Who "Really" Receives FDI Income?

by

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Abstract

Income generated by foreign direct investments (FDI) has grown since the 1990s, and now represents a substantial portion of many countries' current accounts. However, some of these flows are received by Special Purpose Entities (SPEs) in financial centers that serve as conduits, and thus overstate the actual amount of income. We use IMF and OECD data and distinguish between SPE and non-SPE income to ascertain which countries receive FDI-generated income, and find that a few advanced economies are the recipients of the largest shares. We also investigate the factors that determine the amount of direct investment income that a country received during the period of 1990-2017, distinguishing between equity income and the interest income that arises from intra-firm borrowing. Larger capital stocks and more patent applications lead to more equity income. In addition, there is evidence that the major recipients export less goods and services and import more. These characteristics are consistent with the formation of global supply chains that allow multinational firms to locate production abroad and coordinate the activities of foreign subsidiaries and their suppliers. Financial development is inversely linked to more debt payments. Most of the advanced countries in our sample recorded deficits on their debt income, consistent with a practice of borrowing from subsidiaries in order to lower their tax liability in the home country.

Key words: FDI income, multinational firms, capital stock

JEL: F21, F32

The growing cosmopolitanism of capital has been the greatest economic change of recent generations. Every advanced industrial nation has been tending to place a larger share of its capital outside the limits of its own political area, in foreign countries, or its colonies, and to draw a growing income from this source.   Hobson (1902, 1965)

1.   Introduction

        The composition of capital flows changed in the wake of the global financial crisis of 2008-09. While bank lending contracted in some areas, particularly in Europe, foreign direct investment (FDI), which had been growing since the early 1990s, continued to expand. Between the years 2000 and 2016, for example, the total stock of FDI increased from 46% to 57% of global GDP (Lund et al. 2017).[1] The emerging market economies have drawn an increasing share of these expenditures, which serve as the largest source of their external finance.[2]

        The increase in the stock of direct investment has been accompanied by a rise in the income payments that flow from these investments. These are part of total international investment income, which is reported in the current account of the balance of payments as a component of primary income. While most analyses of the current account focus on the balance of trade, Forbes, Hjortsoe and Nenova (2017) have shown that investment income has become an increasingly significant element of the current account. In Japan, for example, the surpluses on investment income more than offset the trade account deficits which occurred for several years after the global crisis. In the United Kingdom, on the other hand, the deficit in primary income has been the largest contributor to its current account deficits.

        However, some of the flows of investment have been routed through financial centers before the funds are channeled to their ultimate destinations. These funds are routed through

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organizational structures called Special Purpose Entities (SPE) that allow multinational firms to minimize taxes and regulatory requirements. Damgaard, Elkjaer, and Johannsesn (2019) have referred to such investment as "phantom" investment, as oppose to "real" investment between multinationals and subsidiaries that engage in business activities. Recent studies have shown that these flows result in the "double counting" of FDI and an overstatement of its size, which could also affect the measurement of investment income.[3]

Past research often treated income as part of the total return on foreign investments, which also includes valuation gains or losses due to market and exchange rate fluctuations. However, investment income, and in particular the income generated by FDI, deserves separate treatment for several reasons. First, as noted above, FDI income has become a substantial component of the current accounts of many nations. Second, the distribution of FDI income receipts is concentrated among a few advanced economies, which has implications for international income inequality.[4] Third, the reinvestment of direct investment income in host countries has been a major source of FDI inflows for developing economies. According to UNCTAD (2020), about half of the profits of multinational firms from foreign affiliates are retained in their host countries.

This paper is the first to specifically focus on FDI income and its distribution. We measure the growth of FDI income payments over time and identify which countries have been the major recipients of this income. We show how differentiating between total and non-SPE generated income affects this distribution. In addition, we distinguish between FDI income accruing from equity activities and the interest income arising intra-firm debt.

Our results indicate that the two streams of income are affected by very different determinants. FDI equity income is linked to a country's capital stock and the number of patent applications, and is also inversely related to exports. These characteristics are consistent with the

formation of global supply chains that allow multinational firms to locate production abroad and coordinate the activities of foreign subsidiaries and their suppliers. Interest income, on the other hand, is inversely related to financial development, consistent with a practice of the parent units of multinationals borrowing from subsidiaries in order to lower their tax liability in the home country.

The next section reviews the relevant literature. Section 3 examines trends in investment income. Section 4 presents our results, and Section 5 summarizes our conclusions.

2. Literature Review

The total returns on foreign capital, which consist of income and valuation changes, and their role in international financial adjustment have been widely studied. Much of this work has focused on the positive return that the U.S. receives despite its negative international investment position (NIIP). Gourinchas and Rey (2007a, 2007b, 2014) attributed this return to a composition effect, i.e., the difference between the returns on its equity assets and debt liabilities, and a return effect, i.e. the higher return that the U.S. receives on each class of investment. Curcuru, Thomas and Warnock (2013) reported that the earnings of U.S. multinationals are largely responsible for the positive return that the U.S. receives from its foreign investments. Habib (2010), Darvas and Hüttl (2017), Adler and Garcia-Macia (2018) and Hünnekes, Schularick and Trebesch (2019) undertook similar empirical analyses of the relative returns on foreign assets and liabilities, using data from a range of countries.

Investment income by itself has been the subject of several recent analyses. Forbes, Hjortsoe and Nenova (2017) demonstrated how investment income flows affect a country's current account, and developed a model of the impact of domestic and global risk on investment income.

Alberola, Estrada and Viani (2018) studied the impact of net foreign assets on a country's current account, including its net income.

The international income surpluses recorded by many advanced economies are matched by deficits in emerging market countries. Joyce (2019) found that payments on FDI liabilities are largely responsible for the net investment income deficits recorded by these countries. Yu (2013) has pointed out that China has a net international income deficit despite its status as an international creditor. He attributes this to the difference between returns on foreign investments in China versus the payments it receives on its holdings of U.S. Treasury securities and other central bank assets.

The rise of SPEs and their effect on the measurement of direct investment has received increasing attention. Lane and Milesi-Ferretti (2018) pointed out that the expansion of FDI positions since the global crisis primarily was due to increases in financial centers. Lund et al. (2017) drew attention to the "double counting" of financial assets and liabilities that the intermediary role of financial centers creates. Similarly, Damgaard, Elkjaer and Johannesen (2019), who distinguish between "phantom" and "real" investment, showed that the former may account for up to 40% of global FDI. In response to the increase in FDI positions in the financial centers, the IMF (2018) organized a task force that presented an overview of the uses of SPEs and proposed a definition of SPEs that would be used in identifying SPE-related transactions in future data collection. Similarly, the OECD has developed guidelines for treating SPE data in its *Benchmark Definition of Foreign Direct Investment 4th Edition* (BDM4) (2008).

The use of foreign tax havens by U.S.-based multinationals has also contributed to the growth of direct investment income. Hines and Rice (1994), Clausing (2006, 2016), Bosworth, Collins and Chodrow-Reich (2007), Keightley and Stupak (2015) and Bruner, Rassier and Ruhl (2018) have shown that U.S.-based firms shift profits across national frontiers to take advantage

of lower tax rates in other jurisdictions. Huizinga and Laeven (2008) demonstrated that multinationals based in Europe engage in similar activities. Tørsløv, Wier and Zucman (TWZ) (2018) investigated the profit-shifting of multinationals in a range of countries, and found that profit-shifting by U.S.-based multinationals accounts for the largest amount of this activity.

The returns of foreign investments in previous periods have also been studied. Hauner, Milanovic and Naidu (2017) drew upon Hobson's (1902, 1965) analysis of imperialism to examine the foreign holdings of the advanced economies of the pre-World War I era. They used the data of Picketty and Zucman (2014) to demonstrate that the United Kingdom and France increased their holdings of foreign assets during this era. Piketty (2014) points out the income earned from foreign holdings were sufficient to offset both trade deficits and capital outflows in the United Kingdom and France in the nineteenth century.

3.   Trends

In this section, we examine the trends in direct income and its recipients. Our sample includes advanced countries, which are the home countries of the multinational firms that have foreign operations, and financial centers, which are often used as intermediaries between the ultimate sources of the investments and their final destinations. The advanced countries are Australia, Austria, Canada, Denmark, Finland, France, Germany, Greece, Italy, Japan, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom and the U.S. The financial centers are Belgium, Hong Kong, Ireland, Luxembourg, Netherlands and Switzerland.[5]

We begin with the data on international investment income that are reported in the IMF's *Balance of Payments Statistics*. The total income flows include the income from FDI, portfolio equity and debt, other investments (which includes bank loans) and reserve assets. Our reporting

period begins in 1990 and extends to 2017. In each year, we included all those countries that reported positive FDI income.

Figure 1 shows total FDI income surpluses and international investment income, both scaled by world GDP.[6] FDI income rose rapidly in the latter half of the 1990s and during most of the 2000s. Figure 1 shows a peak in direct investment income in 2002 followed by a decline during a slowdown in economic activity in many countries. This was followed by a recovery and another peak in 2007 before the global financial crisis, and then another peak shortly after. The latter result is due to the weakening in world GDP, as net direct investment income actually fell for several years after the global crisis before recovering in the last two years. At its highest point total FDI income equaled 0.94% of world GDP before it dropped more recently to 0.77%.

The figure also shows that net FDI income has usually exceeded total international investment income. This difference reflects the position of several of the major recipients of direct investment income, such as the U.S., France and the Netherlands. These countries have surpluses in direct investment income but record deficits on their portfolio investment income, reflecting the "long equity, short debt" leveraged composition of their external balance sheets. The returns on direct investment allow the U.S. and France to have positive overall net investment income despite their negative NIIPs.[7] Japan and Germany, on the other hand, have positive NIIPs and record surpluses in both direct investment and portfolio investment income.[8]

Figure 2 shows the major recipients of this income and their shares over time. The U.S. received three quarters of the FDI income at the beginning of this period, and continues to account for almost half of all this income. This predominance reflects several factors. First, FDI has historically been an important form of U.S. international investments, and the U.S. owns a significant share of the stock of the world's outward investment (Lipsey 2003). Second, as

mentioned above, the return on U.S. FDI assets has been higher than that paid on U.S. FDI liabilities. Third, as also mentioned in the previous section, U.S. based multinationals have taken advantage of lower tax rates in foreign tax havens by shifting the source of their profits to these countries.

