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Net Reverse Transfers from Latin America and The Caribbean: A Critical Note

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Abstract

This paper investigates whether the surge in private capital inflows Latin America and the Caribbean (LAC) has experienced in recent decades has also been accompanied by a significant outflow of profits and interest payments to foreign companies and their respective governments. It documents that there has been a massive reverse transfer of resources from the region to the developed countries of the world, particularly during the 2015-2023 period. The amounts transferred are not only large in absolute terms, but also relative to regional gross domestic product (GDP) and gross fixed capital formation (GFCF) for several countries of the region, including Chile and Mexico. This represents foregone opportunities for domestic investment in physical and human capital and may further undermine the already strained capacity of the region to generate future income and employment opportunities for its growing population. It is beyond the scope of this short paper to address the important question of whether the financial and technological (managerial) knowhow foreign capital ostensibly brings to the region is enough to offset the negative effects emanating from the unprecedented reverse transfer of resources in recent decades. The paper is organized as follows. The first section focuses on the surge in Net Foreign Direct Investment (FDI) during the 1990-2022 period. This is followed by a discussion of the unprecedented reverse transfers the region experienced during the period, particularly 2015-2023. The third section presents results for a labor productivity growth (error correction) equation for Mexico during the 1970-2020 period and the estimates suggest that, once remittances of profits are deducted, the impact of the growth rate in the *net* foreign capital stock per worker on labor productivity growth is diminished significantly, *ceteris paribus*. The last section is the conclusion.

J.E.L. Codes: O10, O40, O57

Keywords: Error Correction (EC) model; Net Foreign Direct Investment (FDI); Gross Fixed Capital Formation (GFCF); Labor Productivity Growth Rate; Net Payments of Profits and Interest; Pantula principle; VECM Granger Causality/Block Exogeneity test

1. Introduction

Following the onset and aftermath of the debt crisis of the early eighties, Latin America witnessed a sharp decline in net inflows of capital coupled with a massive outflow of financial resources that plunged the region into a lost decade of economic development (see Cypher and Dietz, 2020; Chang, 2003; Green, 2005; and Ramirez, 2006). Despite the inflow of non-autonomous (official) capital during that decade, the *net* transfer of resources (net total inflows of capital minus net payment of profits and interest) from the region amounted to a staggering $194.4bn, which represented 18.3 percent of Latin America's total exports of goods and services (see ECLAC, 2011, p. 117). The passage and implementation of the U.S.-sponsored Brady "debt-forgiveness" Plan in 1989 and the widespread adoption of market-based, outward-oriented reforms during the decade that followed by several countries in the region, including Argentina, Brazil, Chile and Mexico, signaled an (official) end to the debt crisis and, ostensibly, to the hemorrhage of funds from the region (see Cypher and Dietz, 2020). This short paper reviews whether this has in fact been the case.

The first section gives an overview of inflows of autonomous (private) capital into the region during the 1990-2022 period, primarily in the form of net foreign direct investment (FDI), in absolute terms, relative to regional GDP, and gross fixed capital formation. The focus on net FDI, as opposed to portfolio capital (stocks and bonds) is due to the fact that the extant economic literature views this type of capital as more stable and productive, and thus less likely to exit the region during economic and financial crises (see Cicea and Marinescu, 2020; De Mello, Jr., 1997; Ramirez, 2006; Ram and Zhang, 2002; and Zhang, 2001). The next section gives an overview of the massive payment of interest and

profits (income balance) for Latin America and the Caribbean during the period and whether it has been offset by the total net inflow of capital. The third section centers its attention on two countries in the region, viz., Chile and Mexico, and addresses whether the inflow of capital in the form of net FDI has contributed or diverted funds away from gross fixed capital formation over the 1990-2022 period. The fourth section presents econometric results for a labor productivity growth equation for Mexico which suggest that, once remittances of profits and dividends are deducted, the impact of the growth rate in the *net* foreign capital stock per worker on labor productivity growth is diminished significantly, *ceteris paribus*. The last section offers some concluding remarks.

2. Net FDI Flows to Latin America during the 1990-2022 Period

The debt crisis of the early eighties led to a marked decline in net FDI inflows (gross inflows minus outflows) to Latin America and the Caribbean in absolute terms during the first half of the 1980s, after which they began to increase steadily during the second half of the 1980s and posted a dramatic surge during the decade of the 1990s, averaging close to $56 billion during the 1991-99 period (see ECLAC, 2006). Most of these funds were channeled to the major countries of Latin America and the Caribbean. For example, net FDI flows to Argentina, Chile, Brazil, Mexico, and Peru averaged close to$52 billion during the 1996-2001 period, before falling to $37 billion in 2002, and $25.7 billion in 2003 because of the relatively mild 2001 U.S. recession. Figure 1 below shows that with the recovery of economic activity in the United States after 2003, net FDI flows to the countries of Latin American and the Caribbean resumed at a brisk pace as attested by the rise in net inflows to $57 billion in 2005, $96 billion in 2007, and slightly over $100 billion in 2008, before falling sharply in 2009 to $72.2 billion in the aftermath of the Great Recession of 2007-09 (ECLAC 2016, Table A1-10, p. 97; and UNCTAD, 2015).

