Latin American Economy

Factors to consider in infrastructure investment by multilateral development banks: an empirical study based on Latin America*

Xie Wenze Guo Yifan

Abstract: Multilateral development banks are one of the important sources of investment and financing for infrastructure construction in Latin America. This article analyzes the main factors that may affect traditional multilateral development banks such as the World Bank and the Inter-American Development Bank when selecting investment target countries. Based on the World Bank Using the PPI database and multilateral development bank reports, this paper uses a fixed effects model to conduct an empirical analysis of the multilateral infrastructure support funds received by 17 Latin American countries from 1996 to 2020. The analysis results show that in Latin America, traditional multilateral development banks Tend to support countries with lower per capita GDP, faster GDP growth, a higher proportion of government expenditure in GDP, a larger number of companies that have passed ISO environmental assessment certification per unit of GDP, and countries that are more consistent with the United States in voting at the United Nations General Assembly. BRICS countries As emerging multilateral development banks, the New Development Bank and the Asian Infrastructure Investment Bank can learn from the experience of traditional multilateral development banks in the field of infrastructure investment and properly handle competition and cooperation with these traditional institutions. When cooperating with Latin American countries, they can combine Latin American actual exploration and Innovate the "five-dimensional integration" consensus, focus on development, innovate financing models, and develop new financial services and financial products.

Keywords: Multilateral development banks in Latin America, development financing infrastructure, PPP model.

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Infrastructure investment is one of the important factors in promoting economic growth and improving income levels. The World Bank pointed out in its 1994 World Development Report that, generally speaking, infrastructure stock is positively related to per capita GDP. Every increase in infrastructure stock 1% per capita GDP can increase by 1% . ÿ In the short term, infrastructure investment can stimulate effective demand and increase employment opportunities in the construction industry and related industries. In the medium and long term, infrastructure construction and development can improve the efficiency of commodity circulation and the allocation of production factors. Efficiency, thereby improving the productive capacity of the economy. Infrastructure construction can also help solve the problem of inequality. For example, the research results of Brazilian scholars show that infrastructure is crucial to promoting social development and reducing inequality in Brazil.

ÿPublic sector , In particular, government departments are the main investors in large-scale infrastructure projects. According to the World Bank's "Private Investment Participation in Infrastructure Database" (PPI database), more than 2/3 of the infrastructure investments in developing countries (regions) come from government departments. For the vast majority of Latin American and Caribbean (Latin America) countries, the debt burden of the government sector is relatively heavy, the fiscal deficit has remained high for a long time, and the efficiency of tax collection and administration is relatively low. These unfavorable factors have restricted the fundamentals of Latin American countries to a great extent. The Inter-American Development Bank's 2019 Macroeconomic Report pointed out that since the 1990s, Latin American countries' public investment in infrastructure as a proportion of GDP has generally shown a downward trend. ÿ Compared with other developing countries, Latin American countries ' Infrastructure investment is at a low level. Overall, the proportion of infrastructure investment in Latin America to regional GDP is only 6.9% in the Middle East and North Africa. ÿ Infrastructure

ÿ ÿÿ   ,   In the Asia-Pacific region, this proportion is 77%   ,

Insufficient investment not only causes huge economic losses to Latin American countries, but also seriously hinders economic and social

development. International financial institutions led by Western developed economies believe that the participation of the private sector is crucial to narrowing or eliminating the infrastructure investment gap. The participation of the private sector Not only can it provide abundant funds

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Source, and can also improve construction efficiency. ÿ The World Bank advocates cooperation between government and social capital

(Public-Private Partner), supporting private The sector provides more public goods and services. ÿThe World Bank «PPP Reference

Guide» defines PPP as "private entities Long-term contracts with government entities to provide more public goods or services. Private

entities bear most of the risks and management responsibilities, and rewards are linked to performance." However, the World Bank in its

report on infrastructure construction in Latin America It is pointed out that the PPP model is not suitable for all developing countries. Only

those large and medium-sized countries whose financial system development reaches a minimum threshold have the ability to independently

implement PPP projects denominated and settled in local currency. For smaller countries with lower financial system development,

Developing countries require the development of multilateral development banks (MDBs). Financing institutions provide preferential

financing or guarantee support to improve the ability of these countries to attract private capital, especially international capital, to participate

in their infrastructure investment and construction.

For a long time, multilateral development banks have been one of the important sources of investment and financing for

infrastructure construction in Latin America. Multilateral development banks use the PPP model to participate in the investment and

financing of infrastructure projects. They have two obvious advantages. One is low cost and long term. Credit support. Multilateral

development banks can provide long-term loans for infrastructure projects at lower interest rates, and can even provide guarantees,

refinancing and other credit enhancement measures. The second is professional and leveraged capacity support. Multilateral development

banks have relatively rich Risk management, professional technology and other knowledge, while improving the professional capabilities of

government departments and saving financial resources of government departments, can enhance the investment confidence of the private

sector, attract and mobilize more private capital and international capital to participate in the construction of infrastructure projects. ÿ 2016 The G20 held in Chengdu, China

(G20) The Summit of Central Bank Governors and Finance Ministers issued the "Joint Declaration of Aspirations of Multilateral Development Banks on Supporting

Infrastructure Investment Actions". The declaration pointed out that although multilateral development banks only account for a small proportion of infrastructure financing

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Partially, but they "play a key role in improving upstream activities, such as strengthening legal and institutional frameworks, creating

a favorable environment for public-private partnerships, and providing upfront and structural preparations to ultimately attract private

"The purpose of human capital" ÿ

Since 2014, emerging multilateral development banks such as the BRICS New Development Bank ÿ (referred to as BRICS Bank) and the Asian

Infrastructure Investment Bank ÿ (referred to as AIIB) have expanded new space and new channels for global development financing. It has increasingly

become a new highlight in development financing in South-South cooperation. Different from traditional multilateral development banks such as the World

Bank and the Inter-American Development Bank, developing countries represented by China have more decision-making roles in the NRIC Bank and the

Asian Infrastructure Investment Bank. Quan. Both the NDB and the AIIB have promised to provide various financial services to Latin American countries in the future.

This article aims to analyze the main influencing factors of traditional multilateral development banks' participation in infrastructure project

investment and financing in Latin America. In terms of influencing factors, the existing literature focuses more on political, economic, and financial

factors, and less on social, environmental, and international factors. In terms of regional or country analysis, there are few empirical studies on Latin

America and more studies on other regions. Therefore, this article collects relevant data from some Latin American countries by adding influencing

factor options, builds an econometric model, and analyzes the performance of traditional multilateral development banks. experience and

shortcomings, and provide a certain degree of reference for emerging multilateral development banks to deepen and expand cooperation in Latin America.

An overview and characteristics of infrastructure investment by multilateral development banks in Latin America

This article will use the World Bank PPI database as the main source of statistical data for the sample. The World Bank PPI

database takes the project as a unit and records the project's main contract parties (government entities, private entities), funding

sources, main investor information, investment areas and However, there are two shortcomings in this database. First, the countries

covered are limited. The database mainly collects relevant information on public infrastructure projects in low- and middle-income

countries (according to the classification of the World Bank). Therefore, Chile, High-income economies such as Uruguay and

Panama and most Caribbean countries are not included. Second, the projects covered are limited. The World Bank PPP research

team mainly uses news reports, public databases, and government websites to collect project information. Therefore, the PPI

database It cannot cover all projects, and the project data is not completely accurate. Nonetheless, the database includes a

considerable number of projects in major countries in Latin America.