The decrease in the U.S. share of direct investment income over time is due to the increasing amounts of such income received by Japan and several European nations. The United Kingdom had been the second largest recipient of direct investment income for many years, but its share began to diminish in 2006, and turned negative in 2016. Lane (2015) attributes the fall in earnings to declines in the stock of the United Kingdom's direct investment assets and also a drop in the average yield on these assets relative to the liabilities.

Japan has become the second largest recipient of direct investment income. Fukuma, Morishita and Nakamuta (2016) attribute this to the growing share of direct investments in Asia, Europe and the U.S. in Japan's external assets. Germany is also a major recipient of direct investment income. Knetsch and Nagengast (2017) present evidence of the difference in the yields between German outward and inward direct investments. Finally, as mentioned above, France shows a surplus in FDI income despite a negative NIIP position. Vicard (2019) has attributed the substantial gap between the returns on outward and inward investment to profit shifting by multinational firms based in France.

Figure 2 also shows the shares of net income received by the Netherlands and Luxembourg, which have also grown over time.[9] However, as pointed out above, the data on FDI flows and income can overstate the actual amounts when the investments are routed through SPEs in international financial centers such as these countries. Beginning in 2005, the OECD has asked its members when reporting foreign direct investment-related data to distinguish between SPE and

non-SPE activities, including income. For countries with substantial SPE presence, the results show a significant difference.

Figure 3 shows the shares of the Netherlands in net direct investment income using both the IMF and OECD data. The figure shows that the Netherlands share in the OECD non-SPE direct investment income has been several percentage points lower than the total income reported by the IMF, with a difference of over three percentage points before the divergence shrank in recent years. If the non SPE-adjusted data were used in Figure 2, therefore, Netherland's share would be smaller. Similarly, Luxembourg's share of direct investment income shrinks from 4.5% in recent years to negative numbers when the OECD non-SPE data are utilized.

To measure the degree of concentration of the receipt of net FDI income, we calculated the Herfindahl-Hirschman index with the country shares of net direct investment income, using both the IMF and OECD non-SPE data sets.[10] Figure 4 shows the results. There is a marked decline in the index from 1990, when the index was 6055, to 2006, when it registered 1843. The decrease reflects the relative decline in the U.S. share and the corresponding rise of the other advanced economies' shares. There was a rise in 2008 during the global crisis and a subsequent decline, and little variation since then. The OECD non-SPE data show a higher concentration of national share of income due to the decline of the shares of the corporate tax havens where the SPEs are located, but the results are virtually the same. The main recipients of direct investment income continue to be the U.S., Japan, Germany and France.

FDI income can be disaggregated into its two components, equity income and debt income. The former measured the profits from a multinational's activities in a country, and the latter interest on intrafirm lending. Figure 5 shows the two types of income for the advanced countries in our sample. Equity income by far constitutes the largest amount of this income, while these countries

have a small deficit in their debt income. Figure 6 depicts the same income flows for the financial centers, and these figures are very different. They show that equity income for this group has fallen over time, while was an increase in debt income until 2015, followed by a subsequent decline.

Why would multinational firms in the advanced countries report deficits on debt-related income while the opposite phenomenon occurs in financial centers? There are several reasons why intra-firm lending may take place, such as a lower cost of financing a firm's investments. But multinationals also seek to lower their total tax liabilities by lending from units in low-tax countries to units in high-tax jurisdictions, which are usually the countries where the firms' headquarters are located. The firms are able to reduce their taxes in their home countries by deducting interest payments, while their affiliates that receive the income pay little if any tax. Our data are consistent with this interpretation.

The data reveal, therefore, that amount of income that is generated by FDI has risen since the 1980s, from about 0.2% of world GDP to more recently 0.8%. This money has flowed to a few large advanced economies, principally the U.S., Japan, Germany and France. The share of the United Kingdom, on the other hand, has fallen. With the exception of the United Kingdom, these shares have been relatively stable. The degree of concentration rises when we adjust for income associated with SPEs in financial centers. However, these flows include debt-related deficits to financial centers. We investigate below the determinant factors of these income flows.

4.   Data

In the empirical analysis we investigate the determinants of the national shares of FDI income for the countries in our database. We initially look at FDI equity income and then debt-related income, each divided by world GDP and multiplied by 1,000. We first use the IMF data

and then the OECD non-SPE data where available.[11] The sources of our data appear in Appendix Table A1, and summary statistics are reported in Appendix Table A2.

The macroeconomic control variables are taken from the literature cited in Section 2, as well as Bloningen and Piger's (2014) study of the determinants of FDI activity. Net FDI assets, scaled by world GDP and multiplied by 1,000, will have a positive impact on earnings. Domestic GDP appears in bilateral gravity models of direct investment, and we use the logarithm of constant GDP in U.S. dollars. GDP should be associated with more investment income, as larger countries allow multinational firms more scope for expansion. Similarly, more open economies should encourage more direct investment activity. The Chinn-Ito (2006) measure is utilized for capital account openness. Trade openness is measured by exports and imports scaled by domestic GDP. We also include exports and imports separately, since firms may use foreign production in place of exports, which would increase the profits of the foreign subsidiary.[12] We use the government bond rate as a financial variable.

FDI income may also be related to financial development in the home country. Countries with large and secure financial markets can finance investment in those countries with less developed financial markets, and receive a large share of the payments on those investments. Gourinchas and Rey (2007), who focused on U.S. holdings of foreign equity, pointed out that these equity assets are riskier, and during a crisis such as the global financial crisis lose value on the U.S. balance sheet. The earnings paid out to the investors who hold the equity, therefore, should include a risk premium.

To assess the impact of financial development in the home country on investment earnings, we used the IMF's *Financial Development Index*. This measure evaluates financial development in terms of its depth, access and efficiency, with higher values denoting higher levels of

development on a scale of 0 to 100. In addition to the overall financial development index, we include the separate indexes for the development of institutions and markets. We also utilize the investor profile measure of the *International County Risk Guide.* This variable is based on contract viability, the repatriation of profits and payments delays. Higher values denote less risk.

Another area of international economics—trade theory—offers the basis of a different perspective on direct investment flows. The canonical Heckscher-Ohlin model predicts that capital-abundant (labor-abundant) nations will export capital-intensive (labor-intensive) goods. Similarly, firms in nations that are capital abundant could locate production facilities in countries that are labor-abundant. However, this approach to explaining the allocation of FDI was abandoned when it was realized that much of the FDI of the Bretton Woods era and the following years took place amongst advanced economies with similar factor endowments. Firms in the U.S. and Europe located plants within each other's boundaries to avoid transportation and other costs, and could share markets because they sold differentiated products.

Baldwin (2014, 2016) has described how the investments of multinationals in global supply chains changed the allocation of FDI capital flows. These firms took advantage of improvements in information and communications technology that began in the 1990s to coordinate activities in the advanced economies and the emerging market economies. Previously, production units were based in or near the advanced countries where the home offices of the multinationals were located due to the high costs of communication and face-to-face interactions. Once those costs were drastically lowered, firms moved their production facilities to countries with lower wages and developed production networks that united subsidiaries and supplier firms across many countries. These investments contributed to the rapid rise in growth rates in a number of developing economies, particularly in Asia.

Capital includes information and communication technologies, which allow multinationals to coordinate the actions of its foreign units.[13] We use measures of a country's capital stock that are reported by the *Penn World Tables Version 9.0* (*PWT9*) (Feenstra, Inklaar and Timmer 2015). These include the logarithm of the value of the capital stock in constant dollars and the capital stock scaled by national GDP, also in constant dollars.[14] In addition, the *PWT9* also reports a measure of human capital based on years of schooling that we include in its logarithmic value. To evaluate the direct impact of technology, we used the logarithm of patent applications from residents and non-residents from the World Bank's *World Development Indicators*.

We used lagged values of the determinant variables to avoid endogeneity. Initial testing of the panel data indicated the existence of heteroscedasticity, serial correlation and cross country dependence in the error terms. Therefore, we used linear regressions with panel-corrected standard errors where the parameters are obtained from Prais-Winsten regressions.[15] We also included country fixed effects.

5. Results

5.1 Net FDI Equity Income

In Table 1 we show the impact of financial development and the control variables on net FDI equity income. [16] We begin with net FDI equity assets scaled by world GDP, the logarithm of real GDP, the capital and trade openness variables, and overall financial development.

The net foreign direct investment asset position has a positive and highly significant coefficient in all the specifications. An increase in net assets by 1% of world GDP increases annual equity income by 0.02 of a percentage point. GDP also has a positive and significant coefficient.

Larger economies receive more foreign income, consistent with their size allowing the development of larger companies.

Trade openness has a negative impact in equation (1.1)). In the following equations we enter imports and exports separately, and find that this result is driven by an inverse relationship of exports and direct investment equity income flows. This is consistent with the pattern of the home countries of multinationals using foreign countries for production and export rather than the domestic economy.

Overall financial development is not significant in equation (1.1). In the following equations we substitute the other financial development variables. The coefficient on financial institutions is positive but significant only at the 10% level. Neither the financial markets variable nor the investor profile have significant coefficients. A country's financial development does not affect its receipt of FDI equity income, although it may have an impact on the actual flow of foreign capital.