Figure 1 below also shows that the abrupt fall in net FDI flows to Latin America and the Caribbean in 2009 was quickly reversed in 2010 when the region, led by Argentina, Brazil, Chile, Mexico, Peru, and Uruguay, experienced a sharp inflow of funds thanks, in part, to rising commodity prices and aggressive Keynesian-style countercyclical policies in countries such as , Argentina, Brazil, Costa Rica, Chile, and Ecuador--relative to their developed counterparts in Europe and the United States. According to ECLAC (2021), the surge in net inflows to the region that began in 2010 continued into 2011--attaining in that year an all-time high of $153.5 billion--and thereafter ranging between $142 to $148 billion for the 2012 and 2014 period, before falling sharply in 2016 and 2017 to $124.1 and 119.9 billion, respectively. The rapid rise in FDI inflows that began in 2010 can be traced to a sharp improvement in the region's terms of trade resulting from relatively higher prices for key primary commodities such as copper, nickel, and petroleum induced by the strong demand for commodities by China and the United States; robust internal demand in the form of consumption and investment spending (particularly in Brazil, Chile Colombia and Ecuador); and last but not least, the high rate of return on capital investments in the region (see UNCTAD, 2016). The fall in net FDI inflows to Latin America and the Caribbean during the 2015-2019 period can be traced to a number of internal and external factors. For example, the sharp fall in the demand for primary commodities by China and the European Union due to their slower growth; a 72 percent decrease in cross-border mergers and acquisitions in Central America and the Caribbean, and the exhaustion of countercyclical (populist) policies in countries such as Argentina, Brazil, Ecuador, and Venezuela. In 2020-21 there was an abrupt fall in net FDI inflows to only $108.3 billion as a result of the onset and aftermath of the Covid-19 pandemic, followed, respectively, by a modest rebound in 2021 to $122.7 billion and a sharp increase in 2022 to $159.5 bn as the world economy began to recover (ECLAC, 2023, Table A3.5 p. 152).

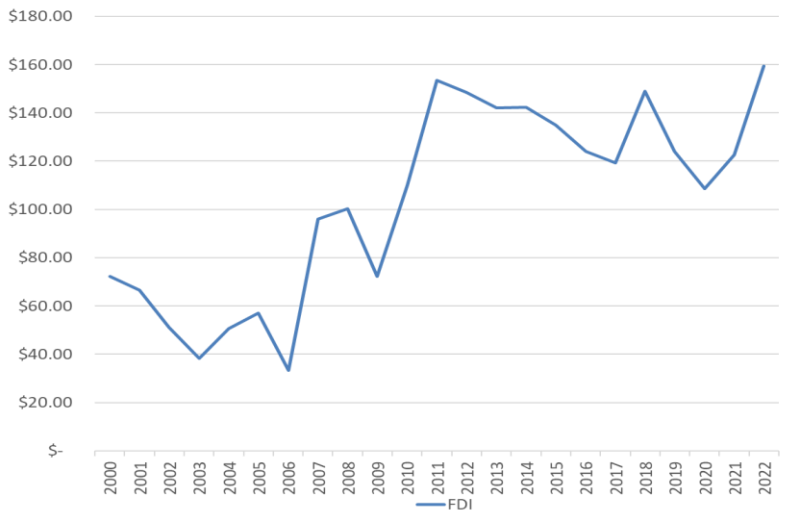

Figure 1. Net FDI Flows to Latin America, 2000-2022 ($Bn)

More importantly, from the standpoint of economic growth and development, the increase in net FDI inflows has been driven by robust investments in Greenfield investments in manufacturing, clean energy and financial services, particularly in South America (Brazil, Chile, and Peru) and Mexico—in the latter it is primarily directed to the auto parts and assembly sector and manufacturing in general as a result of the "reshoring" process taking place in the wake of the passage of the USMCA (formerly NAFTA) and the protectionist stance taken by the U.S. government towards China (see ECLAC, 2023). The importance of these net inflows is better appreciated by focusing on their recent evolution relative to GDP and the gross fixed capital formation of the major countries of the region, given FDI's important role in financing private capital formation. Figure 2 below shows that net FDI inflows as a proportion of the region's GDP were quite significant during the 2000-2022 period. For example, with the exception of the years 2006, 2009, and 2020, these net flows have represented at least 2 percent of the region's GDP, and during 2010-19 they averaged a respectable 2.7 percent (with some years at or close to 3 percent of regional GDP). The adverse impact of the Covid-19 pandemic is noticeable for 2020 which shows that net flows as a percentage of GDP fell to 1.8 percent, and the only reason they did not fall even more that year is because total GDP for the region fell sharply from $5.8 trillion to $4.838 trillion (World Bank, 2021). However, in 2021 and 2022, because of the recovery in the world economy, net FDI flows as a percentage of GDP have managed a remarkable rebound as indicated in the figure below, particularly for 2022, when they registered their highest level since 2001 at 3.3 percent.

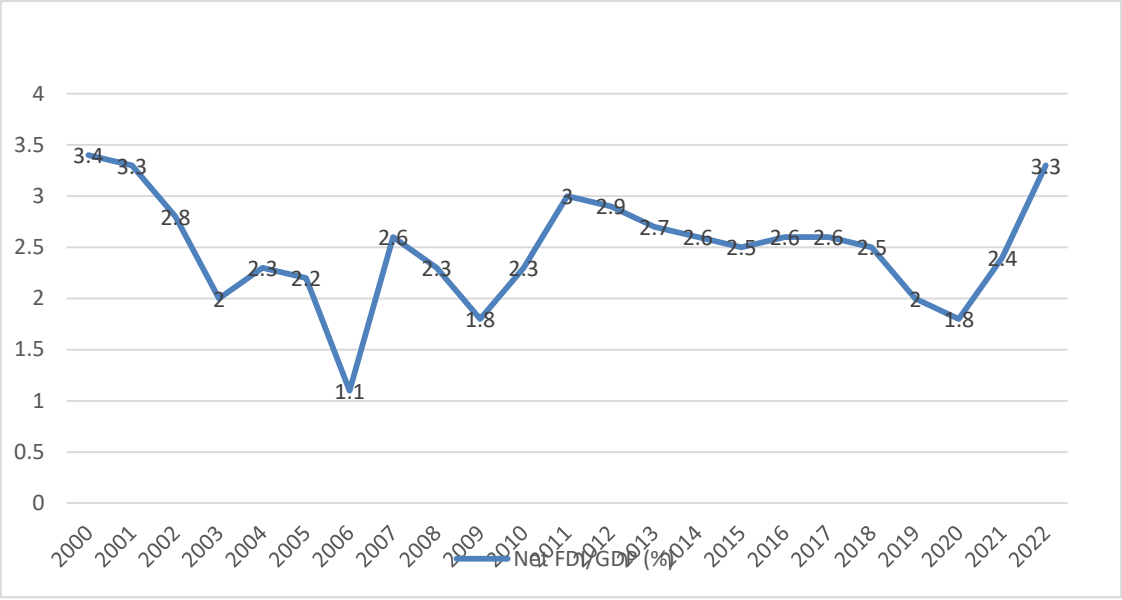

Figure 2. Net FDI Flows as a Percentage of Latin America's Gross Domestic Product, 2000-2022