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p 1 http: / / www g20chn org / English / Documents / Cur rent / 201608 [2022-01-31] BRICS New Development Bank (New

ÿ Development Bank) was established Officially launched in July 2014 and July 2015

Open for business

ÿ Asian Infrastructure Investment Bank (Asian Infrastructure Investment Bank) B), established in December 2015,

Officially opened in January 2016.

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Data, and these data can basically meet the needs of this article. According to the

World Bank PPI database, in Latin America, the total number of infrastructure PPP projects started between 1990 and 2020 is 2359 (referred to as "total number of regional PPP projects"). The total investment amount of these projects is US$730.428 billion (referred to as the "total investment"). The start-up year refers to the year when the project begins to be implemented, with the formal signing of a PPP contract (or other types of franchise cooperation) between the government department and the private sector as the main symbol. ÿ During the same period, among the total number of regional PPP projects, there were 366 PPP projects supported by multilateral development banks (accounting for approximately 15.5% of the total number of regional PPP projects), with an investment amount of US$148.971 billion (accounting for approximately 20.4% of the total investment). ÿ Among these 366 projects, 333 are in normal status, 15 have been canceled, 13 are "in trouble", and 5 have entered the financing closure stage.

Since the 1990s, multilateral development banks' investment support for infrastructure in Latin America has the following four distinct characteristics. First, it has

experienced two rounds of upsurges, namely the period from 1996 to 2000 and the period from 2009 to 2014. Both rounds of upsurges were They emerged after the outbreak of systemic crises, corresponding to the Mexican peso crisis in the 1990s, the Southeast Asian financial crisis, and the global financial crisis in 2008-2009. After the outbreak of systemic crises, governments of various countries, especially major Latin American countries, Governments of emerging market countries regard infrastructure investment and the credit growth behind it as an important engine for economic growth. Under this circumstance, the annual support amount of multilateral development banks for infrastructure in Latin America has increased significantly. Mainly driven by Due to the impact and impact of the new coronavirus, the annual support amount of multilateral development banks for infrastructure in Latin America has been significantly reduced in 2020. It can be predicted that in the post-epidemic period, Latin America will see a new round of multilateral development bank credit growth climax, especially Infrastructure Investment Areaÿ

Second, the support is low. In the World Bank's PPI database, total investment mainly includes private investment and government investment. Using the PPI database, the author conducted an item-by-item analysis of 366 infrastructure projects supported by multilateral development banks. ÿ The amount of support from the multilateral development banks is calculated. Since individual projects do not list the capital contribution or proportion of capital contribution of the multilateral development banks, there is a certain degree of deviation in the calculation results. According to the calculation, from 1990 to 2020, the multilateral development banks provided loans, The amount of support provided to 366 projects amounted to US$34.197 billion through guarantees, syndicated loans, equity investments, etc. For the convenience of discussion, this article refers to the support amount of multilateral development banks collectively as "investment by multilateral development banks." From the perspective of the total investment amount of 366 projects, the investment of multilateral development banks is only equivalent to 47% of the total investment amount of these ÿ From regional PPP projects projects. ÿ

Third, country concentration is high. This article refers to the investment provided by multilateral development banks to infrastructure PPP projects in a certain Latin American country as "country-specific investment", and the total country-specific investment is called "total regional investment". According to country Investment as a proportion of total regional investment, multilateral development banks' investment in the region from 1990 to 2020

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Investment in infrastructure PPP projects in the United States is mainly concentrated in 5 countries: Brazil (25%), Argentina (15%), Mexico (15%), Peru (10%) and Colombia (6%). The 5 countries account for about 71% in total. Other countries account for about , 29% in total ÿÿ It can be seen that most of the investments of multilateral development banks are concentrated in a few large Latin American countries. The vast majority of Latin American countries, especially small and medium-sized and low-income Latin American countries, have obtained multilateral investment Development bank investment is limited or even difficult to obtain.

Fourth, the degree of institutional concentration is high. The Inter-American Development Bank and the World Bank are the main investment institutions. Of the total regional investment from 1990 to 2020, 40% came from the Inter-American Development Bank and 39% came from the World Bank. The total of the two was about 79 % ÿ CAF - Latin American Development Bank (10%) and Central American Economic Integration Bank (5%) are the two major regional multilateral development banks in Latin America. Infrastructure is one of the key areas of their participation and support. European Investment Banks (3%) and other multilateral development banks (3%) have lower participation. ÿ

2. Literature review

Research data shows that for most multilateral development banks, infrastructure is one of the areas in which they participate and support more. Most multilateral development banks allocate more than 50% of their loan portfolios to infrastructure projects, among which energy, Transportation is the two subfields with a relatively high proportion. ÿ Some scholars pointed out that the neoliberal ideology that advocates limiting the size of government still retains a great influence around the world. Therefore, in specific infrastructure investment practices, multilateral development banks prefer to choose PPP model. ÿ For private investors, using the PPP model, infrastructure investment can accumulate equity assets for them. Using financial means such as asset securitization, private investors can effectively reduce or resolve project risks. Some studies have found that multilateral development banks , PPP cooperation between the private sector and the government has a strong leverage effect and can expand investment capabilities from the order of billions of dollars to the order of trillions of dollars.ÿ

ÿWorld Bank PPI database ÿ ÿÿÿ: / / ÿÿÿ worldbank org / [2022 - 01 - 31] ÿ ÿ La
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After the establishment of the NRIC Bank and the Asian Infrastructure Investment Bank, empirical analysis of the factors influencing infrastructure investment by multilateral development banks has increasingly become a hot topic in domestic academic circles. Some studies have chosen a global perspective, while others have focused on certain regions (such as ASEAN, Africa, etc.) etc.). This article chooses Latin America to empirically analyze the influencing factors of multilateral development banks' investment in infrastructure in Latin America from five aspects: international, political, social, environmental, and economic. The author believes that in Latin America, whether a major infrastructure project is feasible ÿ Mainly affected by five factors, and all five factors are indispensable.ÿ

(1) International factors The

political or strategic needs of multilateral development bank funding countries have a greater impact on investment allocation. Some econometric models show that the investment allocation of the Asian Development Bank is positively related to the closeness of interests of recipient countries, Japan, and the United States. Specifically Generally speaking, the amount of investment from the Asian Development Bank received by a country is positively related to the bilateral trade volume between the country and Japan and the United States, and the amount of bilateral aid from Japan and the United States to the country. ÿ Some scholars have found through research on the World Bank loan panel data that : The amount of World Bank loans received by a country is positively related to the trade volume between the country and the United States, and the consistency of the foreign policy between the country and the United States. ÿ Some studies use lagged variable data to show that in the Middle East and North Africa, when a country adopts a pro-American policy, Project loans from the International Monetary Fund or World Bank that they apply for are more likely to be approved. ÿ Some studies focus on the hegemonic control of the United States over the Inter-American Development Bank. Using a sample selection model, they found that the amount of investment or assistance from the Inter-American Development Bank that a country received was significantly different from that of the country. The amount of U.S. military and economic assistance received is positively related to the consistency of the country's vote with the United States in the United Nations General Assembly. Compared with the African Development Bank, the Asian Development Bank, and the European Bank for Reconstruction and Development, the United States has achieved

a higher degree of support in

the Inter-American Development Bank. Hegemonic control. (2) Political factors: Domestic political stability, the level of rule of law, the degree of marketization and other factors will also affect investment in infrastructure projects. Some scholars have found that the stronger the domestic political stability of a country, the more World Bank the country has obtained.

