249	0.082	.	0.206	0.147	.	.	0.152	.	.	.	0.064	0.122	0.167	.	.	.	0.026	.	0.051	0.005	0.019	0.696	.	0.109	0.232	0.114	0.465	0.068	0.153	.	.	0.113	.	0.079
1997	0.162	0.202	0.097	.	0.200	0.185	.	0.145	0.083	.	.	.	0.072	0.133	0.166	.	.	.	0.044	.	0.052	0.006	0.025	0.814	.	0.104	0.248	0.118	0.414	0.087	0.168	.	.	0.137	.	0.074
1998	0.201	0.222	0.111	.	0.219	0.225	.	0.209	0.108	0.162	.	.	0.120	0.162	0.186	.	0.330	.	0.050	.	0.065	0.006	0.051	0.948	.	0.120	0.290	0.164	0.497	0.122	0.202	.	.	0.180	.	0.079
1999	0.218	0.264	0.103	.	0.252	0.243	.	0.253	0.122	0.189	.	.	0.133	0.162	0.235	.	0.361	.	0.048	.	0.068	0.008	0.059	0.845	.	0.129	0.433	0.167	0.485	0.148	0.175	.	.	0.263	.	0.091
2000	0.232	0.237	0.153	.	0.279	0.311	.	0.329	0.164	0.334	0.001	0.006	0.191	0.189	0.260	.	0.365	.	0.044	.	0.083	0.010	0.064	1.020	.	0.133	0.587	0.165	0.478	0.183	0.230	0.150	.	0.351	0.072	0.111
2001	0.289	0.240	0.168	.	0.291	0.310	.	0.375	0.163	0.312	.	.	0.183	0.210	0.315	0.108	0.360	1.086	0.069	.	0.077	0.011	0.077	1.161	.	.	0.661	0.169	0.266	0.207	0.246	0.168	.	0.362	0.100	0.108
2002	0.322	0.274	0.200	.	0.300	0.404	.	0.048	0.256	0.355	0.156	.	0.244	0.254	0.295	0.108	0.392	1.459	0.064	.	0.083	0.018	0.073	1.395	.	.	0.749	0.198	0.303	0.229	0.307	0.233	.	0.425	0.081	0.120
2003	0.328	0.337	0.211	.	0.317	0.448	.	0.454	0.273	0.359	0.329	0.638	0.286	0.290	0.304	0.119	0.457	1.309	0.049	.	0.113	0.019	0.071	0.298	.	.	0.732	0.189	0.305	0.264	0.293	0.336	.	0.474	0.110	0.121
2004	0.378	0.343	0.220	.	0.309	0.491	.	0.476	0.253	0.445	0.319	0.752	0.285	0.310	0.294	0.107	0.483	1.011	0.129	.	0.120	0.021	0.073	1.358	.	.	0.721	0.283	0.407	0.336	0.315	0.378	.	0.510	0.097	0.122
2005	0.338	0.240	0.248	.	0.306	0.402	.	0.438	0.222	0.436	0.329	0.782	0.264	0.169	0.333	0.106	0.428	0.837	0.113	.	0.119	0.021	0.069	1.077	.	.	0.646	0.232	.	0.292	0.290	0.375	.	0.437	0.140	0.123
2006	0.395	0.276	0.313	.	0.277	0.548	0.483	0.513	0.261	0.463	0.360	0.709	0.317	0.214	0.419	0.133	0.666	0.712	0.411	.	0.150	0.023	0.066	1.151	.	.	0.747	0.259	0.475	0.359	.	0.475	0.225	0.546	0.177	0.129
2007	0.448	0.329	0.399	.	0.343	0.706	0.536	0.593	0.276	0.495	0.391	0.705	0.350	0.235	0.404	0.157	0.671	0.784	0.757	.	0.166	0.028	0.061	1.258	.	.	0.910	0.279	0.441	0.403	0.436	0.494	0.296	0.601	0.237	0.137
2008	0.411	0.208	0.335	1.603	0.276	0.761	0.518	0.478	0.243	0.420	0.356	0.637	0.289	0.193	0.321	0.104	0.514	0.746	0.524	0.230	0.135	0.039	0.070	1.126	.	.	0.650	0.226	0.324	0.300	0.350	0.508	0.280	0.544	0.110	0.138
2009	0.506	0.352	0.402	1.994	0.385	0.895	0.330	0.610	0.268	0.479	0.416	0.802	0.332	0.240	0.446	0.119	0.788	1.084	0.673	0.176	0.165	0.038	0.127	1.448	.	0.380	0.699	0.353	0.433	0.414	0.434	0.590	0.222	0.743	0.232	0.143
2010	0.511	0.341	0.399	1.923	0.351	0.955	0.324	0.620	0.265	0.439	0.431	0.798	0.340	0.240	0.452	0.131	0.693	1.270	0.889	0.172	0.153	0.037	0.123	1.278	.	0.368	0.687	.	0.412	0.443	0.431	0.567	0.218	0.691	0.255	0.151
2011	0.467	0.290	0.351	1.884	0.314	0.842	0.372	0.537	0.251	0.396	0.408	0.709	0.323	0.229	0.451	0.100	0.586	1.175	0.858	0.159	0.155	0.037	0.111	1.163	.	0.328	0.651	0.336	0.392	0.378	0.404	0.533	0.219	0.608	0.173	0.151
2012	0.526	0.313	0.376	1.836	0.332	0.913	0.391	0.652	0.280	0.450	0.444	0.824	0.369	0.244	0.536	0.109	0.748	1.663	0.733	0.171	0.178	0.033	0.127	1.308	.	0.383	0.690	0.390	0.509	0.465	0.478	0.603	0.258	0.690	0.240	0.157
2013	0.457	0.275	0.388	1.019	0.354	0.981	0.470	0.562	0.237	0.279	0.426	0.793	0.278	0.260	0.422	0.125	0.722	1.694	0.448	0.184	0.131	0.034	0.126	.	0.447	0.381	0.855	0.340	0.396	0.375	0.545	0.597	0.251	0.647	0.336	0.161
2014	0.420	0.308	0.355	0.855	0.347	0.943	0.547	0.546	0.199	0.255	0.403	0.703	0.288	0.227	0.377	0.117	0.672	1.533	0.441	0.156	0.115	0.037	0.117	.	0.462	0.374	0.763	0.321	0.369	0.324	0.481	0.497	0.247	0.526	0.225	0.166
2015	0.447	0.323	0.379	.	0.351	1.057	0.615	0.565	.	0.305	0.419	0.748	0.308	0.270	0.388	0.134	0.609	1.517	0.451	.	0.133	0.042	0.123	.	0.529	0.444	0.901	0.337	0.365	0.320	0.537	.	0.291	0.581	0.205	0.173

