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Impact of institution building and foreign direct investment on economic growth

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Abstract. This study tests the hypothesis that institution building leads to FDI inflows and promotes economic growth rates. We also compare the estimation results when multiple institutional variables are used, and examine whether broad legal and institutional stability is important and whether specific articles are important for FDI inflows. The results of the verification revealed that (1) institution building leads to FDI inflows and promotes economic growth rates, (2) robust results are obtained regardless of multiple legal and institutional indicators, and (3) among the legal systems, the specific deregulation of capital account regulations, laws affect FDI inflows and economic growth, and (4) the combination of an increase in broad-based legal system stability and the relaxation of capital account regulations together will promote FDI and economic growth. In other words, it is confirmed that investor and public confidence in the government and judiciary for the stability of the extensive legal system, including the protection of property rights, will bring about an inflow of foreign direct investment. (5) While FDI inflows are critical to economic growth, the study found that among institutional factors, improvements in legal and institutional capacity, in particular, are highly effective in bringing about economic growth through a rise in FDI. The importance of both capital account regulations, which are indicators that have a direct impact on foreign investors considering FDI, and legal system indicators, which show the degree of legal compliance by domestic residents, indicates that relaxing capital account regulations alone is not enough to fully promote FDI inflows. It means that the degree of legal compliance of domestic residents must be high to further promote FDI inflows. In other words, FDI inflows will bring economic growth through the maturation of the rule of law.
Keywords. FDI; Barro regression; Economic Growth; Institution.
JEL. O47; F30; F33; O43.

1. Introduction

Many studies have pointed out the causal relationship between foreign direct investment and economic growth, as well as the causal relationship between various institutional factors and economic growth. Rodrik (2005) points out the importance of property rights as an important institution that promotes economic growth, and as an institutional foundation that allows entrepreneurs to pursue profit-seeking activities with peace of mind. He also reviews the existing discussions on property rights and examines the commonalities among high-growth countries, and points out the importance of property rights as an institution that promotes economic growth. Based on this, this paper provides an

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empirical examination of the role of stability in a wide range of legal systems, including property rights, as the institutional basis for foreign direct investment inflows. We consider what institutional indicators are appropriate to use and what institutional capacity needs to be improved for foreign direct investment inflows. Using multiple institutional factors, we will examine whether and which institutional capacity would raise FDI and lead to economic growth. To examine the role of stability in a wide range of legal systems, including property rights, as an institutional variable, the analysis is divided into legal system variables and non-legal system variables. Next, we compare the relationship between legal and non-legal institutional indicators on economic growth through foreign direct investment inflows, respectively.

Among the investment environment development, the development of the environment for FDI inflows is particularly important for developing countries, which have smaller surpluses than developed countries, both for the private sector and the government sector.

In countries where FDI inflows are expected to occur, it is possible to see that the market economy system and enterprises that are receptive to FDI are already in place. This is because foreign direct investment is made only to the extent that the cost of acquiring capital exceeds the value of capital, and no investment is made unless the expected return, which determines the value of capital, is at a relatively high level. Moreover, the cost of making foreign direct investment in developing countries is high because firms take into account many uncertainties, such as information asymmetries, restrictions on investment, and political factors.

An important question in the empirical analysis of institutions is how to measure institutional quality, as discussed by Lin & Nugent (1995) and Aoki & Okuno (1996), the basic roles of politics as an institution are to maintain domestic discipline, guarantee property rights, and ensure the protection of the environment, regardless of the political system. In addition, the basic roles of politics as an institution are to formulate and implement policies, collect taxes, and provide public services, regardless of the political system. To accomplish these tasks, bureaucratic and judicial systems are developed. Lin & Nugent (1995) propose the concept of institutional efficiency as an indicator of the capacity of public institutions. Lin & Nugent (1995) propose the concept of institutional efficiency as an indicator of the capacity of public institutions. Fukumi (2002) created and analyzed an estimation equation that included institutional efficiency as an explanatory variable within the framework of Barro's regression1). As a theoretical background for the analysis, Fukumi (2002) conducted an empirical analysis based on the assumption that the opportunistic behavior of policymakers and bureaucrats who establish institutions, i.e., making policy decisions based on corruption and personal interests, largely determines institutional efficiency.