Table 1 below reports net FDI flows as a percentage of gross fixed capital formation during the decades of the 2000s; it reveals that, beginning in 2005, net FDI inflows to the major countries of Latin America represented a significant percentage of their gross fixed capital formation; and in the cases of Colombia, Costa Rica, Chile, Ecuador, Peru, and Uruguay these flows averaged 15.4 percent of gross fixed capital formation during the 2005-2021 period. For Latin America as a whole, net FDI inflows as a proportion of gross capital formation rose impressively from an

Table 1. Selected Latin American Nations: Net Foreign Direct Investment Flows [a] as a Percentage of Gross Fixed Capital Formation, 2000-2021

Country	2000	2002	2004	2005	2007	2008	2009	2010	2011	2013	2014	2015	2016	2017	2018	2019	2020	2021
Argentina	25.3	17.6	15.0	11.0	10.1	11.8	9.8	16.9	13.0	12.9	4.9	16.4	15.0	17.9	13.1	8.4	7.9	7.2
Brazil	28.4	19.6	16.0	9.0	14.0	13.9	18.9	14.1	18.1	10.8	14.9	14.9	20.0	42.2	26.4	16.1	17.7	11.2
Chile	22.9	17.8	39.2	18.3	33.0	35.6	34.1	31.0	19.3	12.7	17.6	13.5	27.2	13.8	22.3	27.3	28.6	24.8
Colombia	21.1	17.6	17.1	18.0	18.7	17.6	12.2	10.0	8.3	10.2	13.5	8.6	18.1	30.4	9.1	16.2	12.2	11.1
Costa Rica	14.4	20.7	22.9	18.3	33.8	30.3	22.7	20.7	29.9	29.4	30.4	30.7	16.8	29.4	21.4	25.7	15.8	28.2
Ecuador	32.7	23.0	16.5	6.0	1.9	8.1	2.8	4.0	3.9	3.7	3.5	6.9	8.9	7.9	5.1	3.7	5.1	4.6
Mexico	13.7	12.1	16.7	10.6	13.9	11.0	8.8	9.3	5.0	14.1	8.1	9.3	10.7	22.4	9.6	9.1	12.8	13.1
Peru	6.8	21.6	12.8	18.3	22.3	19.5	25.9	18.1	18.5	18.6	16.2	18.2	35.0	23.3	11.0	6.1	6.1	17.6
Uruguay	10.3	15.6	22.3	39.0	29.9	32.6	25.4	28.9	30.5	30.0	20.8	8.8	-3.4	-12.7	-7.4	15.3	12.2	14.0
Venezuela	25.9	3.8	7.7	5.0	2.6	1.5	1.3	2.1	3.1	3.7	-1.6	5.0	0.0	-0.3	0.6	---	---	---
Latin America	20.7	15.4	24.1	15.1	20.8	23.5	18.9	17.6	13.4	12.5	12.7	12.9	14.9	13.0	15.7	12.7	13.8	12.8

Source: Computed by author from UNCTAD, World Investment Report, 2012, Annex Table I.1, p.171; ECLAC, Preliminary Overview of Latin America and the Caribbean, 2023, Tables A2.1, A2.4, and A3.5, pp. 142-152; and ECLAC, Statistical Annex, 2023, Tables A.1.1 –A.3.6 [a] Corresponds to direct investment in the reporting economy after deduction of outward direct investment by residents of that country. A negative sign means that outward direct investment exceeds inward direct investment in the reporting economy.

average of only 8.5 percent during the 1987-97 period to a high of 20.7 percent in 2000, before falling somewhat to 15.4 percent in 2002 (see Table 1). No doubt, during the early 2000s Latin America exhibited an impressive record of attracting net FDI flows to finance gross fixed capital formation (see UNCTAD, 2012; and ECLAC, 2021). Notable performers during this period are Argentina, Chile, Costa Rica, Ecuador, Mexico, Uruguay, and Venezuela. However, as noted above, following the relatively mild U.S. recession of 2001 and the serious economic crisis in Argentina in 2001-2002, net FDI inflows as a percentage of gross fixed capital formation fell sharply to a decennial low of 4 percent in 2004. However, Table 1 shows that after 2004 the share of net FDI inflows rebounded sharply to almost 24 percent in 2008, and despite the aftermath of the Great Recession of 2007-09, they proved to be resilient and fell only to approximately 18 percent in 2009-10. Still, Table 1 shows that during the 2011-2020 period there has been a fall in the share of net FDI inflows in gross fixed capital formation to an average of 13.6 percent due to the deceleration of growth and investment in the region alluded to above, even before the adverse economic (social) impact of COVID-19. In some notable cases, such as Uruguay and Venezuela, net foreign direct investment has diverted resources away from the financing of gross fixed capital formation—even *before* deducting net payments of profits and interest (see the years 2014, 2016, 2017 and 2018 for Venezuela and Uruguay).