Xie Wenze, "China-Latin America Economic and Trade Cooperation from the Perspective of Great Changes", Beijing: China Social

Sciences Press, 2021, ÿ Page 166, ÿ Christopher Kilby ÿ " Donor Information in Multilateral Develop B anks: The Case of the Asian Development ÿÿÿÿ"ÿ ÿÿ ÿÿÿÿÿÿ ÿÿ ÿÿÿÿÿÿÿÿÿÿ ÿÿÿÿÿÿÿÿÿÿÿ ÿÿÿÿÿ ÿÿÿ ÿÿ ÿÿ ÿÿ ÿÿ ÿÿÿ ÿ ÿÿÿ

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ÿ   Pang Xun, He Pingkun: «Hegemony and Institutions: How the United States Manipulates Regional Development Banks», published in «World Economy and Politics», 2015 Issue 9, 2016, pages 4-30, pages 155-156.

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The greater the loan amount. ÿ Some studies have found that pro-Western countries receive more assistance from multilateral financial institutions. ÿ Some studies believe that governments with a strong market orientation, stability and responsibility prefer the PPP model. ÿ Some studies use the United Nations PPI The database, through binary choice model analysis, found that countries with better policy environments are more likely to have infrastructure projects funded by multilateral development banks. However, in the category of PPP projects, multilateral development banks are more inclined to support political stability. ÿ Some scholars have used data analysis from countries along the "Belt and Road" and African countries to find that institutional quality can affect the effectiveness of PPP projects by affecting the risk-taking level of the private sector. Specifically, a country's level of rule of law, The higher the government efficiency, corruption control and ability to promote the development of the private sector, the more likely the private sector will choose to take more risks.ÿ

 (3) Social factors Some

scholars believe that infrastructure projects funded by international development financial institutions bring about "inherent tensions" in the triangular relationship between development banks, borrowing country governments and local communities. Some scholars point out that environmental and social issues Risk management policy (ESRM) has become one of the focuses of international development financing institutions, and its goal is to "help ensure that institutional investments comply with minimum social, environmental and governance standards." For example, the Inter-American Development Bank in 2017 In 2016, "increasing social inclusion and reducing inequality" was regarded as the first strategic goal.

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ÿ Ye Fang: «Influencing factors on the spatial distribution of investment in infrastructure projects by multilateral development banks—an empirical analysis based on the World Bank's PPI database», published in «Fiscal Research», Issue 10, 2017, pp. 65-75, Luo

ÿ Yu , Wang Fang, Chen Xi: «How institutional quality and international financial institutions affect the effectiveness of PPP projects—a study based on the empirical data of 46 countries along the "Belt and Road Initiative"», published in «Financial Research», Issue 4, 2017, No. 61 - Page 77, Huo Weidong, Chen Ruoyu, Li Xingyun: «Institutional quality, multilateral financial institution support and PPP project effectiveness—Empirical evidence from African PPP project data», Published in «Economic and Management Research», Issue 3, 2018, No. Pages 52 - 64

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Due to the particularity and complexity of indigenous issues in Latin America, social factors have unique significance in infrastructure investment. However, there has been no relevant quantitative empirical research. There are only qualitative case analysis studies. There is a study based on 11 cases in 4 Latin American countries. Taking an infrastructure project as an analysis sample, the interaction between the development bank, the national government and the local community under the goals of social security and environmental protection was examined. It was found that when the country, the government and development financial institutions all have security policies, the development Infrastructure projects funded by financial institutions have less deforestation.ÿ

(4) Environmental factors

The state of a country's natural environment and the government's preference for environmental policies will also affect infrastructure investment. The research ideas focusing on environmental loans are worth learning from. If there are relevant studies using data on more than 7,500 environmental loans issued by multilateral development banks from 1980 to 1999, Factors such as higher deforestation rates, more threatened bird species, better sanitation conditions, larger areas of protected land, and a lower proportion of agriculture were found.

The use of green energy or technology can increase a country's probability of obtaining environmental loans from multilateral development banks. ÿ Some studies, based on data from countries along the "Belt and Road", found that the use of green energy or technology has a significant positive impact on attracting investment in low-income countries and low- and middle-income countries. ÿÿ

(5) Economic factors Economic

variables can be divided into two categories. The first category is the funding status of the multilateral development banks themselves, especially the benefit expectations of the multilateral development banks for the projects they invest. The second category is related to the economic conditions of the investment target countries. Variables. For the first type of variables, some studies have pointed out that multilateral development banks have developed various social cost-benefit analysis tools. This assessment tool has made great progress compared with the 1960s and 1970s. ÿ Some scholars also pointed out that these tools It is not perfect. Large infrastructure investments still often experience large cost overruns and benefit overestimation. However, for academic research, since most banks do not disclose their specific evaluation procedures, it is difficult to obtain better results for the first type of variables. observation data

Most empirical studies focus on the second type of variables. Some empirical studies show that multilateral development banks support

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ÿ   Sun Xin, Ke Ding, Zhang Wenzhong: «How to effectively attract private capital to invest in green infrastructure? ——Based on the "Belt and Road Initiative" Empirical Research on Countries (Regions) Along the Belt and Road», published in "Enterprise Economy", Issue 10, 2020, Pages 13-22.

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The possibility of holding an infrastructure project in a country is negatively related to the country's per capita income and international reserves, and positively related to the degree of financial market development and the level of government foreign debt. ÿ Some studies show that the country where PPP projects are located has lower per capita GDP and higher GDP. Factors such as the level of financial development have a positive impact on attracting private sector investment. ÿ Some studies have shown that the improvement of the level of economic development and the expansion of market demand will help promote private capital participation in PPP project investment, and these two factors are all The most influential among the influencing factors. ÿ Some scholars took projects in countries along the "Belt and Road" as samples. Their research showed that the economic risk of the country where the project is located is negatively related to the amount of multilateral development bank loans and the leverage ratio of the project. ÿ Other studies showed that ÿ The improvement of the economic development level of investment target countries can effectively promote private capital investment in green infrastructure projects in the country. ÿ

Three empirical models and regression results

Panel data is two-dimensional data obtained simultaneously in time and cross-section. Statistical methods related to panel data have been widely used in empirical research in economics. Its advantage is that it can handle the internal differences caused by unobservable individual heterogeneity. natural problems, thereby providing more information on individual dynamic behaviors. The author follows the five-factor framework of infrastructure project investmentÿ and puts forward hypotheses on the five factors of international, political, social, environmental, and economic factors, and establishes a panel data regression model for

testing. (1)

Hypothesis 1 International factors

Public choice theory believes that when multilateral institutions make decisions, they will be affected by the commercial, political or strategic interests of their major funding countries. In Latin America, the World Bank and the Inter-American Development Bank are the leaders in infrastructure investment by multilateral development banks. In both institutions, the United States has the most decision-making power. Specifically, the voting rights of the United States in the World Bank Group and the Inter-American Development Bank are respectively

ÿ   Ye Fang: «Influencing factors on the spatial distribution of investment in infrastructure projects by multilateral development banks—an empirical analysis based on the World Bank's PPI database», published in «Fiscal Research», Issue 10, 2017, pp. 65-75, Luo Yu , Wang

ÿ   Fang, Chen Xi: «How institutional quality and international financial institutions affect the effectiveness of PPP projects——Based on the "Belt and Road Initiative" "Research on the Empirical Data of 46 Countries", published in "Financial Research", Issue 4, 2017, pp. 61-77.