Following Fukumi (2002), this study considers opportunistic behavior as institutional quality and believes that the creation of an environment in which opportunistic behavior does not take place improves institutional

quality and leads to an inflow of foreign direct investment. The idea is that the creation of an environment and circumstances in which the government and bureaucrats are conscious of promoting a market economy and where opportunistic behavior is not practiced will further increase the volume of investment and the efficiency of investment in infrastructure development. Through estimation, we will examine how foreign direct investment, which represents the acceptance of foreign capital, is a major driver of economic development. While most previous studies based on the Barro regression framework use the Barro & Lee (1994) dataset, which includes data up to 1990, this study uses the World Bank's World Development Indicators as the main data set. Despite the limitations of the data included in the World Development Indicator, the same 138 countries as in Barro & Lee (1994) were selected as the sample for this study. selected as the sample for this study, the estimation results in this study can be compared with those of previous studies. The features of this study are, first, in contrast to Fukumi (2002), who applied institutional efficiency, an average indicator of institutional development, this study classifies institutional factors by their functional aspects and discusses what institutional variables affected foreign direct investment and growth; second, to promote foreign direct investment inflows, it is necessary to Second, in the framework of the empirical analysis, it is important to show whether it is important to have a broad rule of law system that includes not only property rights but also customs, or whether it is important to have specific legal indicators in place to promote foreign direct investment inflows. Third, the analysis covers the period from 1980 to 2005 for all countries, including developing countries.

The paper is organized as follows. Section 2 discusses institutions, and the first half defines the institutions used in this paper. The second half of the paper presents the relationship between the institutional variables used in this paper and opportunistic behavior. Section 3 presents the relationship between institutions and the government sector, institutions and investment, and institutions and policy, to show theoretical aspects and the impact of institutions. Section 4 presents the hypotheses and the variables used in the analytical methods and estimation. Section 5 presents an empirical analysis to examine whether institutional variables have affected FDI inflows and growth. Section 5 presents an empirical analysis using the components of the institutional variables to examine which institutional variables have affected FDI inflows and growth. Section 6 will serve as a summary, presenting the conclusions from the empirical analysis in Section 5 and discussing the relationship between institutions and FDI, particularly the relationship between the legal system and FDI.

2. Definition of the system

2.1. Definition of the system

North (1990) discusses the introduction process of institutions. process, and that even if institutions are imported from other economies with good

public institutions from abroad, borrowed institutions may not work well because of the inertia of country-specific informal institutions, which make change difficult. Furthermore, they argue that governments in any political system are responsible for maintaining domestic discipline, guaranteeing property rights, formulating and implementing policies, collecting taxes, and providing public services and that these tasks are only possible when the bureaucratic and judicial systems are in place.

Aoki & Okuno (1996) classify institutions into "public" institutions, or those that support government activities, and informal institutions. Public institutions are positioned as part of institutions in general and are considered to have characteristics that are fundamental to them. They are also considered to be complementary in the sense that they can function only when other related institutions are in place.

Based on the arguments of North (1990) and Aoki & Okuno (1996), this study considers the characteristics of public institutions to be those that exist in any political system (North, 1990) and those that can represent the entire system (Aoki & Okuno, 1996). Lin & Nugent (1995) present an index of institutional efficiency as an indicator of the capacity of public institutions, which they define as "the ability of the government to formulate and implement policies that can promote economic development and the efficiency with which it does so. Institutional efficiency expresses the degree to which the functions originally intended by public institutions are realized. The gap in institutional efficiency arises, first, from the inadequacy of the system itself and, second, from the fact that the system exists but does not function (Svensson, 1998). Lin & Nugent (1995) focus on the behavior of the administrators, bureaucrats, and public officials who are responsible for the operation and reform of the system, and argue that they have forgotten their role as public servants and that they have become "opportunists" (Lin, 1995). Lin & Nugent (1995) note that when they forget their role as public servants and devote themselves to opportunistic behavior, appropriate institutions are not established, and if they do exist, their function is seriously impaired. Fukumi (2002) uses the average of indicators of "rule of law," "bureaucratic efficiency," and the degree of "corruption" as institutional efficiency.

Davis (2004) cites the International Country Risk Guide (ICRG) as the most recognized data on the rule of law, which is used by private consulting firms as country-specific risk information for corporate investment destinations to assess the degree of law and order in a country. The ICRG is published by anonymous experts and investors. According to the report, variables can be divided into two components, law and order, with law being the strength and fairness of the legal system and order being public compliance with the law, rated on a scale of 0 to 3. Each component is further divided into questions on the justice system, crime rate, and familiarity with the law (fairness of the court system, availability of the court system, enforcement of judgments, fairness of courts, speed of judgments, protection of property rights, enforcement of contracts, and confiscation and seizure). He points out that the rule of law as an indicator includes information on the

behavior of legal professionals and the general public directly involved in the legal system, and is further based on the subjectivity of people influenced by the media and other non-legal elements of information. North states that the long-term source of institutional change is sought in the subjective elements of people's perceptions, motivations, and learning. He states that institutional change is realized through slow changes in the formal elements that constitute institutions, namely the legal system, and the informal elements, namely social restraints and methods of enforcement and restraints on customs (North, 1990). If institutional change is caused by people's subjectivity, it is not realistic to use only legal elements as variables in the system.