Table 2 adds the *PWT9* measures of the capital stock, human capital and patents. The export variable appears again with a negative coefficient that is significant in three specifications. Imports, on the other hand, have negative coefficients that are significant at the 10% level in two equations. These findings are consistent with the pattern mentioned above of the parent countries of multinationals producing abroad and importing the assembled goods.

In equation (2.1), the logarithm of the capital stock has a positive and significant coefficient. In equation (2.2) we use the capital stock scaled by national GDP, and obtain similar results. This evidence indicates that countries with larger capital stocks make more income from their direct investments. One channel of transmission would be the ability to organize more extensive supply chains.

In specification (2.3) we added the *PWT9* measure of human capital, while retaining the capital stock measure. While the coefficient of human capital is statistically significant if capital is excluded, it is not here. However, when we add patent applications in specification (2.4), this measure has a positive and highly significant impact, while the capital stock retains its significance. If an increase in patent applications reflects technological innovations, then such innovations are linked to more investment income for the country where the patents are filed.

We re-estimated the two sets of regressions without the financial centers to determine whether they were influencing the results in a particular direction.[17] The results are similar to those reported in Tables 1 and 2. Net FDI equity assets and GDP have positive and significant coefficients. The exports variable, however, is no longer significant, but the positive coefficients on imports retain their positive significance at the 10% level. The significance of the capital stock coefficient falls to 10% in equation (2.1) and the variable is not significant when it is scaled by GDP. The positive coefficient on patents in Table 2, however, continues to be highly significant.

We also estimated the equations with the OECD's FDI non-SPE data using the specification of Table 2, and these results are reported in Table 3. The number of observations falls from 400 to 99, as not all OECD countries differentiate between SPE and non-SPE income. Moreover, some that do report non-SPE FDI income only report all income.

The capital account openness variable has a positive coefficient, which is significant at the 10% level in three equations. The trade and capital variables are not significant. The capital stock has a positive coefficient significant at the 10% level in one equation. The positive coefficient on the patents variable, on the other hand, is very statistically significant.

5.2   Net Direct Investment Debt Income

In Table 4 we change the focus of our empirical investigation to the interest payments on the debt incurred among the units of a multinational firm, initially using the IMF data. The advanced countries in our sample registered deficits on this account, indicating that the home country unit had borrowed from a foreign affiliate. As explained above, such borrowing can be a mechanism for a firm to lower its tax liability in its home country.

Table 4 includes the control variables used in the previous tables and the financial development variables. Several results are similar to those reported above for equity income. Holdings of debt consistently have positive and significant coefficients. A country with more net debt assets (liabilities) will have more (less) interest-related income. GDP has a positive coefficient, but it is significant at the 5% level in only one equation.

Exports and imports, on the other hand, have very different impacts on interest income than they do on equity income. Exports raise this form of income, while imports lower these flows. The former variable is significant at the 10% level, while the latter is significant at the 5% and 10% levels. The countries that receive (pay out) interest income are more likely to have balance of trade surpluses (deficits).

The government bond rate, which was not significant above, appears here with negative and highly significant coefficients. An increase in interest rates increases debt payments made to affiliates. While the amount is small (0.005) when scaled by world GDP and multiplied by 1,000, this would be a larger amount for a single economy.

The results for the impact of financial development on direct investment debt income also vary from those for equity income. Financial development in specification (4.1) has a negative coefficient that is significant at the 1% level. When the two components of financial development

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are introduced separately in equations (4.2) and (4.3), both have negative coefficients, and the coefficient on financial markets is significant at the 5% level. Similarly, the investor profile variable in equation (4.4) has a negative coefficient that is highly significant. These results indicate that multinationals in countries in higher levels of financial development are more likely to make interest payments to their foreign affiliates. This is consistent with the use of debt by multinationals in these countries as a means to lower tax liabilities.

In Table 5 we replace the financial development variables with those that measure capital abundance. The coefficients of the bond rate and the two trade variables have similar values to those reported in Table 4, and the export variable's coefficients are significant at the 1% and 5% levels. But the capital variables were not significant, indicating that a country's capital stock did not affects its interest payments. The patents variable retained its positive coefficient, but at a lower level of significance than it did in the tables for equity income.

When we repeated the analysis for the advanced economies alone, the results are quite similar to those reported above. The coefficients of the bond rate and the trade variables retain their signs and significance, as do financial development, financial markets and the investor profile in Table 4. In the case of Table 5, the coefficients on exports are no longer significant, but the bond rate's coefficients are and imports have negative coefficients significant at the 10% level. The capital stock is not significant, nor are patents.

We repeated the analysis using the OECD's data for non-SPE income, and the results with the financial development variables appear in Table 6. They are quite similar to those reported in Table 4. The control variables retain their signs and significance. The financial development variables, including the financial institutions variable, all have negative and significant

coefficients. When the capital variables and patents are included, they are not significant, as in Table 5.

The empirical findings for net direct investment interest income, therefore, vary substantially from those for equity income. The impact of exports and imports on this income is the opposite to that on equity income. There is an inverse linkage with bond rates. In addition, interest income is negatively related to a country's financial development. These findings are consistent with the use of financial engineering by the parent units of multinationals to lower their taxes.

5.3   Net Foreign Direct Investment Income

The results for the estimation of the determinants of FDI equity and FDI debt income show they respond to different factors. In the next stage of the empirical analysis we sought to determine how these variables would affect the total flow of FDI income. We reestimated the equations used in the previous tables using net FDI income as the dependent variable.

In Table 7 we report the results with the financial development variables, none of which were significant. While the level of financial development has a negative impact on FDI interest payments, these payments are relatively smaller than FDI equity income, and therefore do not affect total income. The exports variable has negative coefficients that are significant only at the 10% level in one equation. These results are due to the opposite effects that the trade variables have on equity and interest income. Our findings demonstrate that it is important to disaggregate investment income to understand the linkage with exports and imports.

In Table 8 we report the results for net FDI income and the capital and technology variables. The exports variable has a negative coefficient that is significant at the 5% level in two

specifications. Both capital variables have positive and highly significant effects on total income. Moreover, the coefficient on the patents variable is also significant. These results demonstrate that their effects on FDI equity income is large enough to carry over to total income. Deleting the financial centers from the sample leads to similar conclusions, although the significance of the capital stock variables falls.

We repeated these specifications using the OECD's non-SPE data for FDI income, and these results appear in Tables 9 and 10. The significance of the net FDI stock falls in these tables, as does the significance of the trade variables. On the other hand, in Table 9 financial development and financial markets have negative coefficients that are significant at the 1% level. The difference with the results reported in Table 7 may be due to the smaller sample size, but also the use of the OECD's non-SPE data. The capital stock variable has a positive and significant coefficient in Table 10, but the patents variable does not. The coefficient on human capital, on the other hand, has a negative coefficient significant at the 5% level.

5.4   Investment Income and Taxes

The literature cited in Section 2 included analyses of the impact of tax rates on the multinational investment and profitability.[18] Multinational firms take advantage of the differences in national tax rates by allocating the source of their profits amongst their units in different countries in order to minimize their overall tax liabilities. The streams of investment income will reflect these activities.

Studies of the magnitude of profit shifting use firm-level micro data or aggregate macro data, and often regress a measure of profits in a country on the differential between the corporate tax rate in an affiliate's host country and the tax rate in its parent's home country. This allows for

the calculation of a tax semi elasticity, i.e., the change in profits in response to a change in a tax rate. Such analyses, therefore, require bilateral tax data.

Our macroeconomic data does not allow for such estimations. However, we sought to determine whether the home country's tax rate alone yielded any information, and therefore introduced corporate tax rates to our empirical analyses. Table 11 presents the results of these estimations, using the OECD's average statutory corporate tax rate. Unfortunately, these data begin in 2000, so we lose a decade of data from our sample.

The results in specification (11.2) show that the home country tax rate is negative and significant for FDI interest income. Those countries with higher tax rates are likely to run deficits on intrafirm debt payments. This result is consistent with a multinational's use of debt to lower its tax liability in the home country. The tax rate, however, is not significant for either direct income equity income or overall income.

A multinational's capital structure will reflect its use of intra-frim borrowing to minimize its total taxes. The deduction of interest payments is highly valued by the firms that use them but this practice deprives domestic governments of tax revenues. The OECD has introduced rules to minimize this form of tax arbitrage (Johansson, Skeie and Sorbe (2016).

6. Conclusions

Our results demonstrate that the distribution of income from FDI is concentrated among a few advanced countries, and contribute to an explanation for this concentration. Multinational firms in nations with large economies and an abundance of capital are able to build upon these features to make profits in their foreign operations. The development of new technologies is also

beneficial. These nations are less likely to export, consistent with the decision to base operations abroad.

Our results are consistent with those reported by Gethin (2018) on foreign income flows. He cited data from the World Inequality Lab to show that "...only a small number of rich countries benefitted from positive foreign income flows in recent years." He specifically named France, Germany and Scandinavian and Gulf countries as major recipients of foreign income when it is measured on a per capita basis.[19] He also pointed out that Ireland and Luxembourg's GDPs can overstate their standards of living when foreign income flows are taken into account.

We also showed that FDI income includes two components, equity and interest income, that differ in a number of features. The former is linked to the capital abundance and technological innovation that characterizes aggregate FDI income. But the latter is inversely related to financial development, and is consistent with financial engineering to minimize tax liabilities.

The quotation from Hobson cited at the beginning of this paper demonstrates that the concentration of foreign income is not a new situation. Lenin (1917) identified Great Britain, France, the U.S. and Germany as the "four 'pillars' of international finance capital." Will this concentration with the addition of Japan change over time? Multinational firms based in emerging markets have expanded into markets in other economies, which will allow them to record investment income receipts that can partially offset their payments. China has made impressive gains in developing its technology sector, and this will benefit Chinese multinational firms in the future (Sauvant and Chen 2013). But the size of China's FDI liabilities contribute to an FDI income deficit.