ÿ   Yang Lihua and Wang Zhe: «Analysis of influencing factors of private capital participation in PPP projects—Empirical analysis based on the background of the AIIB», published in «Asia-Pacific Economy», Issue 1, 2018, pp. 53-61, p. 146. Shen Mengxi: «Country risk,

ÿ   support from multilateral financial institutions and the capital structure of PPP project financing—based on the "Belt and Road Initiative" Empirical Analysis of PPP Project Data», Published in "Economic and Management Research", Issue 11, 2016, Pages 3-10.

ÿ   Sun Xin, Ke Ding, Zhang Wenzhong: «How to effectively attract private capital to invest in green infrastructure? ——Based on the "Belt and Road Initiative" Empirical Research on Countries (Regions) Along the Belt and Road», published in "Enterprise Economy", Issue 10, 2020, Pages 13-22.

ÿ   Xie Wenze, "China-Latin America Economic and Trade Cooperation from the Perspective of Great Changes", Beijing: China Social Sciences Press, 2021, Page 166

15 7% and 30% . ÿ Major loan or investment decisions made by these two institutions require at least 85% of the voting rights to agree. In other words, the United States can exclusively veto major decisions of the World Bank and the Inter-American Development Bank. Based on this background, this article The following hypothesis is put forward:

H1: The amount of investment in infrastructure projects by traditional multilateral development banks is positively related to the similarity of interests between the target country and the United States.

2 Political factors

The investment cycle of infrastructure projects is long and the project structure is complex and diverse, with a high degree of uncertainty. Therefore, countries with a higher degree of political stability are more likely to receive support from multilateral development banks for their infrastructure projects. Combining existing literature, This article proposes the following hypothesis:

H2: There is a relationship between the investment amount of traditional multilateral development banks in infrastructure projects and the politics of the country where the project is located. Stability is positively correlated.

3 Social Factors As

mentioned above, environmental and social risk management policies have become a major focus of multilateral development financial institutions, especially in infrastructure projects. This article believes that multilateral development banks, as public development financing institutions, should be committed to helping investment The target country solves the problem of development inequality. Therefore, this article puts forward the following hypothesis.

H3: The amount of investment by traditional multilateral development banks in infrastructure projects is related to the social conditions of the country where the project is located. The degree of inequality is positively correlated.

4 Environmental Factors

This article believes that in order to reflect its exemplary role in environmental protection, multilateral development banks will tend to choose countries with higher requirements for environmental impact assessment for investment. Through this incentive mechanism, multilateral development banks can encourage developing countries Attract international multilateral funds through the implementation of higher standards of environmental protection policies. Therefore, this article puts forward the following hypothesis.

H4: The amount of investment in infrastructure projects by traditional multilateral development banks is positively related to the environmental protection emphasis of the country where the project is located.

5 Economic Factors The

macroeconomic environment will also affect project risks and the participation of different entities. In view of the multilateral development banks' nature, this article believes that poorer countries are more likely to receive support from multilateral development banks. At the same time, because multilateral development banks also have certain profit needs, therefore, countries with better economic growth expectations will receive support.

ÿAccording to the 2019 fiscal year data of the World Bank Group and the Inter-American Development Bank, the World Bank Group only counts the international financial institutions to which it belongs. Industrial Development Bank

More financial support. In addition, generally speaking, countries with more government expenditures are more willing to adopt the PPP model to solve the problem of insufficient investment in infrastructure. Therefore, this article puts forward the following three hypotheses (H5 - H7).

H5: The amount of investment by traditional multilateral development banks in infrastructure projects is related to the per capita income of the country where the project is located. Income is negatively correlated.

H6: The amount of investment by traditional multilateral development banks in infrastructure projects is related to the economy of the country where the project is located. The growth rate is positively correlated.

H7: The amount of investment by traditional multilateral development banks in infrastructure projects is related to the government support of the country where the project is located. There is a positive correlation with the proportion of expenditures in GDP. (2) Model construction and data

selection. This article selects the multilateral development banks' infrastructure PPPs in 17 Latin American countries from 1996 to 2020. The annual investment amount of the project is used as the explained variable of the econometric model. In the previous article, the author counted projects with start-up years between 1990 and 2020. In the World Bank PPI database, there are a small number of projects with start-up years before 1990. Therefore, For this part of the project, the years after 1990 are actually the years of loan issuance. In order to improve the accuracy and stability of the data, this article intercepts the data from 1996 to 2020.

The World Bank PPI database contains project information and data for 17 Latin American countries. These 17 Latin American countries United States countries include Argentina, Bolivia, Brazil, Colombia, Costa Rica, Dominica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, and Venezuela.

The panel data selected in this article has a total of 425 (25 × 17) samples. The measurement equation is as follows:

$$\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y} \qquad \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \quad \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$$

$$\ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ \ddot{y} \ \ddot{y}\ddot{y} \ \ddot{y}\ddot{y}\ddot{y} \qquad \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \qquad \ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y} \ + \ \ddot{y}\ddot{y}t$$

Among them, $MDB_{i\ddot{y}}t$ is the amount of infrastructure investment supported by multilateral development banks received by Latin American country i in year t, which includes various financing instruments such as loans, guarantees, syndicated loans, and equity investments. The data source is the author's basis based on the World Bank The items recorded in the PPI database are counted item by item.

Explanatory variables include the following categories:

1 International factors: This article chooses the consistency of voting between country i and the United States at the United Nations General Assembly in year t as the The explanatory variable is represented by $uni\ddot{y}t$. The data is between 0 and 1. 0 means completely inconsistent with the American vote, and 1 means 100% identical with the American vote. The data comes from the research team of Harvard University.