3. Net Resource Transfers from the Region: Has the Hemorrhage Stopped?

Critics of the role of foreign capital in emerging markets argue that they primarily divert resources away from capital formation because they generate substantial reverse flows in the form of remittances of profit, dividends, and interest to the parent companies, often residing in the U.S. and Europe. Moreover, they contend that the reported reverse flows are probably a gross underestimate because of the widespread practice of intra-firm transfer pricing by TNCs, i.e., under-voicing of subsidiaries' exports and over-invoicing of their imports of capital goods and technology (see Cypher and Dietz, 2020; Chang, 2003; Green, 2005; Montecinos and Cordero, 2010; and Ram and Zhang, 2002).

In order to assess whether total net inflows of capital (including portfolio capital) into Latin America have offset net payments of profits and interest, it is useful to get a "bird's eye view" of the major trends over the 1980-2022 period. Table 2 below shows that beginning in 1991 total net inflows of capital increased significantly and were able, by and large, to offset net payment of profits and interests (income balance) up until 2001, resulting in a net transfer of resources *into* the region which averaged $18.3bn during the 1991-2000 period. Despite this net positive inflow, column 3 reveals a growing outflow of profits and interest for the same period, rivaling or surpassing the amounts that left the region during the so-called "lost decade of development," in both absolute and relative terms. More worrisome for Latin

America's future is that, beginning in 2002, the net transfer of resources *out* of the region resumed at an even more alarming pace than during the decade of the 1980s, both in absolute terms and, as shown in column 4, as a proportion of the region's exports of goods and services. This reversed itself beginning in 2010-11 as a result of the short-lived commodity boom that the region experienced during 2011-2015, induced, in part, by the increased global demand for aluminum, oil and gas, copper, tin, soybeans, and wheat arising from the surge in economic growth in both China and India.

However, a quick perusal of the table shows that the region has continued to bleed massive amounts of net income in the form of net payments of profits and interest, even surpassing the already unprecedented levels recorded in the 2000s, so that beginning in 2016--and particularly during the pandemic years of 2019-22—the reverse transfer of resources ballooned, averaging $78.8bn, and the preliminary estimate for 2023 of $51.1bn suggests that this worrisome trend is likely to continue into the foreseeable future. The loss of these financial resources represents foregone investment and employment creation for the region, not to mention a decline in human capital formation as public (and private)

Table 2. Latin America and the Caribbean: Net Capital Inflow and Resource Transfers, 1980-2023 (Billions of dollars).

Year	Total Net Inflows of Capital[1] (1)	Net Payments of Profits and Interest (2)	Net Resource Transfer (3)	Net Transfers as a percent of exports of goods + services (4)
1980	31.6	-19.6	12.0	10.0
1985	4.3	-36.5	-32.2	-26.7
1987	12.9	-32.0	-19.1	-15.8
1991	37.2	-33.1	4.1	2.3
1993	68.2	-35.7	32.5	15.9
1995	62.1	-42.4	19.7	7.0
1997	82.4	-47.7	34.7	10.1
2000	58.4	-54.7	3.8	0.9
2003	19.2	-59.4	-40.3	-8.9
2005	3.0	-80.6	-77.7	-11.8
2007	113.4	-97.9	15.5	1.8
2009	89.2	-97.4	-8.3	-1.1
2010	144.2	-114.8	29.5	3.0
2013	170.3	-154.5	15.8	1.3
2015	148.4	-131.8	16.6	1.5
2016	106.3	-124.9	-18.6	-1.8
2017	104.6	-140.0	-35.4	-3.2
2018	143.1	-183.5	-40.4	-3.1
2019	63.8	-179.1	-115.3	-9.3
2020	25.4	-133.9	-108.5	-10.2
2021	153.3	-180.7	-27.4	-2.0
2022	130.4	-194.5	-64.1	-3.9
2023[a]	58.7	-109.8	-51.1	-6.6

Source: ECLAC, various issues of Statistical Yearbook for Latin America and the Caribbean; and ECLAC, various issues of the Economic Survey of Latin America and the Caribbean.[1]It includes both private (autonomous) and official (non-autonomous) capital. [a] Preliminary estimate.

expenditures on education and health are cut back in order to release funds for the payment of profits and interest on foreign capital. To get a better idea of how large these reverse transfers are, it is useful to compare them to regional GDP as well as contextualize them in terms of historical periods, such as the reparation payments that Germany was compelled to make during the Weimar Republic. Figure 3 below shows that during the 2017-2022 period, these reverse net transfers surpassed 2 percent of regional GDP for a couple of years, and averaged a level of 1.4 percent, which is only comparable to the negative resource transfers of the 1980s.[i] To put this into perspective, the debt service payments that Germany had to make to the victorious allies during the 1925-31 period, and which many informed observers believe hastened the rise and spread of Nazism, represented about 2.5 percent of the nation's GDP.