However, the global crisis due to the coronavirus pandemic has slowed FDI capital flows, as described above. Moreover, FDI income flows amongst the OECD countries had already fallen

in 2019, after rising steadily since 2013 (OECD 2020a). The crisis will lead to a further deterioration of multinational profits as world trade plummets.

The resumption of economic growth, if and when it takes place, may not lead to a resumption of FDI, as the future development of global supply chains is unclear (De Backer and Flaig (2017)). The development of robotics and artificial intelligence could lower the advantages of cheap labor and induce firms to reestablish production in their home countries. There are also challenges to multinationals in the rupture of U.S.-China relations that may persist through the next administration. How these developments will affect the flows of FDI income will be the subject of future research.

NOTES

[1] However, FDI flows in 2018 and 2019 were lower than those of previous years. Part of this decline reflected a reversal in FDI flows in 2018 due to changes in the U.S. corporate tax code (OECD 2019, 2020a). The OECD projects a further decline in FDI flows of over 30% in 2020 due to the pandemic.

[2] Alfaro, Kalemli-Ozcan and Volosovych (2014) show that the phenomenon of the "Lucas Paradox," i.e., the flow of capital from developing to advanced economies, is explained by public capital flows, including the acquisition of foreign reserves by central banks in emerging market economies. Private flows, including FDI, on the other hand have been directed to emerging markets with high growth rates. See also Boz, Cubeddu and Obstfeld (2017).

[3] See studies cited in next section.

[4] These income flows can affect income distribution within the advanced economies, as ownership of multinational firms is concentrated among the upper-income segments of the income distribution (Clausing 2017).

[5] These countries appear on the lists of financial centers that appear in the studies cited in Section 2. Singapore is not included in our sample because it does not report data to the OECD.

[6] We scale the income data by world GDP since we are interested in the relative distribution of the income.

[7] The U.S. has had a negative NIIP since the 1980s. France's current period of negative NIIPs began in 2003. The Netherlands recorded a negative NIIP from 1998 to 2009.

[8] There are also countries with positive net international investment income where portfolio investment accounts for most of this income. These include energy exporters, such as Saudi Arabia, Norway and Kuwait.

[9] The gross inflows of investment income of the Netherlands exceed those of the advanced economies except the U.S., while Luxembourg's are similar in size. However, in these countries they are matched by gross outflows that cause the net flows of income to be smaller.

[10] The index squares the percentage share of income received by a country; the maximum value is 10,000.

[11] The OECD reports these data using both the asset/liability and the directional principle. We use the data based on the former classification, since it is also utilized by the IMF in its data reporting. See OECD (2014) for an explanation and comparison of the two standards.

[12] There is a large literature on the decision of firms to sell to foreign markets through exports or foreign production units. See, for example, Helpman, Melitz and Yeaple (2004).

[13] A number of studies have investigated the impact of physical capital on direct investment. See, for example, Yeaple (2004) and Bergstrand and Egger (2007, 2013).

[14] Inklarr, Woltjer and Albarrán (2019) provide a description of how the *PWT9* capital series are calculated. Nine different types of capital assets are measured, including information and communication technologies.

[15] Moundigbaye, Rea and Reed (2018) investigate the properties of generalized least squares and panel-corrected standard error estimators, and recommend the latter when the primary concern is hypothesis testing.

[16] The results include R^2s. Woolridge (2012) has pointed out that these statistics are based on the transformed variables, and their interpretation is ambiguous. See also Jaggia and Kelly-Hawke (2008).

[17] Results available from author.

[18] Beer, de Mooij and Liu (2018) provide a review of the literature on this topic.

[19] Norway and the Gulf countries are major recipients of income from portfolio capital.

