

THE IMPACT OF INVESTMENT AND INVESTMENT INCOME ON THE GDP OF CHILE AND URUGUAY

ВПЛИВ ІНВЕСТИЦІЙ ТА ІНВЕСТИЦІЙНОГО ДОХОДУ НА ВВП ЧИЛІ І УРУГВАЮ

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Impact of investment income and investment on economic growth is the topic of this paper. The following methodology has been used: comparative method, statistical method and economic modeling method. The net investment position to GDP ratio showed that Chile and Uruguay are currently stable economies. Correlation of Uruguay's GDP with foreign investment income of direct and portfolio investment has been revealed as well as correlation of Chile's GDP with national investment income of portfolio investment, foreign direct investment income, and direct investment assets and liabilities. Based on the coverage ratios, it can be proposed that Chile's economy is in a stable position, not dependent on external finance. Coverage ratio in case of Uruguay showed dependence on other investments, implying vulnerability to financial shocks. Coverage indicators for Ukraine were calculated. Ukraine's indicators are broadly similar to indicators of Chile.

Key words: investment, investment income, coverage ratio, profitability, GDP, foreign direct investment, portfolio investment, other investment.

Темою роботи є дослідження впливу інвестиційного доходу і інвестицій на економічне зростання. Міжнародний рух капіталу є однією з форм зв'язку між різними суб'єктами, включаючи країни, підприємства, міжнародні організації тощо. У роботі було використано кілька методів, таких як: порівняльний, статистичний і метод економічного моделювання. Співвідношення чистої інвестиційної позиції до ВВП показало, що Чилі та Уругвай в даний час мають стабільну економіку. Була виявлена кореляція ВВП Уругваю та доходів прямих іноземних інвестицій і портфельних інвестицій. Була також виявлена кореляція ВВП Чилі від внутрішнього доходу портфельних інвестицій, доходу від прямих іноземних інвестицій, а також активів і пасивів прямих інвестицій. Ґрунтуючись на коефіцієнтах покриття, можна сказати, що Чилі – це стабільна і незалежна від зовнішнього фінансування економіка. Коефіцієнт покриття у випадку Уругваю показав залежність від показника інших інвестицій, що означає вразливість до фінансових потрясінь та економічних криз. Уругвай має високу сукупну прибутковість за прямими іноземними інвестиціями – понад 16%, але сукупна прибутковість є настільки високою через декілька років прибутковості в кілька сотень відсотків. Прибутковість портфельних інвестицій становить майже 5%, інших інвестицій – 3%. Прибутковість прямих, портфельних та інших інвестицій в Чилі становить 5%, 2% і 4% відповідно. Чилі перевершує Уругвай по прибутковості тільки по іншим інвестиціям. Показники покриття для України були розраховані, так як вона має багато спільних рис з багатьма країнами Латинської Америки, як наприклад: економічні перспективи в цілому, позиціонування себе в якості постачальників сировини на глобальних ринках, клановість економіки, вразлива національна валюта, подібні позиції зовнішнього чистого інституційного боргу країн, подібні економічні проблеми та завдання. Показники України в цілому схожі з показниками Чилі. Основна відмінність – показник відтоку інших інвестицій значно нижче, ніж у Уругваю і Чилі. Іншими словами, зовнішнє кредитування в Україні має низьке значення.

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Ключові слова: інвестиції, інвестиційний дохід, коефіцієнт покриття, прибутковість, ВВП, прями іноземні інвестиції, портфельні інвестиції, інші інвестиції.

стицій на економічний ріст. В роботі було використано декілька методів, таких як: порівняльний, статистичний і метод економічного моделювання. Отношение чистой инвестиционной позиции к ВВП показало, что Чили и Уругвай сейчас имеют стабильную экономику. Выявлена корреляция ВВП Уругвая и доходов прямых иностранных инвестиций и портфельных инвестиций. Была выявлена корреляция ВВП Чили и внутреннего дохода портфельных инвестиций, дохода от прямых иностранных инвестиций, а также активов и пассивов прямых инвестиций. Основываясь на коэффициентах покрытия, можно сказать, что Чили – независимая от внешнего финансирования экономика. Коэффициент покрытия Уругвая показал зависимость от показателя других инвестиций, что означает уязвимость к финансовым потрясениям. Показатели покрытия для Украины в целом аналогичны показателям Чили.

Ключевые слова: инвестиции, инвестиционный доход, коэффициент покрытия, прибыльность, ВВП, прямые иностранные инвестиции, портфельные инвестиции, другие инвестиции.