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. GDP data are obtained from the CEPII gravity data.

Table 2. Summary Statistics

	N	Mean	S.D.	p25	Median	p75
Inward FDI stock	59,665	2,098,331	13,976,827	0	0	47,938
RTA dummy	59,665	0.278	0.448	0.000	0.000	1.000
Bilateral investment treaties dummy	59,665	0.135	0.342	0.000	0.000	0.000
GATT-WTO member dummy	59,665	0.789	0.408	1.000	1.000	1.000
Common currency dummy	59,665	0.032	0.177	0.000	0.000	0.000
Distance (log value)	59,665	8.556	0.895	8.076	8.846	9.171
Common official language dummy	59,665	0.098	0.297	0.000	0.000	0.000
Common religion dummy	59,665	0.183	0.245	0.007	0.059	0.287
Colonial relationship dummy	59,665	0.039	0.192	0.000	0.000	0.000
Origin country						
Population (log value)	59,665	8.811	2.064	7.770	9.016	10.213
Per-capita GDP (log value)	59,665	1.449	1.642	0.090	1.440	2.928
Destination country						
Population (log value)	59,665	9.541	1.579	8.590	9.304	10.965
Per-capita GDP (log value)	59,665	3.205	0.729	2.747	3.297	3.745

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table 3. Gravity Model Estimation, 1985-2012: Baseline Results

	(1)	(2)	(3)
	Traditional gravity variables	Origin/ destination fixed effect	Origin/ destination fixed effect
RTA dummy	-0.202	0.269*	0.298**
	[0.197]	[0.144]	[0.134]
Bilateral investment treaties dummy	-0.590***	0.190*	0.135
	[0.124]	[0.111]	[0.112]
GATT-WTO member dummy	-0.076	0.059	0.021
	[0.263]	[0.174]	[0.168]
Common currency dummy	0.212	0.318***	0.260**
	[0.150]	[0.107]	[0.112]
Distance	-0.561***	-0.506***	-0.499***
	[0.091]	[0.069]	[0.066]
Common official language dummy	0.708***	0.335***	0.338***
	[0.141]	[0.093]	[0.094]
Common religion dummy	0.672***	1.532***	1.591***
	[0.253]	[0.237]	[0.235]
Colonial relationship dummy	0.565***	0.433***	0.440***
	[0.187]	[0.107]	[0.105]
Origin country			
Population	0.639***	1.601***	0.826*
	[0.041]	[0.484]	[0.428]
Per-capita GDP	1.897***	0.795***	0.589***
	[0.086]	[0.130]	[0.122]
Destination country			
Population	0.774***	0.852	3.168***
	[0.051]	[0.557]	[0.669]
Per-capita GDP	0.637***	0.923***	0.376***
	[0.085]	[0.111]	[0.101]
Number of observations	59,665	59,665	59,665
Origin and destination fixed effects	No	Yes	Yes
Country-specific time trend	No	No	Yes
RESET test *p* -value	0.730	0.370	0.852
HPC test *p* -values			
Column 1 as Alternative		0.442	0.419
Column 2 as Alternative	0.000		0.152
Column 3 as Alternative	0.000	0.000	

Notes: ***, **, and * indicate statistically significant at 1%, 5%, and 10%, respectively. Standard errors, which are clustered by pairs, are reported in brackets. Observations with the changes in inward FDI stock from the previous year falling in the top 1% or the bottom 1% of all observations are dropped. All the models are estimated by PPML.