Figure 1

Total Investment Income/World GDP and Total FDI Income/World GDP

Figure 2

National Shares of Net FDI income

Figure 3

Netherlands Share of Total FDI income vs Non-SPE Total FDI Income

Figure 4

Herfindahl-Hirschman Index for Net FDI income

Figure 5

Net FDI Equity Income/World GDP, Net FDI Debt Income/World GDP:
Advanced Nations

Figure 6

Net FDI Equity Income/World GDP, Net FDI Debt Income/World GDP:
Financial Centers
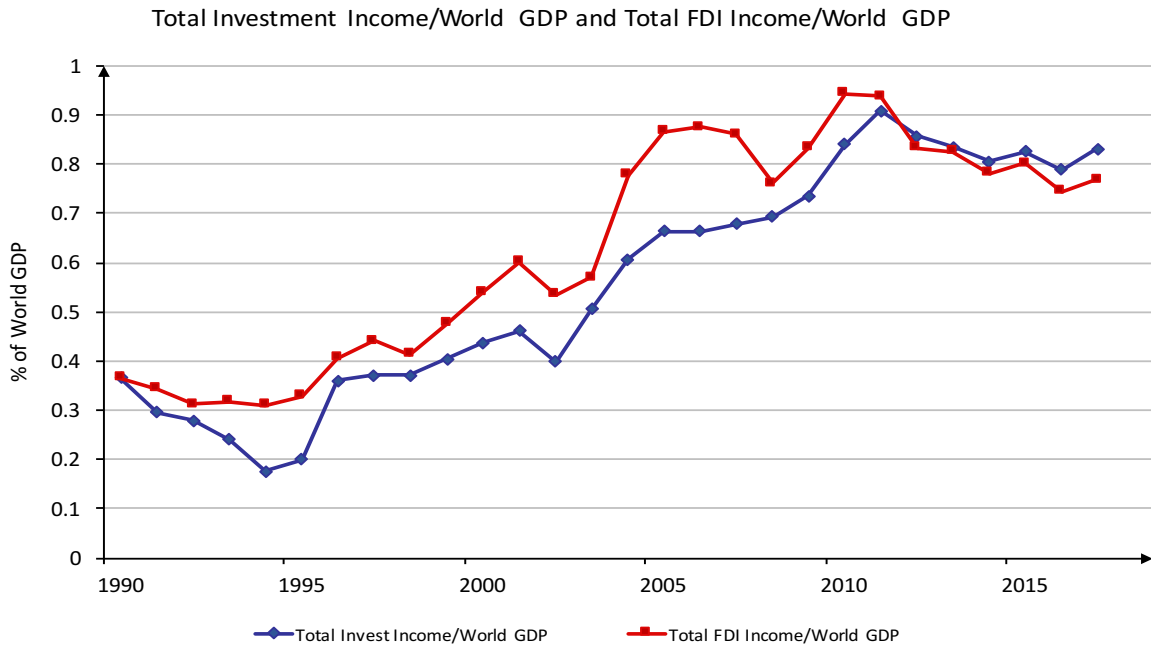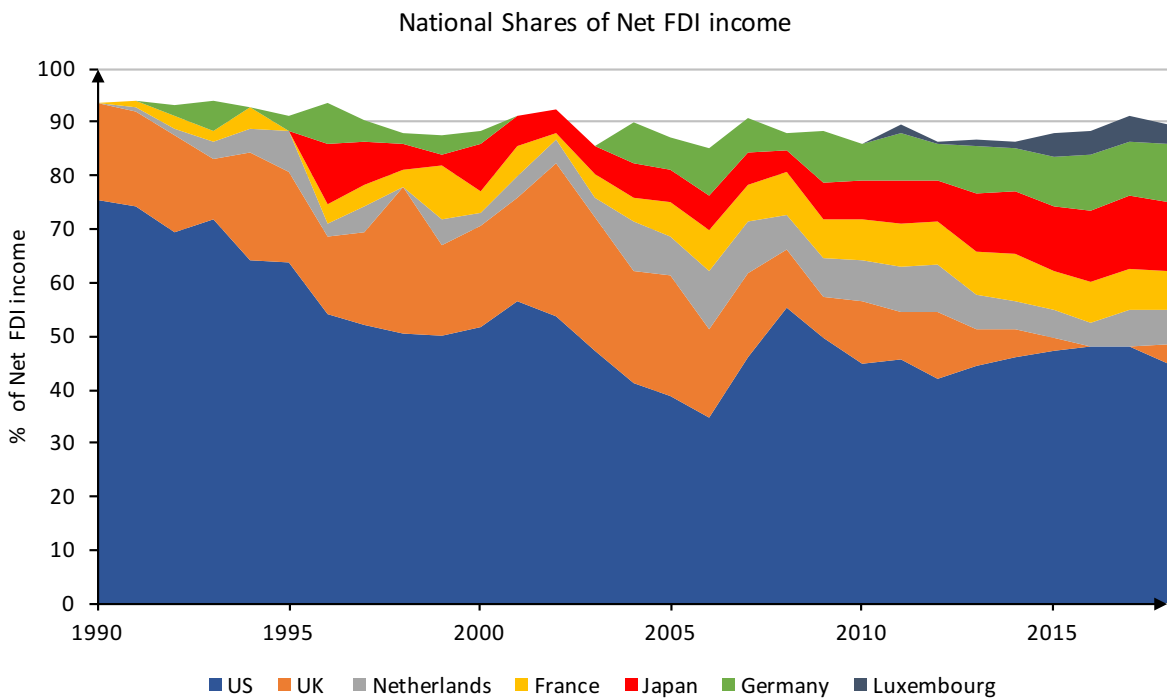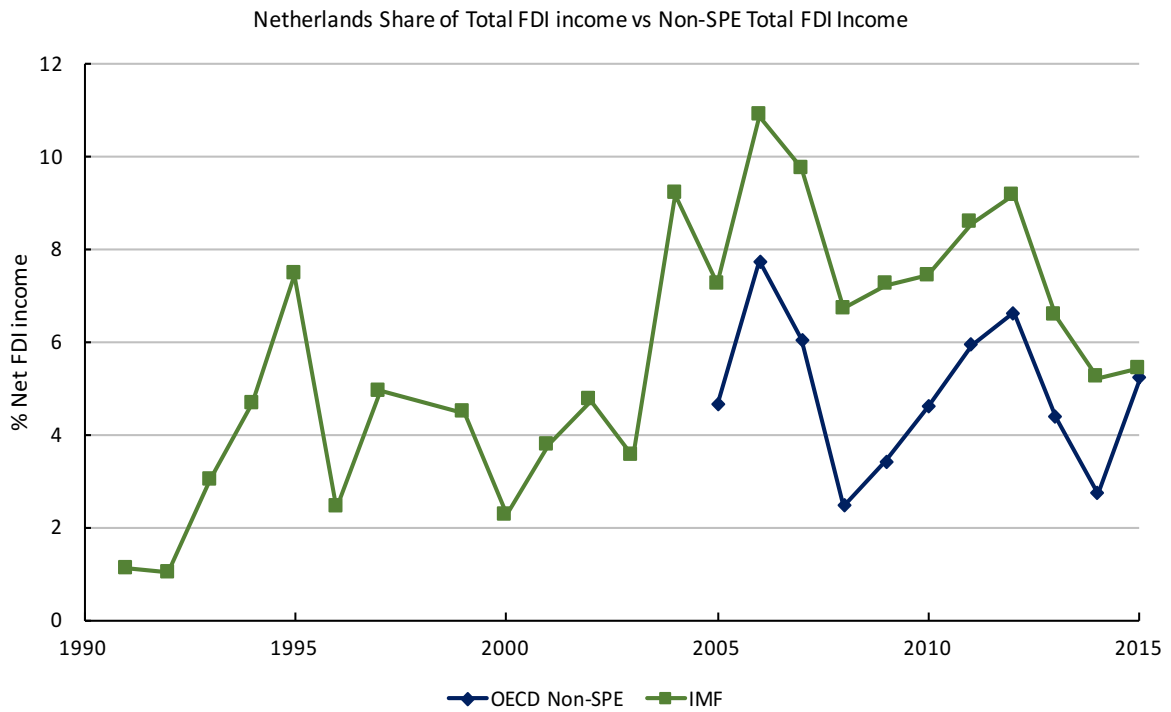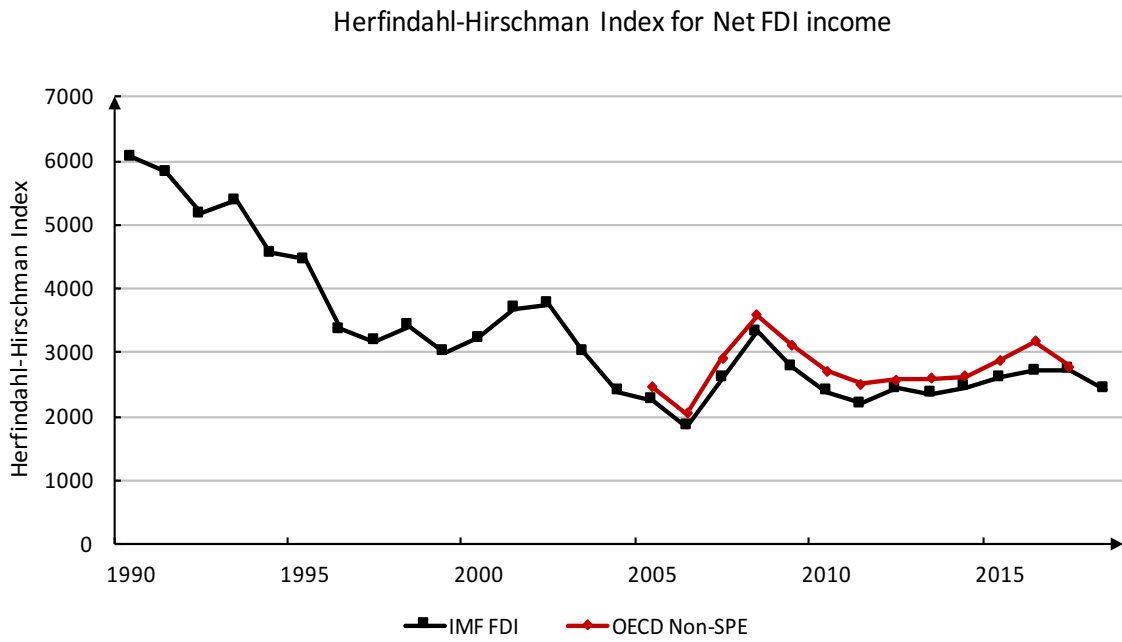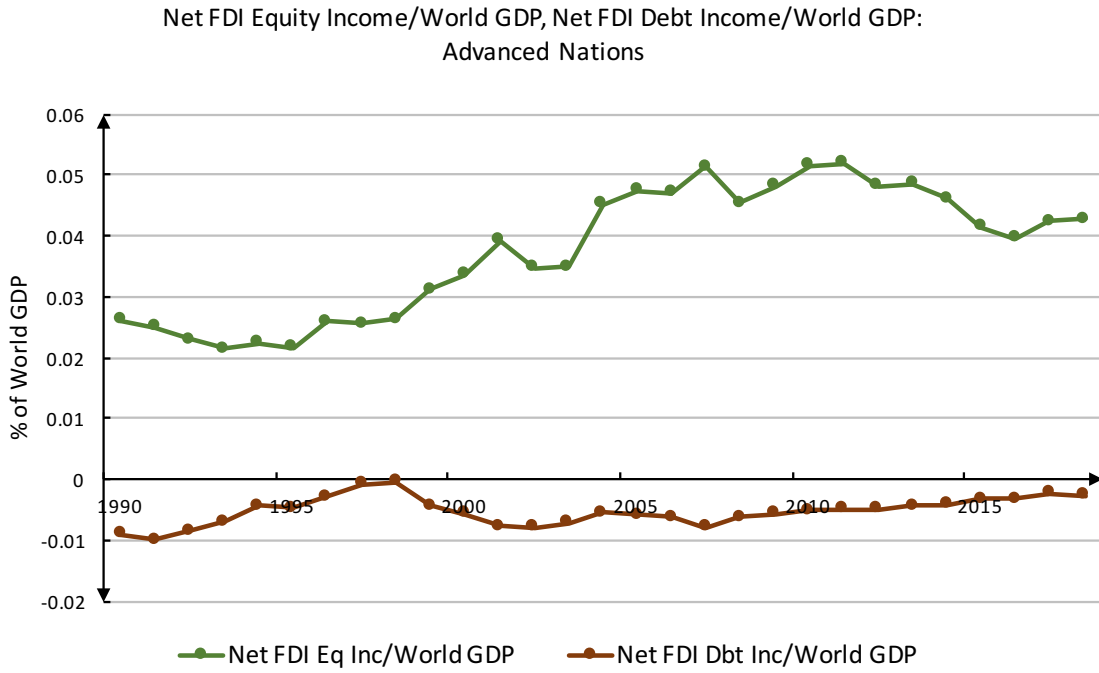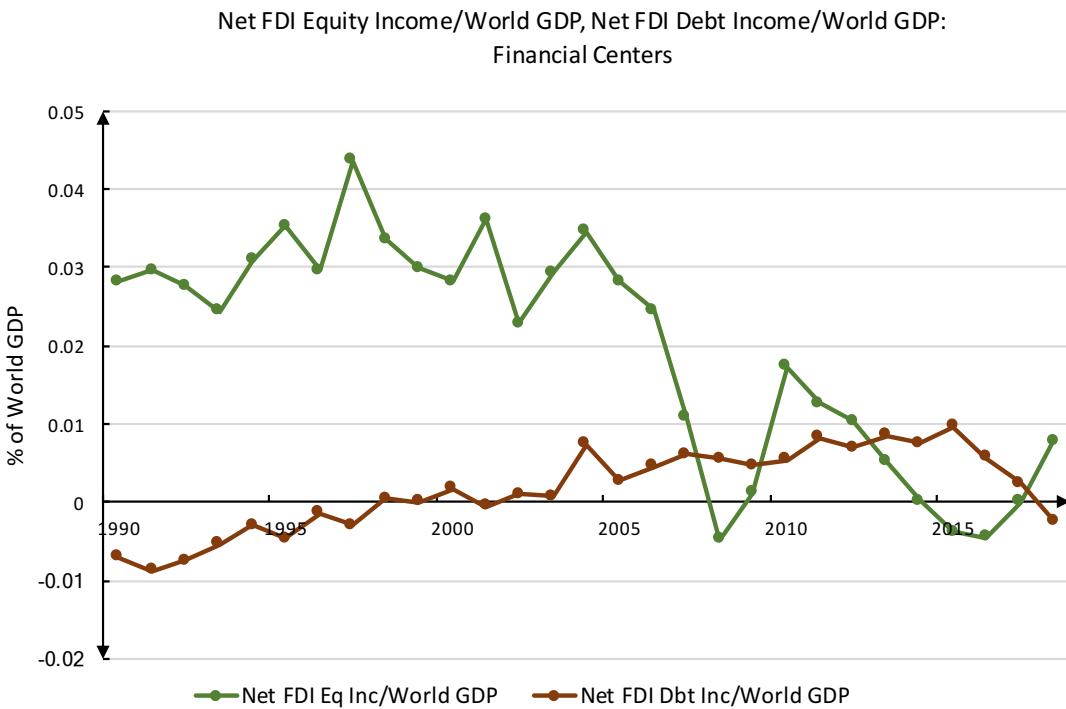
Table 1