Since the ICRG publishes indicators for investors, and the purpose of this study is to examine institutional indicators that affect foreign direct investment inflows, we believe it is appropriate to use ICRG indicators. We will also use the capital account regulation indicator from the Annual Report on Exchange Arrangements and Exchange Restrictions, which is considered to be an institutional indicator related to foreign direct investment and has been used in previous studies. Other institutional indicators include Freedom House and Transparency International's Index, the former of which is an indicator of the degree of democratization and the latter of which is related to government corruption.

Since the purpose of this study's analysis is to examine the impact of investor confidence in legal stability on foreign direct investment inflows, it is appropriate to use ICRG's government corruption and bureaucratic efficiency indexes, which are prepared for disclosure to investors. We will examine how differences in the estimation results may lead to differences in the estimation results. One of the hypotheses of this study is that the increase in foreign direct investment inflows is more about the increased confidence of the people and investors in the government and judiciary in the protection of property rights, a fundamental right, than in the specific provisions of the law. We will examine whether the stability of the broader legal system or the specific text of the law is more important for bringing about economic growth through foreign direct investment inflows. Since confidence in government and judiciary is based on the perspective of making investments, we believe it is partly necessary for subjective factors to enter the variable; North (1990) states that subjective factors cannot be ignored as a factor in institution building, and this is the argument for using the "rule of law" variable in the analysis in this study.

2.2. Corruption as an Institution and Institutional Efficiency

In this section, we present previous studies that examine the impact of opportunistic behavior by takers and bureaucrats and show the relationship between the institutional variables used in this paper and opportunistic behavior.

Lin & Nugent (1995) found that institutions as corruption can be categorized into those that focus on the behavior of the regime and those that

focus on the behavior of the bureaucracy and that the degree of impact of institutions is determined by i) the rewards that can be earned, ii) the degree of cost or monitoring associated with opportunity-based behavior, and iii) regime instability

3) Institutional Instability

Rose-Ackerman (1998) points out that government intervention adversely affects institutions by distorting markets and stimulating rent-seeking activities by bureaucrats and the private sector, and that when faced with the deformation of the separation of powers in developing countries and corruption, including in the judicial and police systems that should be policing public officials, it is important to consider how to deal with the problems of corruption. He points out that the role of strengthening the monitoring function of politicians and bureaucrats through democratization) is even more important in the face of the weakening of the separation of powers in developing countries and corruption, including in the judicial and police systems, which are supposed to crack down on public officials.

The impact of institutions is largely determined by opportunistic behavior, the degree of government intervention, and the degree of democratization progress, as pointed out in the previous studies mentioned above. The institutional variables used in this study are indicators of "rule of law," "bureaucratic efficiency," and "corruption. The institutional variable "rule of law" relies on the view that a sound political system, a strong judicial system, and public awareness of the law discourage opportunistic behavior by politicians and bureaucrats and promote investment. Bureaucratic efficiency" is introduced from the viewpoint that high administrative capacity and the absence of political pressure on bureaucrats discourage private rent-seeking activities and increase the expected return on investment, thereby promoting investment. Corruption is based on the view that inactivity in rent-seeking activities, such as the demand for bribes by government officials, promotes investment.

3. Conceptualization of growth, direct investment, and institutions

3.1. Basic model

The neoclassical growth model is based on the hypothesis that countries with lower output per capita will achieve higher growth rates than countries with higher output per capita (convergence hypothesis). It is based on the assumption that there are no differences among countries other than their capital equipment rates and that all countries have the same steady state.

Barro (1991), on the other hand, presents a model in which countries have different steady-state values by assuming that there are differences among countries other than the capital equipment rate. The growth rate of each country is higher as output per capita is lower than the steady state value of each country.

Assume that the steady-state equilibrium value y* varies across countries and regions. In this case, the initial value of output per capita alone can no longer explain the disparity in growth rates, and convergence is caused by deviations from the steady-state equilibrium in each country.