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table 4. Destination-Country Specific Effects for OECD Countries

Country name	Abbreviations	Coefficient	Standard Errors
Australia	AUS	7.151***	[1.822]
Austria	AUT	4.125*	[2.364]
Belgium	BEL	7.689***	[2.524]
Canada	CAN	5.033***	[1.542]
Chile	CHL	9.307***	[2.514]
Czech Republic	CZE	2.005	[2.182]
Denmark	DNK	6.603**	[2.708]
Estonia	EST	9.798***	[3.642]
Finland	FIN	4.468*	[2.579]
France	FRA	1.794*	[1.021]
Germany	DEU	0.428	[0.860]
Greece	GRC	5.963***	[2.291]
Hungary	HUN	2.180	[2.004]
Iceland	ISL	6.268	[5.564]
Ireland	IRL	12.740***	[3.293]
Israel	ISR	16.290***	[4.908]
Italy	ITA	0.788	[1.038]
Japan	JPN	-2.573***	[0.747]
Korea	KOR	-1.188	[1.359]
Latvia	LVA	not available	
Luxembourg	LUX	15.623***	[4.650]
Mexico	MEX	0.029	[0.908]
Netherlands	NLD	5.461***	[1.890]
New Zealand	NZL	11.497***	[3.073]
Norway	NOR	6.897**	[2.833]
Poland	POL	-3.160**	[1.277]
Portugal	PRT	3.750*	[2.168]
Slovakia	SVK	3.102	[2.620]
Slovenia	SVN	14.973***	[3.656]
Spain	ESP	4.590**	[1.915]
Sweden	SWE	4.251*	[2.326]
Switzerland	CHE	3.990	[2.742]
Turkey	TUR	-3.039*	[1.717]
United Kingdom	GBR	2.259**	[1.084]
United States	USA	reference country	

Notes: Coefficients and standard errors are obtained from the model in column 3 of Table 2. ***, **, and * indicate the coefficient estimate is statistically significant at 1%, 5%, and 10% respectively. Standard errors, which are clustered by pairs, are reported in brackets. Coefficients on Latvia is not available because Latvia has been a member of the OECD since 2013.

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table 5. Actual and Counter-factual Inward FDI Stock, by Major Origin Country

US trend	2012			2015		
	actual	counter-factual	gap (% of total)	actual	counter-factual	gap (% of total)
United States	1.0	2.1	1.1 (34.4)	1.3	2.6	1.3 (35.1)
Netherlands	0.5	0.6	0.1 (3.1)	0.6	0.6	0.0 (0.0)
France	0.3	0.3	0.0 (0.0)	0.6	0.3	-0.3 (-8.1)
United Kingdom	0.3	0.6	0.3 (9.4)	0.3	0.7	0.4 (10.8)
Singapore	0.3	0.2	-0.1 (-3.1)	0.3	0.2	-0.1 (-2.7)
Switzerland	0.2	0.3	0.1 (3.1)	0.2	0.3	0.1 (2.7)
Total	3.3	6.5	3.2 (100.0)	4.2	7.9	3.7 (100.0)
Japan trend	2012			2015		
	actual	counter-factual	gap (% of total)	actual	counter-factual	gap (% of total)
United States	1.0	9.9	8.9 (32.8)	1.3	13.1	11.8 (34.2)
Netherlands	0.5	2.6	2.1 (7.7)	0.6	3.1	2.5 (7.2)
France	0.3	1.3	1.0 (3.7)	0.6	1.5	0.9 (2.6)
United Kingdom	0.3	2.8	2.5 (9.2)	0.3	3.6	3.3 (9.6)
Singapore	0.3	0.7	0.4 (1.5)	0.3	0.9	0.6 (1.7)
Switzerland	0.2	1.3	1.1 (4.1)	0.2	1.7	1.5 (4.3)
Total	3.3	30.4	27.1 (100.0)	4.2	38.7	34.5 (100.0)

Notes: This figure indicates actual and counter-factual inward FDI stock as a percentage of Japan's GDP. Counterfactual inward FDI stock is obtained from the second approach. Gap indicates the difference between counterfactual and actual values. Figure in parenthesis indicates the ratio of each country's gap to total gap.