Introduction. All countries have their system of relations with each other and international organizations at different levels. There are regional and global links for cooperation between different parties. The international movement of capital is one of the communication forms between various subjects, including countries, enterprises, international organizations, etc. To utilize this system to the fullest, the country needs to shape a macroeconomic policy more favorable to capital inflows, as creation of conditions and communication channels for the international capital flows leads to an increase in labor productivity, acceleration of economic development, and an increase of GDP. However, there are risks, including loss of financial independence and balance of payments deterioration.

There are two sides to such a relationship: the host country and the investor country. Each country performs both of these functions, but much more often focuses on one of them. There are lots of advantages to both sides. The host country expands the number of jobs, increases its competitiveness by gaining access to new technologies. The investor country is expanding its influence, gaining access to new labor and material resources at more affordable prices.

The disadvantages of investment flow for a host country is the balance of payments deterioration. Another negative factor is the accumulation of external debt in the long term.

Countries considered in this paper are Uruguay and Chile. They were chosen due to their production

and investment potential. As developing countries actively operating in their regional market. Also, the issue of foreign capital influence on the countries of Latin America is very relevant. This article will examine the impact of investment and investment income on the economic development of Chile and Uruguay.

Literature review. The impact of international investment is not unambiguous; therefore, this issue is widely covered in literature.

The study of Yakubovskiy, Rodionova, and Kyfak was dedicated to the duality of investments. A study was conducted on the mutual influence between various forms of capital inflows and economic growth in four emerging market economies in Central and Eastern Europe: Bulgaria, the Czech Republic, Hungary, and Poland. The study established that capital inflows into the euro area, especially foreign direct investment, played a significant role in accelerating economic growth before the crisis in the global economy. However, there is no subsequent evidence of such an impact, and the opposite trend is now observed. Economic growth is now a factor driving capital inflows, mainly direct investment in Bulgaria, the Czech Republic, Hungary, and Poland [1].

The downgrade of the balance of payments due to investments in this article is considered not because of the increase in the volume of these investments, but rather because of the constant increase in the value of accumulated assets and exchange rate fluctuations [2].

The purpose of this work is to characterize the factors influencing economic growth.

Hypothesis, methodology and data. Foreign investments play a significant role in the economic development of countries. However, these investments differ in direction and value, therefore one should pay close attention to the type of investment. Direct investments provide their owners with direct control. Portfolio investments are aimed at limited ownership and profit from that ownership. "Other investments" category includes other types of investments, such as various debt instruments.

To test the hypothesis that various types of investment income and investment flows themselves can affect economic growth, regression models were built for each of the countries:

$$GDP_{URUGUAY} = \beta DII_{infi} + \beta PII_{infi} \quad (1)$$

where DII_{infi} is the income from inflows of foreign direct investment, PII_{infi} is the income from portfolio investment inflows;

$$GDP_{CHILE} = \beta PII_{outfi} + \beta DII_{infi} - \beta PI_{assets} + \beta PI_{liab} \quad (2)$$

where PII_{outfi} is the income from the outflow of portfolio investments, DII_{infi} is the income from the inflow of foreign direct investment, PI_{assets} is the assets of the portfolio investment and PI_{liab} is the liabilities of the portfolio investment.

Annual investment data from the International Monetary Fund [5] and GDP data from the World Bank [6] will be used below.

The foreign investment coverage ratio is the share of total investment income exported by foreign investors in the corresponding cumulative receipts of the financial account of the balance of payments. It can be calculated annually or cumulatively [3; 4].

A cumulative calculation over several decades gives a more accurate picture of what is happening.

$$Cover^x = \frac{\sum INCd_t^x}{\sum xI_t} \quad (3)$$

where $Cover^x$ is the coverage ratio of direct, portfolio or other investments over 20 years. This coefficient is regarded as an indicator of instability with high rates during crisis years.

The profitability for all types of assets is the share of investment income of year t by the accumulation of external liabilities in year $t-1$.

$$YLI_t^x = \frac{INC_t^x}{XLI_{t-1}} \quad (4)$$

where YLI_t^x is the profitability on direct, portfolio or other investments over 20 years.

High level of profitability on one type of investments leads to an increase in investments of the corresponding type. High cumulative rate of profitability, on the other hand, indicates the long-term prospects of such deposits.

Results. Chile's and Uruguay's international investment positions are both negative. The most influential assets' components of Chile's international investment position are direct and portfolio investments. These positions in percentage terms make up 35% and 46% of all assets, respectively. The most influential components of the liabilities, as in the case of assets, are direct (63%) and portfolio (22%) investments. In dynamics, the growth of liabilities was mostly facilitated by the growth of direct foreign investments.

In the case of Uruguay, the main components of assets and liabilities are direct, portfolio, and other investments. These positions as a percentage in the case of assets are 42%, 17%, 17%, respectively. Liabilities are also dominated by direct investments, accounting for 60%, while portfolio and other investments are 22% and 17%. Uruguay started investing in private equity in 2012. In the same year, the country began to expand the access of foreign direct investment to the country from abroad, which significantly increased the volume of investment compared to previous years.