When based on the "conditional convergence hypothesis" of neoclassical growth theory, the growth regression framework is

$$GR = F(y, y^*)$$

where GR is the growth rate of income per capita, y is the income per capita, and y* is the income per capita in steady-state equilibrium. An increase in income per capita y is accompanied by a decrease in GR, the growth rate of income per capita, due to a decrease in the diminishing harvest of capital in the neoclassical growth theory. This hypothesis is called the conditional convergence hypothesis, because it holds that allowing for differences among countries other than the capital equipment rate leads to a steady-state equilibrium y* of output per capita that cannot be explained by the capital equipment rate alone, suggesting that changes in factors affecting the value of y* will affect the growth rate.

In the empirical part of this paper, we assume the Barro (1990) endogenous growth model with a government sector. In the endogenous growth model with a government sector, a mechanism is shown to reduce the equilibrium growth rate in two paths when government corruption is above the optimal level of the public investment rate. The first is a pathway in which government corruption5) leads to distortions in the allocation of investment, thereby reducing the asymmetric growth rate, and the second is a pathway in which public investment reduces the production effect of public investment, thereby reducing private incentives to invest.

3.2. Relationship between the system and foreign direct investment

Institutions, including legal systems and corruption, play a critical role in FDI. Developing countries have disincentives to foreign direct investment, including information asymmetry. The key to how developing countries deal with disincentives is the development of laws as a prerequisite and the awareness of entrepreneurs derived from such laws. This will lead to a possible positive correlation between institutions and FDI. In the following, we will examine the impact of institutions on foreign direct investment by presenting the factors that inhibit foreign direct investment inflows. The institutions assumed in this study take into account the opportunistic behavior of political officials and financial market legislation.

The impact of institutions on foreign direct investment is as follows.

The first is the impact of the immaturity of the institution of corruption on foreign direct investment. When the disbursers of foreign direct investment are mainly entrepreneurs in developed countries and the

recipients are only some companies, and when the utility function of entrepreneurs and rulers in developing countries aims at profit maximization, profit maximization of companies can be achieved more easily and certainly through corrupt practices. In addition, not only efforts to increase profits, but also efforts to reduce risks are important, and the expenditures required for such efforts make it impossible to pursue profit maximization. In other words, we believe that institutional changes that reduce corruption among government officials and companies in FDI recipient countries will lead to profit maximization by companies that spend FDI, which, will in turn, lead to an increase in FDI. In this study, we examine the above using the ICRG's index of government corruption.

Second, the lack of a legal system, including the protection of property rights, discourage investment by making it easier for investors to take advantage of corrupt practices by government officials, and by undermining investor profits.

We test the hypothesis that an increase in institutional efficiency, and institutional indicators, lead to foreign direct investment inflows and growth.

In addition, the following section will characterize this study by presenting previous studies on financial regulation and growth, and financial regulation and financial institutions. In the estimation of this study, the "rule of law" provided by the ICRG is used as a variable that represents the level of trust in the rule of law, leading to a difference from previous studies that used specific variables, such as the existence of financial regulation, in their estimation. This study believes that the maturity of the rule of law, fostered over time, rather than specific individual policies, creates investor confidence in institutions and encourages investment and growth.

An empirical analysis by Clague *et al.* (1997) of the new institutional school reports that investment and economic growth rates tend to be lower in countries where property rights are not protected and contract enforcement is uncertain; Rodrik *et al.* (2004) identify factors that explain economic growth or income inequality among countries, including (1) natural Rodrik *et al.* (2004) examined which of (1) the natural environment, (2) the judicial system (law and order, protection of property rights, etc.), and (3) the degree of openness to trade were the most important determinants of economic growth or income inequality among countries, and found that the judicial system was the most important factor. Fukumi-Nishijima (2005) concluded that attracting FDI through capital liberalization plays a more important role than trade liberalization in improving the institutional capacity of Latin American countries, while Hermes & Lensink (2003) and Alfaro *et al.* (2004) found that good financial institutions, including financial regulation, are and financial regulation, can lead to more efficient management of foreign direct investment and higher growth rates. La Porta *et al.* (1998) emphasize the importance of protecting the rights of minority shareholders. Porta *et al.* (1997) indicate the importance of legal origins to

financial and economic development, noting that external finance and stock markets are more important in continental law countries. They also found that legal origin affects the legal treatment of creditors and shareholders, accounting standards, and the efficiency of contract enforcement; Modigliani & Perotti (1998) showed that the importance of indirect finance increases relative to direct finance in countries with weak legal protection.