Net FDI Equity Income (IMF) and Financial Development

	(1.1)	(1.2)	(1.3)	(1.4)
Net FDI Eq/World GDP	0.021***	0.021***	0.021***	0.021***
	(0.007)	(0.007)	(0.007)	(0.007)
Ln(GDP)	0.412**	0.475***	0.443***	0.403**
	(0.165)	(0.151)	(0.160)	(0.159)
Capital Openness	0.000	0.000	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Trade Openness	-0.002**			
	(0.001)			
Exports/GDP		-0.008*	-0.009**	-0.009**
		(0.004)	(0.004)	(0.004)
Imports/GDP		0.005	0.006	0.006
		(0.004)	(0.004)	(0.004)
Bond Rate	0.001	0.001	0.001	0.001
	(0.004)	(0.004)	(0.004)	(0.004)
Financial Development	0.002			
	(0.002)			
Financial Institutions		0.004*		
		(0.002)		
Financial Markets			0.001	
			(0.001)	
Investor Profile				0.012
				(0.009)
Constant	-5.941***	-7.010***	-6.315***	-5.842***
	(2.208)	(2.051)	(2.172)	(2.140)
R^2	0.70	0.70	0.70	0.70
N	454	454	454	454

Note: The dependent variable is Net FDI Equity Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 2

Net FDI Equity Income (IMF) and Capital/Technology

	(2.1)	(2.2)	(2.3)	(2.4)
Net FDI Eq/World GDP	0.0200***	0.020***	0.019**	0.019**
	(0.074)	(0.075)	(0.075)	(0.075)
Ln(GDP)	0.161	0.627***	0.158	0.390*
	(0.216)	(0.162)	(0.226)	(0.232)
Capital Openness	-0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Trade Openness	-0.002**			
	(0.001)			
Exports/GDP		-0.010**	-0.010***	-0.013***
		(0.004)	(0.004)	(0.005)
Imports/GDP		0.007	0.006*	0.008*
		(0.004)	(0.004)	(0.005)
Bond Rate	0.001	0.001	0.003	0.002
	(0.004)	(0.004)	(0.004)	(0.004)
Ln(Capital Stock)	0.533**		0.386	0.301*
	(0.218)		(0.331)	(0.165)
Capital Stock/GDP		0.001**		
		(0.000)		
Ln(Human Capital)			0.199	
			(0.332)	
Ln(Patents)				0.106**
				(0.048)
Constant	-10.150***	-9.023***	-8.657***	-11.027***
	(2.477)	(2.243)	(2.594)	(2.243)
R^2	0.69	0.70	0.69	0.75
N	454	454	454	426

Note: The dependent variable is Net FDI Equity Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 3

Net FDI Equity Income (OECD non-SPE) and Capital/Technology

	(3.1)	(3.2)	(3.3)	(3.4)
Net FDI Eq/World GDP	-0.168***	-0.167***	-0.170***	-0.170***
	(0.053)	(0.053)	(0.053)	(0.052)
Ln (GDP)	-0.298	0.101	-0.352	-0.331
	(0.340)	(0.142)	(0.319)	(0.320)
Capital Openness	0.002**	0.001	0.001	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Trade Openness	-0.005			
	(0.004)			
Exports/GDP	0.002	-0.007	-0.005	-0.006
	(0.007)	(0.005)	(0.005)	(0.004)
Imports/GDP	0.007	0.005	0.004	0.004
	(0.004)	(0.005)	(0.005)	(0.004)
Bond Rate	-0.001	-0.001	-0.001	-0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Ln (Capital Stock)	0.348		0.472*	0.331
	(0.285)		(0.245)	(0.256)
Capital Stock/GDP		0.001*		
		(0.000)		
Ln(Human Capital)			-0.089	
			(0.193)	
Ln(Patents)				0.052***
				(0.015)
Constant	-1.172	-1.729	-1.943	-0.814
	(1.625)	(1.805)	(2.131)	(1.541)
R^2	1.00	1.00	1.00	1.00
N	99	99	99	98

Note: The dependent variable is Net FDI Equity Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 4

Net FDI Debt Income (IMF) and Financial Development

	(4.1)	(4.2)	(4.3)	(4.4)
Net FDI Dbt/World GDP	0.015***	0.015***	0.015***	0.015***
	(0.002)	(0.002)	(0.002)	(0.002)
Ln (GDP)	0.055*	0.045	0.050*	0.076**
	(0.032)	(0.033)	(0.029)	(0.033)
Capital Openness	-0.000	-0.000	-0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Trade Openness	0.000			
	(0.000)			
Exports/GDP		0.003***	0.003***	0.002**
		(0.001)	(0.001)	(0.001)
Imports/GDP		-0.002**	-0.002**	-0.002*
		(0.001)	(0.001)	(0.001)
Bond Rate	-0.005***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Financial Development	-0.001***			
	(0.000)			
Financial Institutions		-0.001		
		(0.001)		
Financial Markets			-0.001**	
			(0.000)	
Investor Profile				-0.006***
				(0.002)
Constant	-0.552	-0.404	-0.535	-0.847**
	(0.418)	(0.418)	(0.387)	(0.430)
R^2	0.72	0.73	0.73	0.73
N	439	439	439	439

Note: The dependent variable is Net FDI Debt Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 5

Net FDI Debt Income (IMF) and Capital/Technology

	(5.1)	(5.2)	(5.3)	(5.4)
Net FDI Dbt/World GDP	0.015***	0.015***	0.015***	0.016***
	(0.002)	(0.002)	(0.002)	(0.002)
Ln (GDP)	-0.034	0.034	-0.020	-0.002
	(0.061)	(0.027)	(0.063)	(0.069)
Capital Openness	-0.000	-0.000	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Trade Openness	0.000			
	(0.000)			
Exports/GDP	-0.004***	-0.004***	-0.004***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Imports/GDP	0.055		0.028	0.016
	(0.055)		(0.060)	(0.060)
Bond Rate		0.003***	0.003**	0.003**
		(0.001)	(0.001)	(0.001)
Ln (Capital Stock)		-0.002*	-0.002**	-0.003**
		(0.001)	(0.001)	(0.002)
Capital Stock/GDP		0.000		
		(0.000)		
Ln (Human Capital)			0.065	
			(0.061)	
Ln (Patents)				0.029*
				(0.015)
Constant	-0.225	-0.408	-0.233	-0.359
	(0.370)	(0.376)	(0.331)	(0.416)
R^2	0.71	0.72	0.72	0.75
N	439	439	439	416

Note: The dependent variable is Net FDI Debt Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 6

Net FDI Debt Income (OECD) and Financial Development

	(6.1)	(6.2)	(6.3)	(6.4)
Net FDI Dbt/World GDP	0.260***	0.271***	0.274***	0.271***
	(0.038)	(0.037)	(0.038)	(0.039)
Ln (GDP)	0.108**	0.151***	0.154***	0.133***
	(0.044)	(0.050)	(0.042)	(0.043)
Capital Openness	0.000	0.001**	0.001**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Trade Openness	-0.000			
	(0.000)			
Exports/GDP		-0.000	-0.001**	-0.001*
		(0.000)	(0.000)	(0.000)
Imports/GDP		0.003***	0.003***	0.003***
		(0.001)	(0.001)	(0.001)
Bond Rate	-0.001**	-0.004***	-0.004***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Financial Development	-0.002***			
	(0.001)			
Financial Institutions		-0.001***		
		(0.000)		
Financial Markets			-0.001***	
			(0.000)	
Investor Profile				-0.002**
				(0.001)
Constant	-1.293**	-1.910***	-1.985***	-1.695***
	(0.540)	(0.641)	(0.547)	(0.551)
R^2	0.98	0.98	0.98	0.98
N	93	93	93	93

Note: The dependent variable is Net FDI Debt Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 7

Net FDI Income (IMF) and Financial Development

	(7.1)	(7.2)	(673)	(674)
Net FDI/World GDP	0.021***	0.021***	0.021***	0.022***
	(0.006)	(0.006)	(0.006)	(0.006)
Ln9GDP)	0.531***	0.566***	0.537***	0.451***
	(0.183)	(0.168)	(0.178)	(0.171)
Capital Openness	-0.000	-0.000	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Trade Openness	-0.001			
	(0.001)			
Exports/GDP		-0.005	-0.006*	-0.005
		(0.004)	(0.004)	(0.004)
Imports/GDP		0.003	0.004	0.004
		(0.004)	(0.004)	(0.004)
Bond Rate	-0.000	-0.001	-0.000	-0.000
	(0.004)	(0.004)	(0.004)	(0.005)
Financial Development	0.001			
	(0.002)			
Financial Institutions		0.002		
		(0.002)		
Financial Markets			0.001	
			(0.001)	
Investor Profile				0.012
				(0.008)
Constant	-7.550***	-8.094***	-7.610***	-6.534***
	(2.436)	(2.227)	(2.395)	(2.288)
R^2	0.68	0.67	0.68	0.69
N	459	459	459	458

Note: The dependent variable is Net FDI Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 8

Net FDI Income (IMF) and Capital/Technology

	(8.1)	(8.2)	(8.3)	(8.4)
Net FDI/World GDP	0.020***	0.020***	0.019***	0.020***
	(0.006)	(0.006)	(0.006)	(0.006)
Ln(GDP)	0.259	0.708***	0.258	0.454*
	(0.232)	(0.168)	(0.239)	(0.252)
Capital Openness	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Trade Openness	-0.001*			
	(0.001)			
Exports/GDP		-0.008**	-0.008**	-0.006
		(0.004)	(0.004)	(0.005)
Imports/GDP		0.006	0.005	0.002
		(0.004)	(0.004)	(0.005)
Bond Rate	0.000	0.000	0.002	-0.000
	(0.004)	(0.004)	(0.004)	(0.004)
Ln(Capital Stock)	0.468**		0.193	0.332*
	(0.202)		(0.312)	(0.196)
Capital Stock/GDP		0.001***		
		(0.000)		
Ln(Human Capital)			0.447	
			(0.322)	
Ln Patents				0.130***
				(0.047)
Constant	-10.577***	-10.194***	-8.067***	-12.603***
	(2.384)	(2.287)	(2.445)	(2.436)
R^2	0.67	0.68	0.69	0.75
N	459	459	459	431

Note: The dependent variable is Net FDI Debt Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 9