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For

Table 6. Gravity Model Estimation, 1985-2012: FDI Inflows

	(1)	(2)	(3)
	Traditional gravity variables	Origin/ destination fixed effect	Origin/ destination fixed effect
RTA dummy	-0.258	0.223	0.292**
	[0.223]	[0.152]	[0.147]
Bilateral investment treaties dummy	-0.569***	0.290***	0.315***
	[0.132]	[0.105]	[0.104]
GATT-WTO member dummy	0.155	0.135	0.300
	[0.278]	[0.279]	[0.257]
Common currency dummy	0.315**	0.330**	0.259*
	[0.151]	[0.149]	[0.155]
Distance	-0.419***	-0.389***	-0.372***
	[0.082]	[0.074]	[0.073]
Common official language dummy	0.592***	0.039	0.027
	[0.163]	[0.110]	[0.111]
Common religion dummy	0.698***	0.961***	1.028***
	[0.248]	[0.280]	[0.276]
Colonial relationship dummy	0.684***	0.286**	0.311**
	[0.248]	[0.130]	[0.125]
Origin country			
Population	0.530***	1.858***	1.461**
	[0.038]	[0.699]	[0.665]
Per-capita GDP	1.507***	0.345	0.204
	[0.086]	[0.219]	[0.199]
Destination country			
Population	0.489***	0.541	-1.657
	[0.088]	[1.114]	[1.577]
Per-capita GDP	1.056***	1.031***	0.556**
	[0.173]	[0.177]	[0.269]
Number of observations	44,546	44,546	44,546
Origin and destination fixed effects	No	Yes	Yes
Country-specific time trend	No	No	Yes
RESET test *p* -value	0.055	0.705	0.999
HPC test *p* -values			
Column 1 as Alternative		0.060	0.040
Column 2 as Alternative	0.000		0.390
Column 3 as Alternative	0.000	0.000	

Notes: ***, **, and * indicate statistically significant at 1%, 5%, and 10%, respectively. Standard errors, which are clustered by pairs, are reported in brackets. Observations with the changes in inward FDI stock from the previous year falling in the top 1% or the bottom 1% of all observations are dropped. All the models are estimated by PPML.

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table 7. Gravity Model Estimation, 1985-2012: Lagged Independent Variables

	(1)	(2)	(3)
	Traditional gravity variables	Origin/ destination fixed effect	Origin/ destination fixed effect
RTA dummy	-0.220	0.271*	0.306**
	[0.201]	[0.141]	[0.132]
Bilateral investment treaties dummy	-0.627***	0.194*	0.136
	[0.121]	[0.112]	[0.113]
GATT-WTO member dummy	0.030	-0.043	-0.055
	[0.256]	[0.183]	[0.172]
Common currency dummy	0.203	0.352***	0.279**
	[0.150]	[0.104]	[0.109]
Distance	-0.558***	-0.506***	-0.497***
	[0.093]	[0.068]	[0.066]
Common official language dummy	0.729***	0.333***	0.337***
	[0.142]	[0.093]	[0.094]
Common religion dummy	0.654***	1.499***	1.584***
	[0.250]	[0.238]	[0.236]
Colonial relationship dummy	0.549***	0.432***	0.440***
	[0.187]	[0.107]	[0.106]
Origin country			
Population	0.624***	1.831***	0.742*
	[0.041]	[0.492]	[0.445]
Per-capita GDP	1.846***	0.735***	0.527***
	[0.083]	[0.132]	[0.125]