$\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ "$\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}$"$\ddot{y}$
$\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}$ $\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$: / / $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}\ddot{y}\ddot{y}$ / $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ / $\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ [$\ddot{y}\ddot{y}\ddot{y}\ddot{y}$ $\ddot{y}$ $\ddot{y}\ddot{y}$ $\ddot{y}$ $\ddot{y}\ddot{y}$]

— $\ddot{y}\ddot{y}\ddot{y}$ —

2 Political factors: This article uses the World Bank's global governance database (WGI dataset) to describe the political situation of the target country. The WGI database has a total of 6 indicators. Since these 6 indicators have strong collinearity, this article only selects the more representative ones. An indicator of gender, that is, political stability, as an explanatory variable, expressed by psi, t. 3 Social factors: This article chooses the Gini coefficient to

reflect the social inequality in Latin American countries. The data comes from the United Nations Economic Commission for Latin America and Caribbean America database, expressed by gini ÿÿÿ Express

4 Environmental factors: This article chooses the number of ISO14001 environmental management system certification companies per 1 billion US dollars of GDP to indicate the target country's emphasis on environmental protection. The data comes from the ECLAC database and is expressed by isoi,t. The more ISO14001 Number of certified companies ÿ It means that the target country has a high awareness of environmental protection, and the country's projects may be more in line with the value tendency of multilateral development banks to promote environmental

protection. 5 Economic factors: The economic factor variables selected in this article include the constant price per capita of the target country GDP, GDP growth rate at constant prices and the proportion of government expenditure in GDP are used respectively as gdppciÿt , gdpgroiÿt and gov_g . dpiÿt represents, In addition, this article will also include two variables describing the financial risk of the target country as control variables, including the currency of the target country. In addition to the inflation rate and the coverage rate of non-performing loan provisions, cpi iÿt and npl are used respectively. In ÿÿÿ Said that in addition to the non-performing loan provision coverage ratio from the World Bank addition to the Global Financial Development Database (GFDD database), other variables are from the ECLAC database. In addition, it should be pointed out

that ÿ Because banks are making The target country data of that year cannot be observed in the year of investment decision. In order to reduce the interference of possible reverse causality, the author performs first-order lag treatment on all explanatory variables. Therefore, the time interval of the explained variables in the model is 1996- In 2020, the time interval of the explanatory variables is 1995-2019, that is, the investment decision of the multilateral development bank in year t is explained by the variables of the target country in year t-1. This is also reflected in the subscripts of the variables in the equation. ÿ Finally, for the missing variables, this article will use the linear interpolation method of stata to complete the data to form balanced panel data.

Tables 1 and 2 report the descriptive statistics, Pearson correlation coefficient and variance inflation factor (VIF) of each variable. The correlation coefficients between variables are all lower than 0.5, and the highest variance inflation factor is 2.09. This shows that the model is not Affected by multicollinearity

Panel data generally includes three model estimation methods, which are mixed regression model estimation, random effects model estimation and fixed effects model estimation. Based on the results of F test, LM test and Hausman test, this paper finally selected the fixed effects model. Regression analysis (see Table 3).

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Table 1 Descriptive statistics of variables

variable	Chinese definition	expected symbol	Number of observations, mean, standard deviation, minimum, maximum			
ÿÿÿÿÿ	The multilateral development that country i received in year t Amount of investment in bank infrastructure	/ ÿÿÿ	ÿÿ ÿÿ	ÿÿÿ ÿÿ	ÿ ÿÿ	ÿÿÿÿ ÿÿ
ÿÿÿÿÿ	One with the United States voting in the UN General Assembly Consistency	ÿ	ÿÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ
psiÿ tpolitical stability	political stability	ÿ	ÿÿÿ	ÿ ÿ ÿÿ	ÿ ÿÿ	ÿ ÿ ÿÿ	ÿ ÿÿ
ÿÿÿÿ ÿÿÿ	Gini Coefficient	ÿ	ÿÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ
ÿÿÿÿÿÿ	Passes per unit of GDP Number of ISO14001 certified companies	ÿ	ÿÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ
gdppcÿt GDP per capita	GDP per capita		ÿÿÿ ÿÿÿÿ ÿÿ ÿÿÿÿ ÿÿ ÿÿÿÿ ÿÿ			ÿÿÿÿÿ ÿÿ
gdpgroÿt GDP growth rate	GDP growth rate	ÿ	ÿÿÿ	ÿ ÿÿ	ÿ ÿÿ ÿ ÿÿ ÿÿ		ÿÿ ÿÿ
gov_ gdpÿ tGovernment expenditure as a share of GDP +			ÿÿÿ	ÿÿ ÿÿ	ÿ ÿÿ	ÿÿ ÿÿ	ÿÿ ÿÿ
ÿÿÿ ÿÿÿ	Inflation rate	/ ÿÿÿ ÿÿÿ ÿÿ ÿÿÿ ÿÿ			ÿ ÿ ÿÿ	ÿÿÿÿÿÿ ÿÿ
ÿÿÿ ÿÿÿ	Coverage ratio of non-performing loan provisions/425		ÿÿÿ ÿÿ	ÿÿ ÿÿ	ÿÿ ÿÿ	ÿÿÿ ÿÿ

Source: Author's calculation and compilation

Table 2 Pearson correlation coefficient and variance inflation factor of variables

	ÿÿÿ	ÿÿ	ÿÿ	ÿÿÿÿ	ÿÿÿ	ÿÿÿÿÿ ÿÿÿÿÿÿ ÿÿÿÿÿÿÿ		ÿÿÿ	ÿÿÿ
ÿÿÿ	ÿ								
ÿÿ ÿ ÿÿÿ	ÿÿÿ	ÿ							
ÿÿ ÿ ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ						
ÿÿÿÿ	ÿ ÿÿÿ ÿ ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ	ÿ					
ÿÿÿ	ÿ ÿÿÿ ÿ ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ ÿ ÿÿÿ ÿ	ÿ				
ÿÿÿÿÿ ÿ ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ ÿ ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ			
ÿÿÿÿÿÿ ÿ ÿÿÿ ÿ ÿ ÿÿÿ ÿ ÿÿÿ		ÿ	ÿ ÿÿÿ	ÿ ÿÿÿ ÿ ÿ ÿÿ	ÿÿÿ	ÿ			
ÿÿÿÿ ÿÿÿ ÿ ÿÿÿ ÿ ÿ ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ ÿÿ ÿÿ	ÿ ÿÿÿ ÿ ÿÿÿ	ÿ	ÿ ÿ ÿÿÿ ÿÿÿ	ÿ		
ÿÿÿ	ÿ ÿ ÿÿÿ ÿ ÿ ÿÿÿ	ÿ	ÿ ÿ ÿÿ	ÿ ÿÿ ÿÿ	ÿ ÿ ÿÿÿ ÿ ÿÿÿ ÿ ÿ ÿÿ		ÿÿÿ	ÿ ÿÿÿ	ÿ
ÿÿÿ	ÿ ÿÿÿ ÿ ÿ ÿÿ	ÿÿÿ	ÿ ÿÿÿ ÿ ÿ ÿÿ	ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ ÿÿÿ ÿ	ÿ ÿÿÿ ÿÿÿ	ÿ ÿÿÿ ÿÿÿ	ÿ
ÿÿÿ		ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ	ÿ ÿÿ ÿ ÿÿ	

Note: ÿ p < 0 1ÿ ÿÿ p < 0 0ÿÿ ************p < 0 01ÿ

Source: Author's calculation and compilation

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Table 3 Model setting test

Test method statistical index statistical value		p value	result
F test F(16ÿ373)	ÿ ÿÿ	0 0152 Reject mixed regression and select fixed effects model	
LM test chibar2(01)	ÿ ÿÿ	0 4568 Rejection of random effects selection mixed regression model	
Hausman test ch i2(9)	ÿÿ ÿÿ	0 0299 Reject random effects and choose fixed effects model	