In order to test whether the country is stable in case of economic and global shocks, one may check whether the country's net international investment position is significant as a percentage of that country's GDP. The indicator is presented in Table 1.

Table 1
Ratio of net international investment position in % of GDP

| Country | Ratio of net international investment position to GDP per year | | |
|---------|--|------|-------|
| | 1999 | 2008 | 2018 |
| Uruguay | 7.6% | 6.7% | 25.5% |
| Chile | 44.8% | 9.9% | 23.5% |

Source: compiled by the author based on [5; 6]

The economies of Chile and Uruguay are at this stage stable, judging by the values of the ratio of net international investment position to GDP of Uruguay and Chile. Although the Chilean economy until the 2000s was much more vulnerable to economic shocks.

The regression was built to reveal the dependence of GDP on investment flows and investment income.

In the case of Uruguay, there is a significant dependence of the increase in GDP on the increase in income from inflows of foreign direct investment and income from portfolio investment inflows.

$$GDP_{URUGUAY} = 0,492DII_{infl} + 0,492PII_{infl} \quad (5)$$

In the case of Chile, there is a significant dependence of the increase in GDP on the increase in income from portfolio investment outflows. There is also an insignificant dependence of an increase in GDP on income from an increase in inflows of foreign direct investment, a decrease in foreign direct investment assets, and an increase in portfolio investment liabilities.

$$GDP_{CHILE} = 0,747PII_{outfl} + 0,213DII_{infl} - 0,112PI_{assets} + 0,216PI_{liab} \quad (6)$$

Income growth stimulates an increase in consumer consumption, that is, an increase in demand for goods and services, which stimulates an increase in the supply of these goods and services, and, accordingly, an increase in the GDP.

A slight increase in income from investments coming into the country also stimulates an increase in investment inflows.

There is very little negative impact on the GDP from foreign direct asset growth. The country probably has a surplus of assets, or some of the assets may be not profitable.

An increase in the inflow of direct investment into the country also stimulates the creation of new jobs, and, consequently, an increase in consumption, and, consequently, demand for an increase in production.

Table 2
Student's t-test and F-test statistic for models

| | GDP of Uruguay | GDP of Chile |
|------------------|----------------|--------------|
| Student's t-test | 2,784 | 14,411 |
| F-test | 90,882 | 440,906 |

As the next step, we will calculate the coefficient of foreign investment coverage: a significant indicator demonstrating investment attractiveness of various types of foreign investments for domestic investors

in the foreign market and foreign investors in the domestic market of the country. Cumulative coverage ratio of foreign investment outflows for the period from 1999 to 2019 is considered below.

The types of investments under consideration are foreign direct investments, portfolio investments and other investments.

Table 3
Coverage ratios of foreign investment outflows, 1998–2018

| Country | Coverage ratios of foreign investment outflows, % | | |
|---------|---|----------------------|------------------|
| | FDI | Portfolio investment | Other investment |
| Uruguay | 39 | 59 | 129 |
| Chile | 36 | 25 | 71 |

Source: compiled by the author based on [5]

The most significant type of investment in the case of both countries is other investment. Chile, in comparison with Uruguay, has lower coverage rates, especially in portfolio and other investments. In the case of Uruguay, the cumulative coverage ratio exceeds 100%, which creates the potential for a high level of dependence on this type of investment and potentially creates instability too.

Next, cumulative coverage ratio of foreign investment inflows to these countries will be estimated.

Table 4
Coverage ratios of foreign investment inflows, 1998–2018

| Country | Coverage ratios of foreign investment inflows, % | | |
|---------|--|----------------------|------------------|
| | FDI | Portfolio investment | Other investment |
| Uruguay | 91 | 85 | 157 |
| Chile | 95 | 34 | 56 |

Source: compiled by the author based on [5]

Uruguay and Chile have roughly the same coverage ratios for direct investment. Chile has the highest direct investment coverage. Also, as in the previous table, the overall coverage in Chile is lower than in Uruguay. The coverage ratio for other investments in Uruguay also exceeds 100%, which creates the potential for a high level of dependence on this type of investment and potentially creates instability, too.

Now let us evaluate the cumulative profitability on foreign investment outflows.

In terms of cumulative profitability, Uruguay significantly surpasses Chile in direct and portfolio investments. Particularly promising are foreign direct investments, showing average profitability of more than 16%. However, such high values are due to the jump in the level of profits from 2011 to 2012 with a delayed shift in assets. The total annual profitability for 2012 was 230%, while in the following years

it continued to demonstrate the standard profitability indicators of 2-5%. For other indicators, there were no such leaps in Uruguay.

Chile is also showing stability in terms of profitability over the years. Chile also has a more significant volume of other investments, including external lending.