Destination country			
Population	0.767***	1.346**	4.323***
	[0.052]	[0.554]	[0.800]
Per-capita GDP	0.578***	0.749***	0.076
	[0.082]	[0.114]	[0.116]
Number of observations	55,031	55,031	55,031
Origin and destination fixed effects	No	Yes	Yes
Country-specific time trend	No	No	Yes
RESET test *p* -value	0.810	0.280	0.997
HPC test *p* -values			
Column 1 as Alternative		0.405	0.391
Column 2 as Alternative	0.000		0.159
Column 3 as Alternative	0.000	0.001	

Notes: ***, **, and * indicate statistically significant at 1%, 5%, and 10%, respectively. Standard errors, which are clustered by pairs, are reported in brackets. Observations with the changes in inward FDI stock from the previous year falling in the top 1% or the bottom 1% of all observations are dropped. All the models are estimated by PPML.

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table 8. Gravity Model Estimation with Doing Business: 2005-2015

	(1)	(2)	(3)	(4)	(5)
	Starting business	Paying tax	Enforcing contract	All	Overall
RTA dummy	0.314**	0.314**	0.314**	0.314**	0.346***
	[0.128]	[0.124]	[0.128]	[0.124]	[0.128]
Bilateral investment treaties dummy	0.071	0.06	0.071	0.06	0.084
	[0.111]	[0.112]	[0.111]	[0.112]	[0.119]
GATT-WTO member dummy	0.644***	0.599**	0.640***	0.599**	0.615***
	[0.213]	[0.236]	[0.213]	[0.235]	[0.218]
Common currency dummy	0.063	0.051	0.063	0.051	-0.02
	[0.138]	[0.139]	[0.138]	[0.139]	[0.148]
Distance	-0.529***	-0.536***	-0.529***	-0.536***	-0.544***
	[0.063]	[0.062]	[0.063]	[0.062]	[0.061]
Common official language dummy	0.315***	0.317***	0.315***	0.317***	0.310***
	[0.102]	[0.105]	[0.102]	[0.105]	[0.114]
Common religion dummy	1.649***	1.642***	1.649***	1.642***	1.620***
	[0.238]	[0.242]	[0.238]	[0.242]	[0.262]
Colonial relationship dummy	0.464***	0.473***	0.464***	0.473***	0.515***
	[0.110]	[0.113]	[0.110]	[0.113]	[0.125]
Origin country					
Population	0.866	0.438	0.85	0.433	-0.853
	[0.697]	[0.807]	[0.694]	[0.806]	[1.284]
Per-capita GDP	0.411***	0.296***	0.421***	0.299***	0.1
	[0.110]	[0.101]	[0.109]	[0.101]	[0.161]
Destination country					
Population	-0.506	1.628	-0.379	2.084	-2.215
	[1.923]	[1.721]	[1.824]	[1.787]	[3.016]
Per-capita GDP	0.557***	0.351***	0.561***	0.352***	0.297**
	[0.091]	[0.094]	[0.090]	[0.095]	[0.146]
Doing-business: Starting business	0.002			0.007**	
	[0.004]			[0.003]	
Doing-business: Paying tax		-0.002		-0.002	
		[0.003]		[0.003]	
Doing-business: Enforcing contract			-0.005	0	
			[0.003]	[0.003]	
Doing-business: Overall					-0.001
					[0.011]
Number of observations	47,464	40,386	47,464	40,386	23,586
Country-specific time trend	Yes	Yes	Yes	No	No
Origin and destination fixed effects	Yes	Yes	Yes	Yes	Yes
RESET test *p* -value	0.145	0.081	0.158	0.082	0.049