Source: Author's calculation and compilation

(3) Regression results In

order to analyze the differences in factors considered by different types of multilateral development banks when investing in infrastructure, this article will conduct three regressions to conduct heterogeneity analysis. Model (1) in Table 4 is the full sample data, and no bank analysis is performed. Differentiation, this set of data describes the overall status of all multilateral development banks that provide infrastructure

investment in Latin America. This article divides the Latin American region into Multilateral development banks are divided into two categories. The difference in voting rights of multilateral development banks has a significant impact on the determination of loan interest rates and the allocation of loan fundsÿ. Therefore, it is reasonable to conduct heterogeneity analysis through this classification. Table 4 Model (2) shows that the explained variables only include the infrastructure investment amount of the two dominant multilateral development banks in the United States, namely the World Bank and the Inter-American Development Bank. The explained variables of model (3) are the basis of other multilateral development banks. The amount of investment in facilities mainly includes CAF-Development Bank of Latin America, Central American Economic Integration Bank, European Investment Bank, etc. Table 4 shows the results of each group of regressions. Table 5 compares the signs and significance of each group of regressions.

Table 4 Regression results

	Model(1)	Model(2)	Model(3)
	ÿÿÿÿÿÿÿ	ÿÿ ÿ ÿÿÿ	ÿÿÿ ÿ ÿÿÿÿ ÿ ÿÿÿ ÿ ÿÿÿÿÿ
ÿÿÿÿÿ	ÿÿÿ ÿÿ ÿÿ	ÿÿÿ ÿÿ ÿÿ	ÿÿ ÿÿ
	(ÿÿÿ ÿÿ)	(ÿÿÿ ÿÿ)	(ÿÿ ÿÿ)
ÿÿÿÿÿ	ÿ ÿ ÿÿ	ÿ ÿÿ ÿÿ	ÿ ÿ ÿÿ
	(ÿÿ ÿÿ)	(ÿÿ ÿÿ)	(ÿÿ ÿÿ)
ÿÿÿÿ ÿÿÿ	ÿÿÿ ÿÿ	ÿÿÿ ÿÿ	ÿÿ ÿÿ
	(ÿÿÿ ÿÿ)	(ÿÿÿ ÿÿ)	(ÿÿ ÿÿ)
ÿÿÿÿÿ	ÿÿ ÿÿÿ	ÿÿ ÿÿ	ÿ ÿÿ
	(ÿÿ ÿÿ)	(ÿÿ ÿÿ)	(ÿ ÿÿ)

ÿ Guo Yifan, Xie Wenze: «Multilateral Development Banks in Latin America: Origin, Development and Change», published in «Overseas Investment and Export Credit», Issue 4, 2022, pp. 25-29.

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	ÿ ÿ ÿÿ [ÿÿ]	ÿ ÿ ÿÿ [ÿÿ]	ÿ ÿ ÿÿ
ÿÿÿÿÿÿÿÿ	(ÿ ÿÿ)	(ÿ ÿÿ)	(ÿ ÿÿ)
ÿÿÿÿÿÿÿÿÿ	ÿ ÿÿ [ÿÿ]	ÿ ÿÿÿ	ÿ ÿÿ
	(ÿ ÿÿ)	(ÿ ÿÿ)	(ÿ ÿÿ)
ÿÿÿÿÿÿÿÿÿÿ	ÿÿ ÿÿ [ÿÿ]	ÿÿ ÿÿ [ÿÿ]	ÿ ÿÿ
	(ÿ ÿÿ)	(ÿ ÿÿ)	(ÿ ÿÿ)
ÿÿÿ [ÿÿÿ]	ÿ ÿ ÿÿ	ÿ ÿ ÿÿ	ÿ ÿ ÿÿ
	(ÿ ÿÿ)	(ÿ ÿÿ)	(ÿ ÿÿ)
ÿÿÿ [ÿÿÿ]	ÿ ÿ ÿÿ	ÿ ÿ ÿÿ	ÿ ÿÿ
	(ÿ ÿÿ)	(ÿ ÿÿ)	(ÿ ÿÿ)
Constant term	ÿ ÿÿÿ ÿÿ	ÿ ÿÿÿ ÿÿ	ÿ ÿÿ ÿÿ
	(ÿÿÿ ÿÿ)	(ÿÿÿ ÿÿ)	(ÿÿ ÿÿ)
Number of observations	ÿÿÿ	ÿÿÿ	ÿÿÿ
goodness of fit	ÿ ÿÿÿÿ	ÿ ÿÿÿÿ	ÿ ÿÿÿÿ
ÿ ÿÿÿÿÿÿÿÿÿÿ	ÿ ÿÿ [ÿÿ]	ÿ ÿÿ [ÿ]	ÿ ÿÿ

Note: Standard errors are in parentheses, ÿ ÿ < 0 1ÿ ÿÿ Data　　ÿ < ÿ ÿÿÿ ÿÿÿ　　ÿ < ÿ ÿÿÿ

source: Calculated and compiled by the author.

Table 5 Expected signs and comparison of signs of each regression

Explanatory variable expected sign		Model(1)	Model(2)	Model(3)
		All multilateral development banks	World Bank Group and Inter-American Development Bank	CAF—Development Bank of Latin America, etc. Other multilateral development banks
ÿÿÿÿÿ	ÿ	ÿ [ÿÿ]	ÿ [ÿÿ]	ÿ
ÿÿÿÿÿ	ÿ	.	.	.
ÿÿÿÿ [ÿÿÿ]	ÿ	ÿ	ÿ	ÿ
ÿÿÿÿÿÿ	ÿ	ÿ ÿ	ÿ	ÿ
ÿÿÿÿÿÿÿÿ	.	. [ÿÿ]	. [ÿÿ]	.
ÿÿÿÿÿÿÿÿÿ	ÿ	ÿ [ÿÿ]	ÿ ÿ	ÿ
ÿÿÿÿÿÿÿÿÿÿ	ÿ	ÿ [ÿÿ]	ÿ [ÿÿÿ]	ÿ

Note: ÿ p < 0 1ÿ [ÿÿ]　　ÿ < ÿ ÿÿÿ [ÿÿÿ]　　ÿ < ÿ ÿÿÿ

Source: Author's calculation and compilation

The joint significance F test shows that in the three sets of regressions, model (3) CAF-Latin America Development

The result of the group of non-U.S.-dominated multilateral development banks such as banks is not significant, and the single explanatory variable

None of the coefficients are significant. One possible reason is that the sample size is small and it is difficult to obtain better estimates. Also

It is possible that this empirical model does not conform to the actual investment decision-making behavior of non-U.S.-led multilateral development banks.

As a model, in fact, since the World Bank and the Inter-American Development Bank participated in most project investments,

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Other banks have less investment. Therefore, in model (3), most data points are 0. The small changes in the dependent variable also lead to the insignificant coefficient. Therefore, the analysis in this article focuses on the first two models.