Net FDI Income (OECD Non-SPE) and Financial Development

	(9.1)	(9.2)	(9.3)	(9.4)
Net FDI/World GDP	0.103	0.106	0.107	0.106
	(0.093)	(0.094)	(0.093)	(0.094)
Ln GDP	0.317	0.342	0.286	0.324
	(0.223)	(0.232)	(0.228)	(0.243)
Capital Openness	0.002	0.001	0.002	0.000
	(0.002)	(0.001)	(0.002)	(0.001)
Trade Openness	-0.002			
	(0.001)			
Exports/GDP		0.003	0.003	0.003
		(0.004)	(0.004)	(0.005)
Imports/GDP		-0.008	-0.008	-0.008
		(0.008)	(0.008)	(0.008)
Bond Rate	0.001	0.003	0.001	0.003
	(0.004)	(0.004)	(0.004)	(0.004)
Financial Development	-0.008***			
	(0.002)			
Financial Institutions		-0.001		
		(0.002)		
Financial Markets			-0.004***	
			(0.002)	
Investor Profile				-0.002
				(0.006)
Constant	-3.487	-4.127	-3.353	-3.968
	(2.751)	(2.886)	(2.804)	(3.082)
R^2	0.98	0.98	0.98	0.98
N	110	110	110	110

Note: The dependent variable is Net FDI Income/World GDP X 1,000. All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

Table 10

Net FDI Income (OECD Non-SPE) and Capital/Technology

	(10.1)	(10.2)	(10.3)	(10.4)
Net FDI/World GDP	0.107	0.107	0.106	0.109
	(0.092)	(0.094)	(0.093)	(0.093)
Ln(GDP)	-0.091	0.400*	-0.108	0.024
	(0.276)	(0.223)	(0.327)	(0.385)
Capital Openness	0.000	0.000	-0.001	-0.000
	(0.002)	(0.001)	(0.001)	(0.002)
Trade Openness	-0.002			
	(0.002)			
Exports/GDP		0.001	0.007	-0.003
		(0.006)	(0.006)	(0.005)
Imports/GDP		-0.006	-0.009	-0.001
		(0.009)	(0.008)	(0.009)
Bond Rate	0.002	0.003	0.001	0.002
	(0.003)	(0.003)	(0.003)	(0.004)
Ln(Capital Stock)	0.657**		0.914***	0.395
	(0.323)		(0.306)	(0.322)
Capital Services		0.000		
		(0.001)		
Ln(Human Capital)			-0.604**	
			(0.265)	
Ln Patents				0.051
				(0.034)
Constant	-8.075**	-5.155*	-9.595***	-6.125**
	(3.680)	(2.739)	(3.477)	(3.034)
R^2	0.98	0.98	0.98	0.98
N	110	110	110	109

Note: All independent variables are lagged. Country fixed effects are also included. The symbols
*, **, *** denote statistical significance of 10%, 5% and 1%.

Table 11
Net FDI Investment Income and Tax Rates

	(11.1) Net FDI Eq Inc/ World GDP	(11.2) Net FDI Dt Inc/ World GDP	(11.3) Net FDI Inc/ World GDP
Net FDI Eq/World GDP	0.022***		
	(0.008)		
Net FDI Dt/World GDP		0.016***	
		(0.003)	
Net FDI/World GDP			0.022***
			(0.007)
Ln(GDP)	-0.377	0.002	-0.542**
	(0.230)	(0.052)	(0.226)
Capital Openness	-0.001	0.000	0.000
	(0.002)	(0.001)	(0.002)
Exports/GDP	-0.005	0.002*	-0.005
	(0.003)	(0.001)	(0.003)
Imports/GDP	0.003	-0.001	0.006
	(0.004)	(0.001)	(0.004)
Bond Rate	-0.001	-0.004***	-0.003
	(0.004)	(0.001)	(0.004)
Financial Development	-0.001	-0.001**	-0.002
	(0.002)	(0.001)	(0.002)
Ln((Capital Stock)	0.421*	0.056	0.456**
	(0.224)	(0.055)	(0.206)
Corporate Taxes	-0.006	-0.002**	-0.005
	(0.005)	(0.001)	(0.005)
Constant	-0.837	-0.621	0.801
	(2.195)	(0.609)	(2.148)
R^2	0.91	0.86	0.89
N	340	351	346

Note: All independent variables are lagged. Country fixed effects are also included. The symbols *, **, *** denote statistical significance of 10%, 5% and 1%.

References

Adler, Gustavo and Daniel Garcia-Macia. 2018. "The Stabilizing Role of Net Foreign Asset Returns." IMF Working Paper no. 18/79. Washington, DC: International Monetary Fund.

Alberola, Enrique, Ángel Estrada and Francesca Viani. 2018. "Global Imbalances from a Stock Perspective. The Asymmetry Between Creditors and Debtors." BIS Working Paper no. 707. Basel: Bank for International Settlements.

Alfaro, Laura, Sebnem Kalemli-Ozcan and Vadym Volosovych. 2014. "Sovereigns, Upstream Capital Flows, and Global Imbalances." *Journal of the European Economic Association* 12 (5): 1240-1284.

Baldwin, Richard. 2014. "Trade and Industrialization after Globalization's Second Unbundling: How Building and Joining a Supply Chain are Different and Why It Matters." In Robert C. Feenstra and Alan M. Taylor (eds.), *Globalization in an Age of Crisis: Multilateral Economic Cooperation in the Twenty-First Century*. Chicago: University of Chicago Press, p. 165-212.

Baldwin, Richard. 2016. *The Great Convergence: Information Technology and the New Globalization*. Cambridge, MA: Belknap Press

Beer, Sebastian, Ruud de Mooij and Li Liu. 2018. "International Corporate Tax Avoidances: A Review of the Channels, Magnitudes, and Blind Spots." IMF Working Paper no. 18/168. Washington, DC: International Monetary Fund.

Blonigen, Bruce A., and Jeremy Piger. 2014. "Determinants of Foreign Direct Investment." Canadian Journal of Economics 47 (3): 775-812.

Bosworth, Barry, Susan M. Collins, and Gabriel Chodorow-Reich. 2008. "Returns of Foreign Direct Investment: Does the United States Really Do Better?" *Brookings Trade Forum 2007*, p. 177-210.

Boz, Emine, Luis Cubeddu and Maurice Obstfeld. 2017, "Revising the Paradox of Capital." VOXEU. Available at https://voxeu.org/article/revisiting-paradox-capital.swortho

Bruner, Jennifer, Dylan G. Rassier and Kim J. Ruhl. 2018. "Multinational Profit Shifting and Measures throughout Economic Accounts." Forthcoming in Nadim Ahmad, Brent Moulton, J. David Richardson, and Peter van de Ven (eds.), *The Challenges of Globalization in National Accounts*. National Bureau of Economic Research: Cambridge, MA.

Clausing, Kimberly A. 2009. "Multinational Firm Tax Avoidance and Tax Policy." *National Tax Journal* 62 (4): 703-725.

Clausing, Kimberly A. 2016. "The Effect of Profit Shifting on the Corporate Tax Base in the United States and Beyond." *National Tax Journal* 69 (4): 905-934.

Clausing, Kimberly A. 2017. "Labor and Capital in the Global Economy." *Democracy* no. 43.

Curcuru, Stephanie E., Charles P. Thomas and Francis E. Warnock. 2013. "On Returns Differentials." *Journal of International Money and Finance* 36: 1-25.

Damgaard, Jannick, Thomas Elkjaer, and Niels Johannsesn. 2019. "What is Real and What is Not in the Global FDI Network?" IMF Working Paper no. 19/274. Washington, DC: IMF.

Darvas, Zsolt and Pia Hüttl, 2017. "Returns on Foreign Assets and Liabilities: Exorbitant Privileges and Stabilising Adjustments." Working Paper no. 22975. Bruegel: Brussels.

De Backer, Koen and Dorothée Flaig. (2017). "The Future of Global Value Chains: Business as Usual or "A New Normal"?", OECD Science, Technology and Industry Policy Papers no. 41. Paris: OECD Publishing.

Feenstra, Robert C., Robert Inklaar and Marcel P. Timmer. 2015. "The Next Generation of the Penn World Table." *American Economic Review* 105 (10): 3150-3182.

Forbes, Kristin, Ida Hjortsoe and Tsvetelina Nenova. 2017. "Current Account Deficits During Heightened Risk: Menacing or Mitigating?" *Economic Journal* 127 (601): 571-623.

Fukuma, Noritaka, Kentaru Morishita and Takeshi Nakamura. 2016. "Recent Trends in Japan's Balance of Payments." *Bank of Japan Review* no. 16-E-8. Tokyo: Bank of Japan.

Gethin, Amory. 2018. *Foreign Income and Assets in Comparative Perspective: Highlights from the World Inequality Database*. WID.world Issue Brief 2018/1. Paris: World Inequality Lab.

Gourinchas, Pierre-Oliver and Hélène Rey. 2007a. "From World Banker to World Venture Capitalist: U.S. External Adjustment and the Exorbitant Privilege." In Richard H. Clarida (ed.), *G7 Current Account Imbalances: Sustainability and Adjustment*. Chicago: University of Chicago Press, p. 11-4.

Gourinchas, Pierre-Oliver and Hélène Rey. 2007b. "International Financial Adjustment." *Journal of Political Economy* 115 (4): 665-703."

Gourinchas, Pierre-Oliver and Hélène Rey. 2014. "External Adjustment, Global Imbalances and Valuation Effects." In Gita Gopinath, Elhanan Helpman and Kenneth Rogoff (eds.), *Handbook of International Economics. Vol. 4*. Oxford, UK: Elsevier, p. 585-645.

Habib, Maurizio Michael. 2010. "Excess Returns on Net Foreign Assets: The Exorbitant Privilege from a Global Perspective." European Central Bank Working Paper no. 1158. Frankfurt am Main: European Central Bank.