Notes: ***, **, and * indicate statistically significant at 1%, 5%, and 10%, respectively. Standard errors, which are clustered by pairs, are reported in brackets. Observations with the changes in inward FDI stock from the previous year falling in the top 1% or the bottom 1% of all observations are dropped. All the models are estimated by PPML.

Sources: Inward FDI stock and flows data are obtained from the OECD International Direct Investment Database. For other data, see main text.

Table A1. Inward FDI Stocks

	AUS	AUT	BEL	CAN	CHE	CHL	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IRL	ISL	ISR	ITA	JPN	KOR	LUX	LVA	MEX	NLD	NOR	NZL	POL	PRT	SVK	SVN	SWE	TUR	USA
1985	22	.	.	63	.	.	.	35	.	.	.	.	.	.	.	.	.	.	.	15	5	.	.	.	7	21	.	.	.	.	.	.	.	.	161
1986	24	5	.	68	.	.	.	47	.	.	.	.	.	.	.	.	.	.	.	20	6	.	.	.	7	29	.	.	.	.	.	.	5	.	198
1987	34	6	.	79	.	.	.	61	.	.	.	.	.	101	.	.	.	.	.	25	7	.	.	.	9	38	9	.	.	.	.	.	8	.	245
1988	52	6	.	94	.	.	.	58	.	.	.	.	.	121	.	.	.	0	.	31	9	.	.	.	14	37	9	.	.	.	.	.	8	.	296
1989	58	9	.	105	.	.	.	87	.	.	.	.	50	141	.	.	.	0	.	43	12	.	.	.	15	44	9	.	.	.	.	.	10	.	345
1990	65	11	.	111	.	.	.	115	.	.	.	.	77	194	.	.	.	0	.	51	14	5	.	.	20	58	12	.	.	.	.	.	10	.	368
1991	68	13	.	116	.	.	.	126	16	.	.	.	89	199	.	.	.	0	.	53	18	6	.	.	27	61	15	.	.	.	.	.	16	.	414
1992	62	13	.	107	.	.	.	124	.	.	.	3	126	166	.	4	.	0	.	43	20	7	.	.	36	62	12	.	.	.	.	.	13	.	420
1993	66	13	.	105	37	.	.	124	.	.	.	4	133	172	.	6	.	0	.	45	23	7	.	.	39	63	12	15	.	.	.	.	13	.	453
1994	83	15	.	109	46	.	.	152	19	.	.	6	162	180	.	7	.	0	.	50	27	8	.	.	35	80	15	21	3	.	.	.	21	.	514
1995	85	20	.	120	54	.	.	183	.	.	.	8	190	190	.	.	.	0	.	58	.	9	17	.	39	96	17	25	8	14	.	.	29	.	569
1996	100	20	.	129	48	.	.	379	.	.	.	8	198	217	.	.	.	0	.	66	24	11	15	.	43	103	18	32	11	19	.	.	32	.	641
1997	88	21	.	130	53	.	9	183	.	.	.	9	195	239	.	.	.	0	.	65	24	14	16	.	50	102	19	27	14	20	.	.	36	.	634
1998	89	24	.	138	66	.	14	242	29	.	.	16	245	285	.	16	.	0	.	83	25	19	19	.	60	125	25	28	21	25	.	.	48	.	718
1999	103	22	.	170	71	.	16	269	34	.	.	18	243	366	.	18	.	0	.	85	35	29	19	.	75	190	26	28	25	22	.	.	71	.	882
2000	98	30	.	206	84	.	20	318	55	1	0	24	258	402	.	17	.	0	.	95	46	36	22	.	91	243	28	25	31	27	4	.	91	19	1147
2001	91	33	.	213	86	.	25	317	51	.	.	24	291	482	15	19	118	1	.	90	47	41	24	.	.	282	29	14	40	30	5	.	87	20	1148
2002	108	43	.	225	122	.	4	532	63	110	.	34	382	495	16	26	186	1	.	105	73	44	32	.	.	348	38	20	46	41	8	.	112	19	1318
2003	157	55	.	281	158	.	45	682	78	298	6	49	536	592	24	39	214	1	.	177	82	48	9	.	.	418	42	27	57	48	16	.	157	33	1391
2004	210	66	.	315	193	.	57	713	112	342	9	56	658	676	26	50	195	2	.	217	96	56	46	.	.	466	74	42	85	60	22	.	195	38	1492
2005	166	78	.	356	164	.	60	635	115	380	11	54	372	803	26	48	176	2	.	220	97	62	40	.	.	434	71	.	89	57	24	.	170	68	1604
2006	206	105	.	363	235	75	80	782	131	455	12	69	498	1083	36	76	164	7	.	291	102	67	48	.	.	537	88	52	123	.	33	9	229	94	1787
2007	281	154	.	501	337	93	112	947	158	579	16	89	626	1198	50	93	211	16	.	365	124	68	62	.	.	758	110	60	173	105	42	14	293	153	1982
2008	219	143	834	425	420	93	113	910	148	581	15	82	566	895	37	80	204	9	49	323	190	70	62	.	.	605	103	42	159	92	51	16	280	80	2035
2009	326	160	969	528	483	57	125	914	153	624	16	84	646	1030	39	102	253	9	36	360	189	114	73	.	340	600	134	52	181	106	52	11	319	143	2063
2010	389	156	931	567	555	70	128	904	140	616	16	84	636	1087	39	90	277	12	40	326	205	134	67	.	387	575	.	59	211	103	50	10	337	187	2266
2011	402	151	995	559	586	93	122	941	135	610	16	88	656	1170	29	82	279	13	41	353	218	134	69	.	384	582	165	64	198	99	52	11	342	134	2348
2012	480	153	916	605	608	104	135	989	145	602	19	94	655	1402	27	95	369	10	44	372	199	155	74	.	454	568	195	87	231	104	56	12	375	189	2534
2013	429	166	535	646	673	130	117	884	94	594	20	74	729	1130	30	96	393	7	54	281	168	164	.	14	480	729	175	74	197	124	58	12	375	276	2698
2014	448	155	455	619	663	142	114	770	88	556	18	78	644	1132	28	94	393	8	48	248	169	166	.	14	486	671	160	74	177	111	50	12	302	180	2879
2015	433	143	.	544	709	148	105	.	90	502	17	71	653	1109	26	74	430	7	.	241	174	169	.	14	508	676	130	63	153	107	.	12	288	147	3118