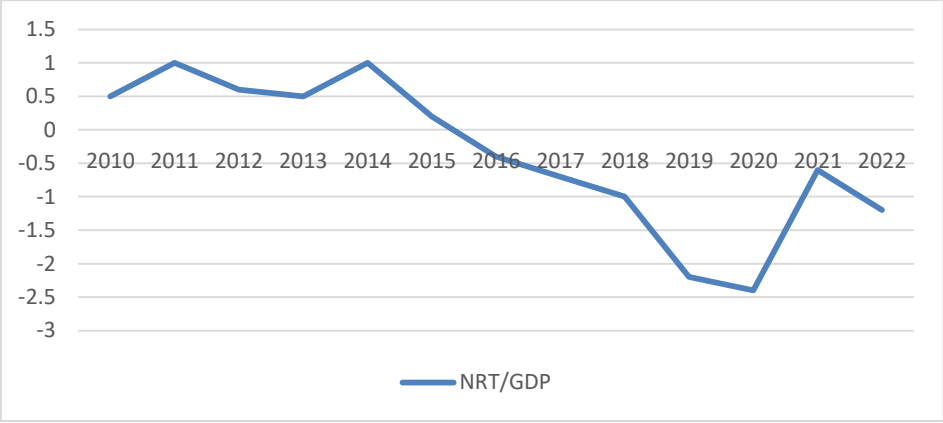

Figure 3. Net Reverse Transfers for Latin America as a Percent of GDP, 2020-2022

To get a better gauge how FDI contributes to the *financing* of private capital formation, one must subtract from gross (or net) FDI inflows the repatriation of profits, dividends and interest to the parent companies, often residing in the U.S. and Europe for many of the countries in question. Qualified support for the concerns of the critics of FDI can be found in the following figures: net profit and interest remittances by Latin America and the Caribbean to the developed countries almost quadrupled between 2004 and 2022, from $33.6 bn to $194.6 bn (see ECLAC, 2023, Table A3.1., p.147).[ii] For example, in the year 2019 alone the outflow of resources (in the form of profits and interest) from the region *exceeded* the inflow in the form of net FDI ($124.9 bn) by practically $54.1 bn! Moreover, from both an individual country and regional standpoint, the remittance of profits and interest in recent years is truly alarming (see ECLAC, 2023, Tables A3.1 and A3.5).

In this connection, consider the cases of Chile and Mexico, given that both countries have attracted vast amounts of foreign capital over the past decades in view of their embrace of market-based, outward-oriented reforms (see Edwards, 1999; Green, 2013; Kehal, 2004; Kumar, 2007; Ramirez 2006; and UNCTAC, 2024). Chile has been dubbed the "poster child" for "neoliberal" reforms in the region, particularly in view of its early and ruthless adoption of market-based reforms under the Pinochet dictatorship (1973-1990), while Mexico dismantled its ISI model of industrial development following the debt crisis of the early eighties and fully embraced the neoliberal model with the passage and implementation of both the NAFTA and USMCA. In view of their highly liberal policies towards the regulation of foreign capital and the repatriation of profits, both countries have also experienced huge reversals of profits and interest in recent years. In the case of Chile, Figure 4 below reveals that for the 2002-2021 period, the repatriation of net profits on FDI rose from $2.1 billion in 2002 to $10.3 billion in 2005 and a staggering $20 billion in 2007, and thereafter fell to $5.1 billion and 5.7 billion in 2016 and 2017, respectively, before rising sharply to $12.8 billion in 2018 and leveling off at over $10 billion during the 2019-2020 inverval. More worrisome, the preliminary figures for 2021 indicate a balloning of outflows to $18.5 billion—close to the all-time high of $20 billion registered in 2007 (see ECLAC, 2023, Table A3.1, p. 147). To put these figures into perspective, the outflow of net profits in 2019 alone represented, respectively, 60.1 and 66.1 percent of the *net* inflows of FDI into the country in 2019 and 2020 (see ECLAC, 2023, Table A3.5, p.152; and UNCTAD, 2022)! In fact, relative to the country's *gross* inflows of FDI, Chile's repatriation of net profits on FDI during the 2002-2020 period averaged 60 percent [computed from ECLAC, 2023; and UNCTAD, 2022].

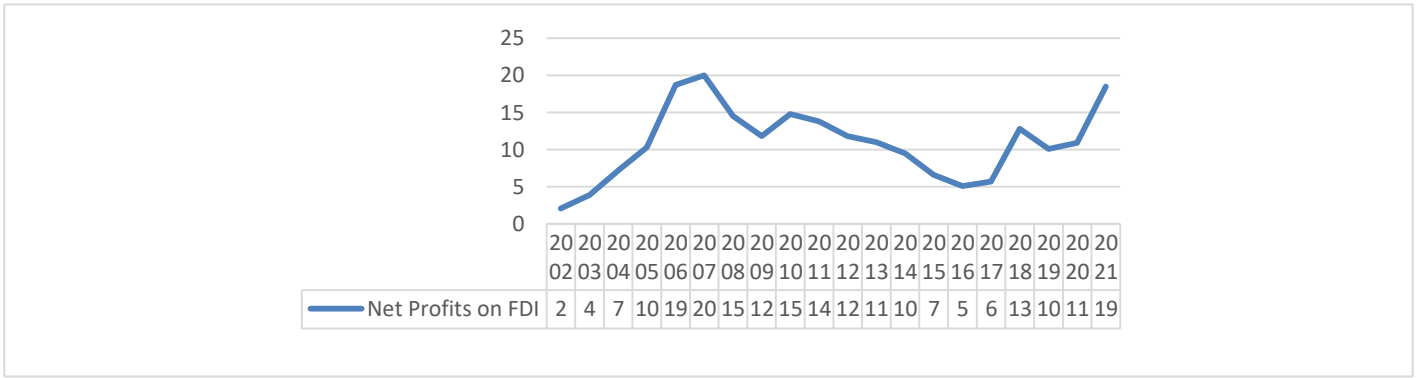

Figure 4. Chile: Net Profits on FDI ($ bn), 2002-2021

Table 3. Part A.1 Chile: Net FDI Flows as a Percentage of Gross Fixed Capital Formation, 2001-2021

2001	2003	2005	2007	2009	2011	2013	2015	2016	2017	2018	2019	2020	2021
31.4	28.2	18.3	33.0	34.1	19.3	12.7	13.5	27.2	13.8	22.3	27.3	28.6	24.8

Part A.2 Mexico: Net FDI Flows as a Percentage of Gross Fixed Capital Formation, 2001-2021

2001	2003	2005	2007	2009	2011	2013	2015	2016	2017	2018	2019	2020	2021
20.7	13.1	10.6	13.9	8.8	5.0	14.1	8.1	9.3	22.4	9.6	9.1	12.8	13.1

Part B.1 Chile: Gross FDI Inflows adjusted for the Remittance of Profits and Interest as a Percentage of Gross Fixed Capital Formation, 2001-2021[1]

2001	2003	2005	2007	2009	2011	2013	2015	2016	2017	2018	2019	2020	2021
2.1	-11.3	-9.3	-17.8	2.2	4.9	8.4	3.1	0.4	0.4	0.2	10.9	11.5	-1.0