Hauner, Thomas, Branko Milanovic and Suresh Naidu. 2017. "Inequality, Foreign Investment and Imperialism." MRPA Paper no. 83068. University Library of Munich: Munich.

Helpman, Elhanan, Marc J. Melitz and Stephen R. Yeaple. 2004. "Exports versus FDI with Heterogeneous Firms." *American Economic Review* 94 (1): 300-316.

Hines, James R. and Eric M. Rice. 1994. "Fiscal Paradise: Foreign Tax Havens and American Business." *Quarterly Journal of Economics* 109 (1): 149-182.

Hobson, John A. 1902, 1965. *Imperialism*. Ann Arbor, MI: University of Michigan Press.

Huizinga, Harry and Luc Laeven. 2008. "International Profit Shifting within Multinationals: A Multi-Country Perspective." *Journal of Public Economics* 92 (5-6): 1164-1182.

Hünnekes, Franziska, Mortiz Schularick and Christoph Trebesch. 2019. "Exportweltmeister: The Low Returns of Germany's Capital Exports." Kiel Working Paper no. 2133. Kiel: Kiel Institute for World Economy.

Inklaar, Robert, Pieter Woltjer and Daniel Gallardo Albarrán. 2019. "The Composition of Capital and Cross-Country Productivity Comparisons." *International Productivity Monitor* 36(1), 34–52.

International Monetary Fund. 2018. *Final Report of the Task Force on Special Purpose Entities*. Washington, DC: IMF.

Jaggia, Sanjiv and Alison Kelly-Hawkes. 2008. "Practical Considerations when Estimating in the Presence of Autocorrelation." *Case Studies in Business, Industry and Government Statistics* 2 (1): 21-27.

Johansson, Åsa, Øystein Bieltvedt Skeie and Stéphane Sorbe. 2016. "Anti-Avoidance Rules Against International Tax Planning: A Classification." OECD Economics Department Working Paper no. (2016)80. Paris: Organization for Economic Cooperation and Development.

Joyce, Joseph P. 2020. "The Sources of International Investment Income in Emerging Market Economies." *Review of International Economics*, forthcoming.

Keightley, Mark P. and Jeffrey M. Stupak. 2015. "Corporate Tax Base Erosion and Profit Shifting (BEPS): An Examination of the Data." Congressional Research Service Report. Washington, DC: Congressional Research Service.

Knetsch, Thomas A. and Arne J. Nagengast. 2017. "Penny Wise and Pound Foolish? On the Income from Germany's Foreign Investments." *Review of World Economics* 153 (4): 753-778.

Lane, Philip R. 2015. "A Financial Perspective on the UK Current Account Deficit." *National Economic Review* 234 (1): F67-F72.

Lane, Philp R. and Gian Maria Milesi-Ferretti. 2018. "The External Wealth of Nations Revisited: International Financial Integration in the Aftermath of the Global Financial Crisis." *IMF Economic Review* 66 (1): 189-222.

Lenin, Vladimir I. 1917, 2018. *Imperialism*. Aziloth Books: United Kingdom.

Lipsey, Robert E. 2003. "Foreign Direct Investment and the Operations of Multinational Firms: Concepts, History and Data." In E. Kwan Choi and James Harrigan. 2003. *Handbook of International Trade*, Malden, MA: Blackwell Publishing, p. 287-319.

Lund, Susan, Eckart Windhagen, James Manyika, Phillip Härle, Jonathan Woetzel, and Diana Goldstein. 2017. *The New Dynamics of Financial Globalization*. McKinsey Global Institute: New York.

Moundigbaye, Mantobaye, William S. Rea and W. Robert Reed. (2018). Which Panel Estimator Should I Use?: A Corrigendum and Extension." *Economics: The Open-Access, Open-Assessment E-Journal* 12 (4): 1-31.

Organization of Economic Cooperation and Development. 2008. *Benchmark Definition of Foreign Direct Investment 4th Edition.* Paris: OECD.

Organization of Economic Cooperation and Development. 2014. *Asset/Liability versus Directional Presentation*. Paris: OECD.

Organization of Economic Cooperation and Development. 2019. *FDI In Figures*. October. Paris: OECD.

Organization of Economic Cooperation and Development. 2020a. *FDI In Figures*. April. Paris: OECD.

Organization of Economic Cooperation and Development. 2020b. *Foreign Direct Investment Flows in the Time of COVID-19*. Paris: OECD.

Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Cambridge, MA: Harvard University Press.

Piketty, Thomas and Gabriel Zucman. 2014. "Capital Is Back: Wealth-Income Ratios in Rich Countries, 1700-2010." *Quarterly Journal of Economics* 129 (3): 1255-1310.

Sauvant, Karl P. and Victor Zitian Chen. 2013. "China's Outward Foreign Direct Investment: Salient Features, Drivers, and Its Institutional Framework." Available at SSRN: https://ssrn.com/abstract=3217852 or http://dx.doi.org/10.2139/ssrn.3217852

Tørsløv, Thomas R., Ludvig S. Wier and Gabriel Zucman. 2018. "The Missing Profits of Nations." NBER Working Paper no. 24701. Cambridge, MA: National Bureau of Economic Research.

UNCTAD. 2020. *Investment Trends Monitor*. March. UNCTAD: New York.

Vicard, Vincent. 2019. "The Exorbitant Privilege of High Tax Countries." CEPII Working Paper no. 2019-06. Center for Prospective Studies and International Information: Paris.

Woolridge, Jeffrey. 2012. *Introductory Econometrics: An Introductory Approach*. South-Western Cenage Learning: Mason, OH.

Yu, Yongding. 2013. "China's Flawed Balance of Payments Position." *Project Syndicate.*

Appendix Table 1

Data Sources

Variable	Source
Capital Openness	Chinn-Ito (2006)
Capital Stock (constant 2011 million $)	*PWT9*
Corporate Tax Rates (%)	*OECD*
Exports/GDP (%)	*WDI*
Financial Development, Financial Institutions, Financial Markets (1-100)	*FDI*
GDP (constant 2010 million $)	*WDI*
Government Bond Yield (%)	*IFS*
Human Capital	PWT9
Imports/GDP (%)	*WDI*
Investment Profile (1-12)	*ICRG*
Net Direct Investment Income (Credits – Debits)/World GDP X 1000, Net Direct Investment Debt Income/World GDP X 1,000, Net Direct Investment Equity Income/World GDP X 1,000	*BOPS, WDI, OECDData*
Net Direct Investment Position (Assets – Liabilities)/World GDP X 1,000, Net Direct Investment Debt Position/World GDP X 1,000, Net Direct Investment Equity Position/World GDP x 1,000	*BOPS, WDI OECDData*
Patents (Resident + Nonresident)	*WDI*
Trade Openness (Exports + Imports/GDP) (%)	*WDI*
World GDP (current million $)	*WDI*

Note: *BOPS: Balance of Payments Statistics*, IMF*; FDI = Financial Development Index Database,* IMF*; ICRG = International Country Risk Guide,* PRS Group; *IFS = International Financial Statistics*, IMF*; PWT9 = Penn World Tables 9.0; WDI = World Development Indicators*, World Bank

Summary Statistics

Variable	Mean	Standard Deviations	Minimum	Maximum
Capital Openness	95.148	13.020	16.6	100.0
Capital Stock	5940118.0	9648406.0	96665.09	5.62e+07
Capital Stock/GDP	471.979	108.242	265.820	777.665
Corporate Tax Rates	29.06	6.665	12.5	51.612
Exports/GDP	53.709	19.909	7.427	228.994
Financial Development	68.778	13.785	31.212	100.0
Financial Institutions	76.497	11.861	47.852	100.0
Financial Markets	59.587	19.909	7.427	100.0
GDP	1542524.00	2831097.00	25172.28	1.79e+07
Government Bond Yield	5.019	3.301	-0.363	23.917
Human Capital	3.176	0.386	1.940	3.739
Imports/GDP	49.808	43.081	6.936	221.01
Investment Profile	9.67	2.344	3.000	12.000
Net FDI Inc/WGDP X 1000 (IMF)	0.271	0.754	-0.809	4.214
Net FDI Debt Inc/WGDP X 1000 (IMF)	-0.075	0.186	-0.765	0.368
Net FDI Eq Inc/WGDP X 1000(IMF)	0.306	0.822	-0.763	4.484
Net FDI Asts/WGDP X 1000(IMF)	2.132	4.582	-11.334	29.703
Net FDI Debt Asts/WGDPX 1000G(IMF)	-0.150	4.096	-10.685	22.590
Net FDI Eq Asts/WGDP X 1000 (IMF)	2.282	5.256	-8.786	34.351
Net FDI Inc/WGDP X 1000 (OECD)	0.259	0.504	-1.1225	2.970
Net FDI Debt Inc/GDP X 1000 (OECD)	-0.628	0.192	-0.686	0.253
Net FDI Eq Inc/WGDP X 1000(OECD)	0.293	0.464	-0.710	2.087
Net FDI Asts/WGDP X 1000 (OECD)	0.259	0.504	-1.122	2.970
Net FDI Debt Asts/WGDP X 1000 (OECD)	-0.0628	0.192	-0.686	0.253
Net FDI Eq Asts/WGDPX 1000 (OECD)	0.293	0.464	-0.710	2.087
Patents (Nonresident)	14962.99	4207.44	8.0	313052.0
Patents (Resident)	27913.13	77389.81	9.0	384201.0
Trade Openness (Exports + Imports/GDP)	101.343	91.427	16.014	444.62

Note: See Table A1 for units of measurement. Net FDI Inc = Net FDI Income; Net FDI Debt Inc = Net FDI Debt Income; Net FDI Eq Inc = Net FDI Equity Income; Net FDI Asts = Net FDI Assets; Net FDI Debt Asts = Net FDI Debt Assets; Net FDI Eq Asts = Net FDI Equity Assets