Table 5

Cumulative profitability of foreign investment outflows, 1998–2018

| Country | Cumulative profitability of foreign investment outflows, % | | |
|---------|--|----------------------|------------------|
| | FDI | Portfolio investment | Other investment |
| Uruguay | 16.34% | 4.85% | 3.01% |
| Chile | 5.23% | 2.29% | 3.73% |

Source: compiled by the author based on [5]

Table 6

Cumulative profitability of foreign investment inflows, 1998–2018

| Country | Cumulative profitability of foreign investment inflows, % | | |
|---------|---|----------------------|------------------|
| | FDI | Portfolio investment | Other investment |
| Uruguay | 8.79% | 6.77% | 3.44% |
| Chile | 11.42% | 5.18% | 2.31% |

Source: compiled by the author based on [5]

According to the results, Uruguay bypasses Chile in profitability of portfolio and other investments. However, Chile surpasses Uruguay in profitability of foreign direct investment, although both countries show significant levels of profitability of this indicator.

Ukraine has a lot in common with Latin American countries, for instance, the economic outlook in general, positioning as of raw material suppliers in the global markets, the clannishness of the economy, highly vulnerable national currency, similar external net institutional debt positions of the countries, similar economic problems and tasks.

There may be similarities in Ukraine's investment indexes with Chile and Uruguay. First, consider the coefficient of coverage of Ukraine.

Table 7

Coverage ratios of foreign investment inflows and outflows, 1998–2018

| Outflows | | | Inflows | | |
|----------|----------------------|------------------|---------|----------------------|------------------|
| FDI | Portfolio investment | Other investment | FDI | Portfolio investment | Other investment |
| 36% | 41% | 7% | 45% | 61% | 47% |

Source: compiled by the author based on [5]

Private and portfolio investment outflow coverage ratios are roughly comparable to coverage ratios of Uruguay and

Chile. The main difference is that other investments are not developed at all in Ukraine, including external lending.

With regard to the coefficients of coverage of investment inflows, it is difficult to compare Ukraine with Uruguay and Chile, since they are currently undergoing very lively investment activity. To obtain such results, Ukraine should solve its political and economic problems, which are an obstacle to a favorable investment climate.

Conclusions. The existence of the income influence from various types of investments on the GDP of Uruguay and Chile was revealed. An analysis of the countries' robustness in the face of financial shocks was also carried out, concluding that at this stage both countries are in a stable position. In the past, the dynamics of Chile was unstable. Regression analysis established that income from direct and portfolio investment inflows had a positive impact on Uruguay's GDP, as well as a positive impact on Chile's GDP from the outflow of portfolio investment, inflow of foreign direct investment, portfolio investment liabilities, and a slight negative impact by direct investment assets.

Based on the coverage ratios, Chile is a fairly stable economy across all types of assets in both inflows and outflows. Uruguay's coverage ratio is volatile in relation to other investments.

Uruguay and Chile have the highest levels of profitability in terms of FDI, both in inflows and outflows.

Coverage indicators for all types of investments in Ukraine showed stable values and a level of low dependence on external investment.

REFERENCES:

1. T. Rodionova, S. Yakubovskiy, A. Kyfak (2019) "Foreign Capital Flows as Factors of Economic Growth in Bulgaria, Czech Republic, Hungary and Poland", *Research in World Economy*, vol. 10, no. 4, pp. 48–57. Available at: <https://doi.org/10.5430/rwe.v10n4p48>
2. Yakubovskiy S., Rodionova T. and Derkach T. (2019) "Impact of foreign investment income on external positions of emerging markets economies". *Journal Transition Studies Review*, 26(1), pp. 81–91. Available at: <https://doi.org/10.14665/1614-4007-26-1-005>
3. Yakubovskiy S., Rodionova T. and Kyfak A. (2019) "Inflow of Foreign Capital as a Factor of the Development of Current Accounts of the Eastern European Countries". *Journal Transition Studies Review*, 26(2), pp. 3–14. Available at: <https://doi.org/10.14665/1614-4007-26-001>
4. Lomachynska I., Yakubovskiy S., Plets I. (2018) Dynamics of Austrian foreign direct investment and their influence on the national economy. *Baltic Journal of Economic Studies*, 4(5), 167–174. Available at: <https://doi.org/10.30525/2256-0742/2018-4-5-167-174>
5. International Monetary Fund: Balance of Payments and International Investment Position statistics. Available at: <http://data.imf.org/?sk=7a51304b-6426-40c0-83dd-ca473ca1fd52&slid=1390030341854> (accessed 21 September 2020).
6. The World Bank GDP (current US\$) – Uruguay, Chile. Available at: <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2019&locations=UY-CL&start=1999> (accessed 21 September 2020).