Part B.2 Mexico: Gross FDI Inflows adjusted for the Remittance of Profits and Interest as a Percentage of Gross Fixed Capital Formation, 2001-2021[1]

2001	2003	2005	2007	2009	2011	2013	2015	2016	2017	2018	2019	2020	2021
9.4	4.1	6.0	6.9	1.0	3.2	4.3	-1.2	-0.3	1.0	1.9	-0.9	4.1	-0.7

Source**:** United Nations, *World Investment Report*, 2018-22. New York: United Nations, 2019-22, Annex Tables 1 and 2; ECLAC, *Statistical Yearbook for Latin America and the Caribbean*, 2006. Santiago, Chile: United Nations, 2006, Table 2.1.1.54, p. 132, and Table 2.1.1.57, p. 135; ECLAC, *Economic Survey of Latin America*, Annex, 2023, Tables A1-A3; and ECLAC, Preliminary Overview of Latin America and the Caribbean, Statistical Annex, 2023, Tables, A3.1 and A3.5. [1]A negative value indicates that profits and interest payments exceeded gross FDI inflows for that year, thereby diverting resources away from fixed capital formation.

Table 3, Parts B.1 and B.2 show, respectively, that the contribution of *gross* FDI inflows adjusted for the remittances of profits and interest (and as a proportion of fixed capital formation), is far less than that advertised by the unadjusted figures for net FDI in Part A for Chile and Mexico.[iii] Mexico has been selected for comparison because, as mentioned above, it has also fully integrated itself into the world economy with its adoption of market-based reforms and the launching of the NAFTA in 1994, and its further consolidation with the passage of the USMCA in 2020. The figures reveal that, in the case of Chile, FDI actually diverted resources away from the financing of capital formation during the 2003-2007 period and provided a marginal contribution during the 2016-18 period, before rising to an average contribution of 7.2 percent in 2019-2021. Insofar as Mexico is concerned, the figures show that beginning in 2015 the country recorded several years in which FDI diverted resources away from the financing of private capital formation. In fact, Mexico's net payments of profits and interest during the 2015-2022 period far exceeded those of Chile's which is not altogether surprising given its bigger economy, but Chile's net payments of profits and interest were, *relatively* speaking, comparable to those of Mexico.[iv]

4. Empirical Model and Results

Based on previous work,[v] I estimated an error correction (labor productivity growth) eqn. for Mexico during the 1970-2020 period of the following form:

$$\Delta y_t = \alpha + \beta_1 \Delta k_{pt-i} + \beta_2 \Delta k_{fgt-i} [\Delta k_{fnt-i}] + \beta_3 \Delta r_{t-1} + \beta_4 EC_{t-1} + \beta_5 D_1 + \beta_6 D_2 + \varepsilon_t \quad (1)$$

where lower case letters denote the natural logarithms of the relevant variables in per worker terms, and Δ is the difference operator; y denotes the natural log of real output per worker (1970 pesos); Δy_t is the labor productivity growth rate; k_p is defined as the natural log of the stock of private capital per worker (1970 pesos); k_{fg} and k_{fn} denote, respectively, the natural logs of gross and net stocks of FDI capital per worker; r represents remittance flows (received) per worker and is included in the estimated equation because these flows have become important in both absolute and relative terms in recent decades.[vi] Based on the standard ADF and P-P unit root tests and the KPSS confirmatory test

(null hypothesis of a unit root is *reversed*), all the variables included in the underlying production function, y, k_p, $k_{f,}$ and r exhibit a unit root in *level* form but are stationary in first *difference* (results are available upon request). Given that the statistical *power* of unit root tests is diminished in the presence of a structural break (see Asteriou and Hall, 2021), unit root tests with a structural break (intercept only) were also undertaken and the results are consistent with the standard ADF, P-P, and KPSS tests (results are available upon request). The number of yearly observations (51) surpasses the threshold recommended by Granger and Newbold (1986) of 50 observations; failure to meet this threshold may compromise the power of the unit root (and cointegration) tests—not to mention distort the size or significance of the tests as well (see Asteriou and Hall, 2021). EC_{t-1} refers to the error correction (obtained from the unique cointegrating equation)[vii] and it is expected to be negative; and D_1 is dummy variable for the economic and political crises years 1976, 1982-83, 1995, 2001-02, 2008-09, and 2020, while D_2 is a dummy variable for the petroleum-led expansion of 1978-81. Except for the dummy variable, $D_{1,}$ and the EC_{t-1} term, the remaining variables are expected to have a positive effect on the growth rate in labor productivity.

The results are reported in Table 4 below and, as anticipated, they show that the lagged growth rate in private capital stock per worker (Δk_{pt-1}) is positive and economically significant in all EC regressions. The effect of *gross* foreign capital stock per worker (Δk_{fgt-3}) in eq. (1), i.e., without subtracting profit and interest payments, also had a positive and significant effect on the rate of labor productivity growth, *ceteris paribus*.[viii] On the other hand, the impact of *net* foreign capital

Table 4. Mexico: error correction model: dependent variable is labor productivity growth rate (Δy_t), 1970-2020.