Notes: Figures are reported in the billions of US dollars.

Sources: Inward FDI stock data are obtained from the OECD International Direct Investment Database.

Table A2. GDP

	AUS	AUT	BEL	CAN	CHE	CHL	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IRL	ISL	ISR	ITA	JPN	KOR	LUX	LVA	MEX	NLD	NOR	NZL	POL	PRT	SVK	SVN	SWE	TUR	USA
1985	180	69	87	363	107	16	28	730	62	180	.	56	555	486	48	21	21	3	24	451	1385	104	5	.	184	141	64	24	71	27	.	.	113	67	4347
1986	182	99	120	376	154	18	32	1042	88	251	.	74	775	597	57	24	29	4	30	639	2051	120	7	.	129	198	77	30	74	39	.	.	148	76	4590
1987	189	124	150	429	193	21	36	1293	109	318	.	92	938	733	66	26	34	6	35	803	2485	151	9	6	140	241	92	40	64	48	.	.	180	87	4870
1988	236	133	163	506	209	25	36	1396	115	375	.	109	1024	891	77	29	38	6	44	889	3015	202	10	7	183	258	100	45	69	56	.	.	204	91	5253
1989	299	133	165	564	202	28	35	1394	112	414	.	119	1030	899	79	29	39	6	45	926	3017	249	10	8	223	254	101	44	82	61	.	.	215	107	5658
1990	311	166	206	592	257	32	40	1765	138	535	.	142	1275	1067	98	33	49	7	52	1178	3104	285	13	7	263	313	118	45	65	79	13	.	258	151	5980
1991	326	173	211	608	260	36	30	1862	139	576	7	128	1276	1116	106	35	50	7	59	1243	3537	332	14	7	314	322	120	42	84	89	14	.	270	151	6174
1992	325	195	236	590	271	44	34	2123	153	629	.	113	1409	1158	117	39	56	7	66	1316	3853	356	16	5	364	357	128	41	93	108	15	.	280	159	6539
1993	312	190	226	575	264	48	40	2069	143	524	.	89	1330	1043	109	40	52	6	66	1062	4415	392	17	4	504	348	118	46	94	95	16	.	210	180	6879
1994	323	203	246	576	292	55	47	2206	156	529	.	103	1402	1130	117	43	57	6	75	1096	4850	459	18	5	527	373	125	55	109	100	20	.	226	131	7309
1995	368	240	289	602	342	71	60	2591	185	613	4	134	1610	1236	137	46	69	7	99	1171	5334	559	22	5	344	445	149	63	139	118	26	21	264	169	7664
1996	401	237	281	627	330	76	67	2502	188	641	5	132	1614	1305	147	46	76	8	109	1309	4706	603	22	6	397	443	160	70	157	123	28	21	288	181	8100
1997	436	212	254	651	287	83	62	2216	174	589	5	127	1461	1439	143	47	83	8	113	1240	4324	560	19	6	481	410	158	65	158	117	28	21	264	190	8609
1998	399	218	260	631	295	79	66	2240	177	617	6	134	1511	1529	145	49	90	8	115	1267	3915	376	20	7	502	431	151	56	173	124	30	22	267	269	9089
1999	389	217	260	674	290	73	65	2197	178	633	6	135	1500	1558	143	49	99	9	116	1249	4433	486	22	7	579	440	159	58	168	127	30	23	271	250	9661
2000	415	196	237	739	272	79	61	1947	164	595	6	126	1368	1549	131	47	99	9	131	1142	4731	562	21	8	684	413	168	52	172	118	29	20	260	267	10285
2001	378	197	237	733	279	72	67	1948	165	626	6	129	1382	1529	136	54	108	8	130	1163	4160	533	21	8	725	426	171	53	191	122	31	21	240	196	10622
2002	394	213	258	753	301	71	82	2076	179	705	7	140	1500	1674	153	67	127	9	120	1267	3981	609	23	9	742	464	192	66	199	134	35	24	264	233	10978
2003	466	261	319	888	352	78	99	2502	218	907	10	171	1848	1944	202	85	163	11	125	1570	4303	681	29	11	713	571	225	87	218	165	47	30	331	303	11511
2004	613	300	370	1018	394	101	119	2816	251	1070	12	197	2124	2298	240	103	193	14	134	1799	4656	765	34	14	770	646	260	103	254	189	57	34	382	392	12275
2005	693	315	387	1164	408	124	136	2858	265	1157	14	204	2204	2412	248	112	210	17	141	1853	4572	898	37	16	866	672	304	114	304	197	63	36	389	483	13094
2006	747	334	411	1311	429	155	155	2998	283	1264	17	217	2325	2583	273	114	231	17	152	1943	4357	1012	42	20	967	719	340	110	343	209	70	40	420	531	13856
2007	853	386	472	1458	477	173	189	3436	320	1479	22	255	2663	2963	319	139	269	21	177	2204	4356	1123	49	29	1043	833	393	135	429	240	86	48	488	647	14478
2008	1055	428	520	1543	552	180	235	3747	353	1635	24	284	2924	2792	355	157	274	18	214	2392	4849	1002	55	34	1099	931	454	130	530	262	100	56	514	730	14719
2009	926	398	486	1371	540	172	206	3413	320	1499	20	251	2694	2309	330	129	234	13	206	2186	5035	902	50	26	895	858	379	119	436	244	89	50	430	615	14419
2010	1141	390	484	1614	581	218	207	3412	320	1432	19	248	2647	2408	300	130	218	13	233	2127	5495	1094	52	24	1052	836	421	143	477	238	89	48	488	731	14964
2011	1388	429	528	1779	696	251	227	3752	341	1495	23	274	2863	2592	289	139	238	15	258	2278	5906	1202	59	28	1170	894	491	164	524	245	98	51	563	775	15518
2012	1534	408	499	1821	666	266	207	3533	322	1356	23	256	2687	2615	250	127	222	14	257	2092	5954	1223	56	28	1186	823	500	171	496	218	93	46	544	789	16163
2013	1560	428	525	1827	685	277	209	3730	336	1393	25	267	2806	2678	242	133	232	15	291	2149	4920	1305	60	31	1261	854	513	186	526	227	98	48	580	822	16768
2014	1455	438	532	1784	703	259	208	3879	346	1381	26	272	2839	2999	236	139	256	17	309	2150	4596	1411	65	31	1298	880	498	200	545	230	101	50	574	799	17393
2015	1339	377	455	1551	671	241	185	3363	295	1199	22	232	2419	2858	195	122	284	17	299	1821	4123	1378	58	27	1144	750	387	174	477	199	87	43	496	718	18037

Notes: Figures are reported in the billions of US dollars. Negative values are treated as missing values.

Sources: GDP data are obtained from the CEPII gravity data.