Variables that show significance in the regression are:

1 In the model (1) full sample data group and model (2) the US-led multilateral development bank group, the coefficient of the consistency of the target country and the United States in voting at the United Nations General Assembly in a certain year uni_t is significantly positive at the 5% level. However, in model (3), this explanatory variable is not significant. This is similar to the research conclusion of Pang Xun et al., that is, in the multilateral development banks led by the United States, whether the target country can receive investment support is closely related to the country's investment support. is significantly related to the degree of compatibility with U.S. policy preferences. However, in non-U.S.-led multilateral development banks, this factor is not

significant. 2 In model (1), the number of ISO14001 environmental management system certified enterprises per 1 billion U.S. dollars of GDP is The coefficient of $iso_{i,t}$ is significantly positive at the 10% level. This shows that when selecting investment target countries, multilateral development banks will consider the level and quality of the country's environmental protection work. This is consistent with the values proclaimed by most multilateral development banks. Consistent. The reason why the sub-samples are not significant may be that the small number of samples leads to information loss and the estimation accuracy decreases.

3 In Model (1) and Model (2), the coefficients of the explanatory variable GDP per capita are significantly negative at the 1% level and the 10% level respectively. This shows to a certain extent that multilateral development banks tend to invest in poorer countries. The country's infrastructure is also one of the concrete manifestations of the multilateral development banks' implementation of "development" responsibilities.

4 In Model (1) and Model (2), the coefficients of the explanatory variable GDP growth are both significantly positive at the 5% level. As mentioned above, although it is difficult for this article to know the cost-effectiveness of multilateral development banks for specific projects. Analytical tools, but the coefficient of the variable GDP growth rate is significantly positive, which shows that profit prospect expectations are one of the important investment decision-making factors of multilateral development banks.

5 In Model (1) and Model (2), the coefficients of government expenditure as a share of GDP are significant at the 5% and 1% levels respectively. This shows that governments with greater financial pressure are more likely to choose to use multilateral development banks. Supported PPP model to solve the problem of insufficient investment in infrastructure.

Finally, the regression results show that the impact of political stability and inequality on the allocation of investment amounts by multilateral development banks is not significant. The reason may be that since the 1990s, Latin American countries have generally been relatively politically stable, which has caused losses to foreign investment. The frequency of serious political turmoil is low, and Latin American countries also have better credit for repaying multilateral foreign debt generated by infrastructure projects. Therefore, multilateral development banks may not give more consideration to political stability factors. As for the Gini coefficient item, it is not significant. Combined with the above point 3, that is, the multilateral investment received by Latin American countries is significantly negatively correlated with per capita GDP. This may indicate that multilateral development banks are more concerned about the inequality between countries, and are not concerned with the inequality within a country. The focus of development banks on investment country selection. If you want to explore whether multilateral development banks are also committed to easing a country's

The internal inequality needs further research. The sample needs to be refined into the multilateral funds received by each province (state/ region) of each country, and then this data is regressed on the relevant variables of the province. (4) Robustness Test This

article chooses three methods

to conduct robustness testing. Due to space limitations, this article only uses full sample estimation.

The results of the calculated model (see

Table 6). First of all, starting from the data, the larger Latin American economies have received the vast majority of the amount of multilateral support. In order to prevent multilateral development banks from having different investment strategies for economies of different sizes, Here we select the 10 economies that have received the most multilateral funds in Latin America for regression. ÿAccording to statistics, these 10 economies have received 92% of the total infrastructure investment from multilateral development banks in Latin America. Therefore, this model should be relatively representative. The results of model (4) show that the significance of most explanatory variables has not changed. Only the significance of the environmental variable coefficient has slightly decreased. The p value has increased from 0.093 in the baseline model to 0.110. Then, starting from the variables, This article performs lag first-order treatment on several variables with high significance, including the consistency of the voting between the target country and the United States at the United Nations General Assembly in a certain year ($uni\ddot{y}t$), GDP per capita measured at constant prices ($gdppci\ddot{y}t$), GDP growth There are four explanatory variables: speed ($gdpgroi\ddot{y}t$) and government expenditure as a share of GDP ($gov\_gdpi\ddot{y}t$). It should be pointed out that, as mentioned above, in order to avoid reverse causation, all explanatory variables in the benchmark regression have been order lag processing , therefore The four lag variables here are actually two orders of lag relative to the annual investment in infrastructure. Model (5) is the regression result. The results show that the coefficients of GDP per capita and the proportion of government expenditure in GDP still maintain high significance. ÿ However, the coefficients on consistency with the United States' vote in the United Nations General Assembly and GDP growth are no longer significant. This shows that the United States and multilateral development banks have a certain degree of "short-sightedness", that is, they only focus on the voting of the target country in the previous year. or economic performance, and is

not sensitive to the performance of earlier years. Finally, from the perspective of measurement methods, since a considerable number of sample points have data of 0, that is, the country did not receive any infrastructure investment from multilateral development banks that year. For this type of Censored data appears at 0. The panel Tobit model assumes the observed value of the explained variable. Due to certain restrictions, it does not fully reflect the actual state of the explained variable. Specifically in this article, data that was originally less than 0 are merged into 0. Therefore, this article will also use the panel Tobit method for robustness testing. The LR test at the bottom of model (6) shows that there is strong evidence to reject the null hypothesis that there is no individual effect. Therefore, the panel Tobit method of random effects rather than mixed regression should be selected. The regression results can still better support the conclusions obtained by the benchmark model.

ÿ Sorted by the funds received, the following are Brazil, Mexico, Argentina, Peru, Colombia, Dominica, and Honduras Spain, Costa Rica, Ecuador and Bolivia.

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Table 6 Robustness check

	Model(4)	Model(ÿ)	Model(6)
	change data structure	lagged one-period variable	Change measurement method
ÿÿÿÿ	ÿÿÿ ÿÿÿ ᵞᵞ		ÿÿÿ ÿÿÿ ᵞᵞ
	(ÿÿÿ ÿÿ)		(ÿÿÿ ÿÿ)
ÿÿÿÿ	ÿ ÿÿ ÿÿÿ	ÿ ÿÿ ÿÿÿ	ÿÿÿ ÿÿÿ ᵞ
	(ÿÿÿ ÿÿ) ÿÿÿ	(ÿÿ ÿÿ) ÿ ÿ	(ÿÿÿ ÿÿ)
building ÿÿÿ	ÿÿÿ	ÿ ÿÿÿ	ÿÿÿ ÿÿÿ
	(ÿÿÿ ÿÿ) ÿÿ	(ÿÿ ÿÿ)	(ÿÿÿ ÿÿ) ÿ ÿ
ÿÿÿÿÿ	ÿÿÿ (ÿÿ ÿ	ÿÿ ÿÿÿ ᵞ	ÿÿ (ÿÿ
	ÿ)	(ÿÿ ÿÿ)	ÿÿ)
ÿÿÿÿÿÿÿÿ	ÿ ÿ ÿÿÿ ᵞᵞ		ÿ ÿ ÿÿÿ ᵞᵞ
	(ÿ ÿÿ)		(ÿ ÿÿ)
ÿÿÿÿÿÿÿÿ	ÿÿ ÿÿÿ ᵞᵞ		ÿÿ ÿÿÿ (ÿ ᵞ
	(ÿ ÿÿ)		ÿÿ)
ÿÿÿÿ ÿÿÿÿÿ	ÿÿ ÿÿÿ ᵞ		ÿÿ ÿÿÿ ᵞᵞ
	(ÿ ÿÿ) ÿ		(ÿ ÿÿ) ÿ ÿ
ÿÿÿ ÿÿÿ	ÿ ÿÿÿ (ÿ ÿ	ÿ ÿ ÿÿÿ (ÿ	ÿÿ (ÿ ÿ
	ÿ) ÿ ÿ ÿÿ	ÿÿ) ÿ ÿ ÿ	ÿ) ÿ ÿ ÿÿ
ÿÿÿ ÿÿÿ	ÿ	ÿÿ	ÿ
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Note: Standard errors are in parentheses, ÿ p < 0 1. Data ᵞᵞ ÿ < ÿ ÿÿÿ ᵞᵞᵞ ÿ < ÿ ÿÿÿ

source: Calculated and compiled by the author.