Variables	(1)	(2)	(3)	(4)
Constant	-0.04	-0.04	-0.02	-0.02
	(-4.65)**	(-3.92)**	(-5.89)**	(-5.14)**
Δk_{pt-1}	0.90	0.91	0.86	0.82
	(5.72)**	(4.72)**	(9.64)**	(8.57)**
Δk_{fgt-3}	0.14	----	0.05	----
	(3.37)**		(2.31)**	
Δk_{fnt-3}	----	0.02	----	0.02
		(1.50)[a]		(1.82)*
Δr_{t-1}	0.10	0.10	0.08	0.08
	(6.56)**	(6.30)**	(6.58)**	(8.10)**
EC_{t-1}	-0.79	-0.80	0.58	-0.56
	(-7.10)**	(-5.73)**	(-10.44)**	(-9.57)**
D_1	----	----	-0.05	-0.05
			(-9.74)**	(-8.07)**
D_2	----	----	0.06	0.06
			(10.33)**	(10.97)**
Adj R^2	0.68	0.65	0.83	0.80
SE	0.03	0.03	0.02	0.02
AC	-4.02	-3.91	-4.75	-4.58
SC	-3.71	-3.59	-4.36	-4.23
DW	1.99	1.95	2.10	2.07
B-G	0.93	1.30	0.49	2.53[a]
F-Stat	12.70**	10.75**	26.56**	23.78**

Note: T-ratios are in parenthesis. *Significance at the 5%; **Significance at the 1%; [a]Significance at the 10%. SE is the standard error of the regression. AC denotes Akaike info criterion; SB refers to Schwartz criterion; B-G is the Breusch-Godfrey Serial Correlation LM test; and DW denotes the Durbin Watson statistic.

stock per worker (Δk_{fnt-3}) in eq. (2) on labor productivity growth is reduced by a factor of seven and is marginally significant at the 10 percent level.[ix] The growth rate in remittances per worker are also economically and statistically significant and exceed the impact of the growth rate of gross foreign stock per worker in all regressions except for eq. (1). Finally, the EC regressions have their anticipated effects and are highly significant (except for Δk_{fnt-3}) and are *robust* to the inclusion or exclusion of the dummy variables [compare eqs. (1) and (3) and (2) and (4)]. In addition, the relative fit and efficiency of the EC regressions is quite good (see Adj R^2, AC, SC, B-G, and DW stats) and, as the theory predicts, the EC terms are negative and highly significant. The coefficients of the EC terms in eqs. (3) and (4) suggest that a deviation from long-run productivity growth during the current year is corrected by about 56 to 58 percent in the next year, *ceteris paribus*.

The EC regressions were also used to track the historical data on labor productivity growth. Theil inequality coefficients (available upon request) are well below the threshold level of 0.3, and their variances, covariances, and bias statistics are very close to their theoretical values (see Theil, 1966). Figure 5 below, corresponding to eq. (3), indicates that the EC model is able to closely track the turning points of the actual series. It also reveals the poor performance of labor productivity in Mexico over the period in question.

As indicated in Section II above, the surge in FDI inflows (and portfolio capital) to the countries of Latin America in recent decades has been due, in part, to "push factors" in the industrialized countries, such as relatively low rates of return on investments during the early 1990s (and early 2000s). In addition, "pull factors" have played an important role, such as the partial reduction of the debt burden via the use of Brady bonds, expanding consumer markets, natural resource endowments, the implementation of credible macroeconomic stabilization policies and market-based structural reform programs (see Green, 2013; Kumar, 2007; Stiglitz, 2003; and UNCTAD, 2017). The latter have included the following measures: privatization and debt conversion programs, the liberalization of the tradable sector, the deregulation of the banking and financial sector, the removal of ostensibly restrictive FDI legislation concerning the repatriation of profits and prior authorization of investments, as well as eliminating sectoral restrictions in the form of local content and export requirements (see Chang, 2003; Green, 2005; Edwards, 1999; and Ramirez, 2006).

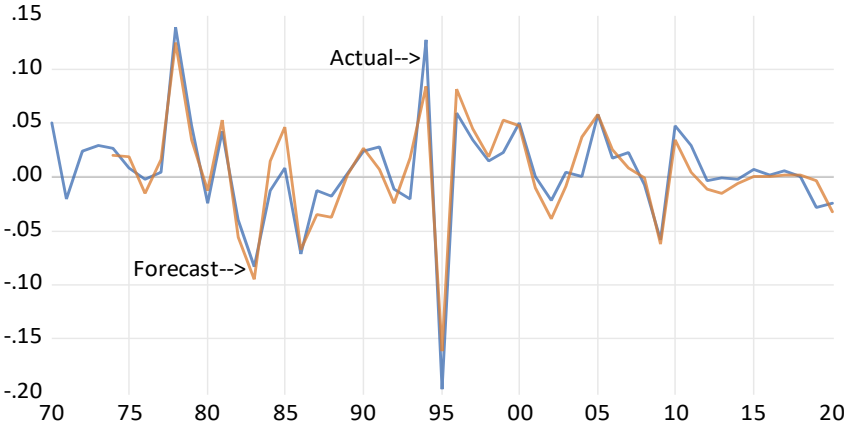

Figure 5. Actual and In-Sample Forecast for Labor Productivity Growth Rate, 1970-2020

It is beyond the scope of this relatively short paper to address whether these market-based, outward-oriented reforms are sustainable in the long run from the standpoint of economic development, in view of the lingering effects of the Great Recession of 2007-09, the sharp drop in commodity prices beginning in 2014, the emergence of China and India as major destinations for FDI flows, the devastating economic and social effects of the COVID-19 pandemic on the region, and the continuing hemorrhage of resources documented above (see Chen, et al., 1995; Stiglitz, 2003; and Ursua and Werner, 2023).[10]

5. Conclusion

This paper has documented the alarming transfer of resources out of Latin America in recent decades despite the surge in inflows of foreign capital to the region (2010-2018) in the form of FDI, portfolio, and official capital. This unwelcome trend has accelerated since 2015 for several countries which have wholeheartedly adopted market-based reforms (including Chile and Mexico), and represents foregone opportunities for private fixed capital formation, investment in human capital, and employment creation in a region that is desperately in need of all of them for economic growth and development. The econometric results for Mexico suggest that, once remittances of profits and interest are subtracted from gross inflows of FDI, the impact of the growth rate in *net* foreign capital per worker on the rate of labor productivity growth is reduced significantly. The VECM estimates suggest that the line of causation or precedence runs from foreign capital per worker and domestic private capital per worker to labor productivity, and that there is two-way "causality" between foreign capital per worker and private capital per worker. It remains an open question whether the actual (potential) long-run benefits of foreign capital often touted by its advocates, in terms of financing capital formation and transferring technology and managerial knowhow, can offset the negative effects associated with the massive reverse transfers documented in this paper (and elsewhere in the literature).