Table A3. Inward FDI Flows

	AUS	AUT	BEL	CAN	CHE	CHL	CZE	DEU	DNK	ESP	EST	FIN	FRA	GBR	GRC	HUN	IRL	ISL	ISR	ITA	JPN	KOR	LUX	LVA	MEX	NLD	NOR	NZL	POL	PRT	SVK	SVN	SWE	TUR	USA
1985	2	.	.	1	.	.	.	1	0	1	.	0	2	5	.	.	0	.	.	1	1	0	.	.	3	1	.	0	.	0	.	.	0	.	19
1986	2	.	.	2	0	.	.	2	0	2	.	0	2	7	.	.	0	.	.	1	1	0	.	.	4	2	1	0	.	0	.	.	1	.	35
1987	1	.	.	6	1	.	.	3	0	4	.	0	4	13	1	.	0	.	.	3	1	1	.	.	3	2	1	0	.	0	.	.	0	.	62
1988	5	.	.	5	0	.	.	4	1	5	.	0	7	20	1	.	0	0	.	4	3	1	.	.	3	3	1	0	.	1	.	.	1	.	57
1989	8	.	.	3	0	.	.	7	1	7	.	0	9	27	1	.	0	0	.	5	2	1	.	.	4	4	1	0	.	1	.	.	1	.	65
1990	5	.	.	5	3	.	.	5	1	12	.	1	8	28	1	.	0	0	.	6	2	1	.	.	3	7	2	2	.	2	.	.	2	.	44
1991	5	.	.	2	1	.	.	6	1	10	.	0	10	15	1	.	0	0	.	1	4	1	.	.	5	3	1	2	.	2	.	.	6	.	32
1992	4	.	.	3	1	.	.	3	1	10	.	0	14	15	3	.	0	0	.	2	3	1	.	.	8	5	1	2	.	2	.	.	3	1	20
1993	4	.	.	4	0	.	1	5	2	12	.	1	10	14	.	.	0	0	.	3	3	1	.	.	7	7	2	2	1	1	.	.	3	1	50
1994	4	0	.	8	4	.	1	8	5	13	.	2	10	9	.	.	0	0	.	2	4	1	.	.	12	5	2	3	1	1	.	.	6	1	42
1995	3	0	.	6	3	.	2	14	4	11	.	1	22	23	.	.	0	0	.	4	3	1	.	.	8	10	2	3	3	1	.	.	12	1	55
1996	9	0	.	8	3	.	1	13	1	12	.	2	22	25	.	.	1	0	.	3	6	2	.	.	8	12	5	4	4	2	.	.	5	1	87
1997	7	.	.	10	6	.	1	14	3	12	.	2	21	32	.	.	1	0	.	2	4	3	.	.	11	12	5	2	5	2	.	.	9	1	91
1998	6	.	.	18	9	.	3	29	6	10	.	13	25	67	.	.	.	0	.	3	8	5	.	.	7	22	4	3	6	2	.	.	17	1	164
1999	6	3	.	25	13	.	5	66	11	19	.	5	34	91	.	3	.	0	.	6	11	10	.	.	14	41	6	3	7	2	.	.	19	1	260
2000	7	10	.	18	19	.	5	199	32	39	.	9	41	112	.	.	.	0	.	13	17	7	.	.	21	64	7	2	9	7	2	.	17	2	269
2001	4	6	.	32	10	.	6	46	12	28	.	4	52	52	1	4	16	0	.	12	15	4	.	.	30	53	2	1	6	6	1	.	13	3	162
2002	14	2	21	19	8	.	1	56	8	41	.	8	50	28	0	2	23	0	.	14	11	3	116	.	24	28	1	2	5	2	4	.	13	1	81
2003	14	8	44	5	16	.	3	53	3	28	1	4	42	19	1	4	29	0	.	16	11	4	89	.	19	28	2	5	5	3	2	.	11	1	76
2004	43	4	53	6	8	.	5	31	5	31	1	4	42	46	2	4	21	1	.	18	33	8	86	.	25	15	6	7	13	4	3	.	13	2	149
2005	14	11	32	18	21	.	11	79	15	28	3	6	34	188	2	8	13	0	.	22	6	7	118	.	24	46	3	3	10	5	3	.	14	7	121
2006	20	10	62	41	32	7	7	62	12	33	2	8	34	152	6	9	18	4	.	40	6	6	131	.	22	25	7	7	20	11	5	1	31	18	230
2007	35	44	101	70	40	13	12	89	16	68	3	13	71	175	3	10	44	9	.	40	22	4	227	.	32	140	7	2	23	6	4	2	20	19	240
2008	47	16	200	29	33	14	8	56	10	88	2	9	58	95	6	10	27	1	.	38	28	9	217	.	29	44	15	2	16	5	5	2	50	17	319
2009	39	11	81	14	72	11	6	37	7	35	2	6	40	94	3	13	52	1	.	33	14	7	213	.	18	50	45	1	15	6	3	0	16	7	162
2010	36	10	85	17	24	13	10	70	4	55	2	10	39	63	2	10	58	0	3	21	16	9	162	.	27	26	28	2	14	5	3	1	12	7	230
2011	63	27	139	22	28	23	7	83	11	48	2	6	42	74	3	11	18	1	5	42	8	10	315	.	26	40	.	5	31	10	4	1	27	14	236
2012	55	9	30	24	26	28	11	48	8	31	2	8	34	58	3	19	48	1	4	27	11	13	475	.	21	24	.	5	15	11	3	1	28	11	216
2013	56	13	30	40	37	20	9	61	6	22	1	.	51	40	3	6	51	0	8	28	6	7	.	1	48	134	.	4	10	5	.	0	20	11	222
2014	46	11	25	20	36	22	10	49	5	27	1	.	30	52	3	10	56	1	3	30	17	7	.	1	27	81	.	4	19	7	2	2	24	.	263
2015	31	6	76	35	49	8	5	39	6	15	1	.	54	66	2	8	40	1	.	27	12	5	.	1	33	86	.	2	15	10	.	2	28	.	363

Notes: Figures are reported in the billions of US dollars. Negative values are treated as missing values.

Sources: Inward FDI flow data are obtained from the OECD International Direct Investment Database.