4. Research Conclusions and Enlightenments

Infrastructure construction is one of the important supports for stable economic growth. For developing countries, insufficient investment in infrastructure seriously restricts their ability to achieve economic growth and development goals. Multilateral development banks play an important role in promoting infrastructure construction and development in developing countries. ÿ Especially in terms of improving project feasibility, stimulating private investment enthusiasm, and easing public investment pressure. This article takes Latin America as an example.

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By constructing an econometric model, this paper mainly analyzes the factors influencing the participation and investment of traditional multilateral development banks such as the

World Bank and the Inter-American Development Bank in infrastructure PPP projects in Latin America, and strives to summarize several factors for emerging multilateral development

banks such as the NRIC Bank and the Asian Infrastructure Investment Bank to conduct business in Latin America. Some inspiration

(1) Research conclusion This

article is based on the data of 17 Latin American countries from 1996 to 2020 in the World Bank PPI database. The amount of investment in

infrastructure PPP projects in Latin America by multilateral development banks is used as the explained variable, and the investment amount of all

multilateral development banks, the United States There are three groups of samples: the investment amount of leading multilateral development banks

and the investment amount of non-U.S.-led multilateral development banks. Using a fixed effect model, this paper empirically analyzes the factors that

affect the infrastructure investment of multilateral development banks in Latin America. The main conclusions are as follows.

First, the economic development status is an important factor affecting the infrastructure investment of multilateral development banks. The

lower per capita GDP and higher GDP growth rate of the target country are related to the larger investment amount of multilateral development banks.

The former reflects the multilateral development banks' The latter reflects the multilateral development banks' prudent consideration of the "profit" goal.

Second, since the 21st century, Latin American countries have generally

adopted the strategy of narrowing the gap between rich and poor, strengthening environmental protection, and achieving sustainable

development. and other demands. The empirical results show that the number of ISO14001 environmental management system certification enterprises

per 1 billion US dollars of GDP is related to a larger amount of investment from multilateral development banks. The variable Gini coefficient is not

significant. This shows that the multilateral development banks tend to Invest in countries that attach greater importance to environmental protection.

Third, multilateral development banks often consider the United States when investing in infrastructure in Latin America. Empirical results show

that multilateral development banks such as the World Bank and the Inter-American Development Bank, which are dominated by the United States, tend

to choose projects that are more aligned with the interests of the United States. However, there is no evidence that the United States exerts the same

hegemonic control over regional multilateral development banks such as the CAF-Development Bank of Latin America and the Bank for Economic

Integration of Central America.

Fourth, among the economic factors, the indicator of the target country's government expenditure as a proportion of GDP is significant, which

shows that governments with greater financial pressure will have a higher interest in the PPP model. The government hopes to use this model to attract

more private investment in order to Alleviating the problem of insufficient infrastructure investment. In addition, the reason why this indicator is significant

may also be that multilateral development banks often consider the government's financial capabilities when selecting investment target countries.

Generally speaking, when a country's government expenditure accounts for GDP When the proportion of tax is high, it means that the country's

government has a high tax collection and administration capacity, which provides a high degree of guarantee for repaying multilateral loans.

(2) Enlightenment

As mentioned above, in Latin America, traditional multilateral development banks such as the World Bank and the Inter-American Development

Bank tend to invest in countries with faster GDP growth, but they are not sensitive to the wealth gap indicator. Therefore, GDP growth Although countries

with slower growth rates and larger gaps between rich and poor urgently need to increase investment in infrastructure, they can provide poor people with

However, within the global development financing system dominated by traditional multilateral development banks, it is difficult for them to obtain the development financing they need. The NRIC Bank and the Asian Infrastructure Investment Bank are landmark new developments in the global development financing system. As modern Supplemented by global and regional multilateral financial institutions, these two emerging multilateral development banks are enriching the global development financing system, expanding the global development financing space, organizing and mobilizing more global resources, and promoting global growth and development, especially in developing countries. The growth and development of the country. In 2016, when China held the rotating presidency of the G20, the G20 established narrowing the infrastructure gap as the top priority of the investment agenda. Therefore, in the field of infrastructure investment in developing countries, emerging multilateral development banks can learn from traditional multilateral development Based on the mature experience of banks, we can innovate on this basis to win more recognition and respect from developing countries and peer institutions.

First, learn from experience and innovate, compete and cooperate. Traditional multilateral development banks have proven investment mechanisms, operating strategies and management models, and they also have rich experience in handling relations with governments of various countries. Therefore, emerging multilateral development banks need to actively Actively learn from the experience of traditional multilateral development banks in all aspects, and strengthen cooperation in professional fields such as infrastructure financing tools, financing policies, and financing standards. At the same time, we must also realize that there is a certain degree of competition between the homogeneous businesses of the two types of institutions. Therefore, ÿ Emerging institutions can be different from traditional institutions, selectively identify key areas and key countries, and achieve misaligned development with traditional institutions.

Second, five-dimensional integration and pragmatic cooperation. Whether it is a traditional multilateral development bank or an emerging multilateral development bank, its investment decisions take into account five factors: international, political, social, environmental protection, and economic factors. From the perspective of Latin American countries, traditional The five-factor considerations of the Multilateral Development Bank are not completely in line with the national conditions and actual demands of Latin American countries, and some considerations are even contrary to the demands of Latin American countries. However, in the face of the hegemonic coercion and inducement of the United States' "one-vote veto power", many Latin American countries are forced to accept the conditions and requirements set by traditional multilateral development banks. In view of this, emerging multilateral development banks expand and deepen cooperation with Latin American countries. One of the important contents is to explore and innovate the "five-dimensional integration" cooperation consensus.

Third, focusing on development and innovative financing, there are two important prerequisites or foundations for traditional multilateral development banks to participate in infrastructure PPP project investments, namely, adequate national sovereign guarantees and sufficient expected project income. In this case, for most developing countries, In terms of infrastructure investment, there are both advantages and disadvantages for multilateral development banks to participate in their infrastructure investments. For example, sovereign guarantee requirements will increase the foreign debt stock and foreign debt burden of developing countries. Emerging multilateral development banks can cultivate and increase investment. The development capabilities of the destination country are the primary goal. Focusing on development, we innovate financing models and develop new financial services and financial products.

(Editor Huang Nian)

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