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Endnotes

[i]If net payments of profits and interest (net income) *alone* were used to compute the ratios for the 2010-2022, the percentages would be above 3 percent of GDP for several years, particularly 2017-2022 (see ECLAC, 2019-2023).

[ii]Despite the unprecedented outflow of profits and interest in recent years, Latin America has recorded an impressive increase in its stock of inward FDI. From the standpoint of economic theory, the marginal productivity of labor (and domestic capital) should be positively affected by having more and higher quality capital to work with, *ceteris paribus* (see De Mello, Jr., 1997; Osei and Kim, 2020; Ramirez, 2006; and Rodrik, 2018). For example, for the years 2000, 2010, 2022, respectively, FDI inward *stock* in Latin America (dollars) more than quintupled, from $338.8 billion to $1,549.9 billion, and $2,653.1 billion (UNCTAD, 2024, Annex Table 2, p. 162). In relative terms, FDI inward stock as a percentage of GDP rose from 10.5 percent in 1990 to 23.6 percent in 2000, and 44.6 percent in 2015—the latest year for which we have reliable data (see UNCTAD, 2017, Annex Table 7; and ECLAC, 2023.) The remarkable increase in FDI inward stock during the 1990s and 2000s is far greater than that of the entire "lost decade" of the 1980s.

[iii] If profits and interest had been subtracted from *net* FDI flows over the period in question, the diversion of resources away from private capital formation in these two countries would have been far worse.

[4] ECLAC (2017-23) reports that net payments of profit and interest for Chile averaged about $ 11.2 bn for the 2015-22 period, while those for Mexico averaged $32.4 bn, or almost three times bigger. These reverse flows are not only large in absolute terms but relative to GDP and GFCF as well (see Cypher, 2020; and ECLAC, 2017-23).

[v] The stocks of private domestic and foreign capital were generated via a standard perpetual inventory model of the following form: $K_t = K_{t-1} + I_t - \delta K_{t-1}$, where K_t is the stock of capital at time t, I_t is the flow of gross investment during period t, and δ is the rate at which the stock of capital depreciates in period t-1. The initial stocks of private and foreign capital were estimated by aggregating over 10 years of gross investment and assuming a rate of depreciation of 5%. The unavailability of data prevented the use of the recommended 20 years. A depreciation rate of 10 % was also used and

the results were qualitatively the same. For further details, see Ramirez, 2006, pp. 809-810, and 816; and Looney, 2001.

[vi] Mexico is the largest recipient of remittance flows in Latin America (and the third largest recipient in the world, after India and China) and, not surprisingly, it also recorded a dramatic increase in these flows for the period under review, from a level of US$24.8 bn in 2015 to an estimated (preliminary) level of US$58.5 bn in 2022. In fact, remittance flows have become such an important source of foreign exchange earnings for the country over the last decade that they rank third, just behind Mexico's earnings from maquiladoras (assembly-line industry) and oil (see Canas et. al., 2007; ECLAC, 2023; and UNCTAD, 2024).

[vii] Utilizing the Johansen and Juselius (1990) method and the Pantula (1989) principle, it was determined that there is one *unique* linear combination (cointegrating vector) of these non-stationary variables that is I(0); i.e., there exists a stable and unique long-run relationship among the variables in logarithmic form. The Pantula selection procedure determined that *Model 2* (out of five relevant ones) should be chosen because it is the *last* significant estimate *before* the null of no cointegration *cannot* be rejected. In model 2 the cointegrating (level) equation includes a constant. The likelihood ratio (LR) test suggests that the null hypothesis of no cointegration can be rejected at the 5% (and 1%) levels (trace statistic = 54.07 > critical value (5%) = 35.19; and Max-Eigen statistic = 40.32 > critical value (5%) =22.29. The presence of one unique cointegrating equation was used to generate the residuals (EC terms) used in the EC regressions reported in Table 4. Detailed results are available upon request.

[viii] The EC regressions for the output growth equations are qualitatively the same as those for the labor productivity growth regressions. I tested the restriction that the sum of the growth elasticities of labor, private capital, and foreign capital is equal to 1. The Wald test (p-value: 0.1965) suggested that the assumption of constant returns to scale *cannot* be rejected. Results are available upon request.

[ix] It is possible for the line of causation to run the other way, so I estimated a multi-variate VECM Granger Causality/Block Exogeneity test with 1-3 lags. The results for *one* lag indicate that the null hypothesis that Δk_f does not "Granger cause" Δy *can* be rejected at the 1% level for all three lags (p-value: 0.001), while the reverse hypothesis that Δy does not "Granger cause" Δk_f *cannot* be rejected for any of the lags (p-value of at least 0.4096). Similar results were obtained when testing for "Granger causality" between the pairs Δy and Δk_p, viz., the line of "causality" runs from changes in k_p to changes in y (p-value: 0.029), but not the other way around (p-value: 0.4322). Finally, the estimates for the pairs Δk_f and Δk_p suggest that there is "two-way causality" between them at the 1% and 5 % level (p-values between 0.0011 and 0.0322). Detailed results are available upon request.

[10] According to UNCTAD (2024), gross FDI inflows to China (excluding Hong Kong) in 2021 are estimated at US$180.9 billion which, if confirmed, exceed the gross inflows to Latin America and the Caribbean as a whole at an estimated US$139.9 billion. In fact, China's FDI inflows in 2021 made it the second largest recipient of FDI inflows in the World, still far behind the United States at US$389.4 billion (see UNCTAD, 2024, Annex Table 1, pp. 157-259).