This study is based on the perspective of whether investors' and the public's trust in the government and the judiciary for the stability of the extensive legal system, including the protection of property rights, leads to investment in reality. The emphasis on the fundamental right of stability of a broad legal system differs from papers such as La Porta *et al.* (1997), which show the importance of specific legal origins and accounting standards. Property rights protection exists regardless of legal origin. Furthermore, the existence of certain legal regulations is often not so important in developing countries, where they exist but do not function. In addition to the above, a further analytical perspective is to consider whether being a rule-of-law state leads to increased foreign investment and whether increased foreign investment leads to further maturation as a rule-of-law state, which Clague *et al.* (1997) and Rodrik *et al.* (2004) do not show. Rodrik *et al.* (2004), analyze whether a relationship exists in which the impact of economic growth goes beyond changes in economic sectors and increases trust in the legal system.

As a proxy variable for institutions that represent the legal system, this study uses several legal system indicators to examine which indicators are important for foreign direct investment inflows. Specifically, we use the ICRG's degree of rule of law, which is an indicator of the legal system in the broad sense, and an indicator of the existence of capital account regulations, which is a law that is thought to have a direct impact on foreign direct investment inflows. Rodrik (2005) discusses the conditions under which property rights function as institutions, not merely as legal issues. This discussion is based on a broader view of the conditions under which property rights function as institutions, not merely legal issues. Based on this, this study considers the following three requirements for property rights to function effectively. First, there must be a well-established system of separation of powers that prevents the government from plundering the private sector due to instability of the regime. Second, the existence and value of property rights are understood by citizens and recognized and established as an institution. Third, when property rights of citizens and citizens are infringed, the infringer must be punished according to the law by judicial force. We believe that the ICRG's rule of law satisfies the above three requirements.

3.3. Institutional and policy relationships

In recent years, there has been much research on the role that institutions play in making economic policy; Rodrik (2005) reviews development policies and poverty reduction to date, noting that countries that have not grown more than those that have complied with programs led by the World Bank

and IMF, and looks at policies for individual countries The study is based on the following two points. As a result, they point out that while there is one basic principle for an appropriate growth strategy, there are countless specific policy combinations that can be used to realize the basic principle, and that the characteristics of individual economies are important in determining what combination should be selected. Regardless of the policy combination, the key factors for a successful growth strategy are (1) the guarantee of property rights, the probability of appropriate incentives, and legislation to achieve efficiency in terms of production and distribution, (2) the implementation of soundness rules for the macroeconomic and financial system, (3) poverty reduction and distributive justice, and The following three measures are to be implemented: (1) the implementation of efficient and effective redistributive policies to achieve poverty reduction and distributional justice.

As for previous studies analyzing the impact of policies on growth, Hausmann *et al.* (2004) pointed out that the effect of financial liberalization is small in the long run6) and Wacziarg & Welch (2003) showed that the effect of trade liberalization is large.7) Glaeser *et al.* (2004) take the view that education is more important than institutions for economic development; Rodrik, Subramaanian, & Trebb (2004) point out that trade is important for economic development. Rodrik (2005), after showing the critical importance of legal institutions, points out that the effects of policy variables vary widely across individual economies, and that institutional differences are important as a factor that can make a big difference. He points out that

In order to test Rodrik's (2005) viewpoint that differences in the effects of policies are largely the result of differences in institutions, this study shows how the policy variable, an indicator of openness, changes when different institutional variables are added. As a further perspective on the relationship between institutions and policy, this study examines the impact of institutions on foreign direct investment inflows.

4. Hypotheses and analytical methods

Based on the above discussion, this study will first identify the relationship between indicators of efficiency of individual institutions, foreign direct investment, and economic growth through empirical analysis. Second, we categorize the institutions into the following elements: ICRG and its indicators of rule of law, the existence of capital account regulation, the intersection of indicators of rule of law and capital account regulation, government corruption, and bureaucratic efficiency, and attempt to demonstrate their relationship with foreign direct investment. Third, since Barro (1991), Barro regressions, for which many existing studies exist, have often used the data set published by Barro & Lee (1993) up to 1990, and thus have not included data after 1990. In this study, we use the World Development Indicator (WDI) published by the World Bank to include data after 1990. The relationship between the institutions considered in this study and foreign direct investment in terms of economic growth is bidirectional.

In particular, this study will use many legal and regulatory indicators to focus on the relationship between growth and the establishment of legal institutions, as pointed out by Rodrik (2005). The main hypotheses are as follows.

Hypothesis: Institutional quality → foreign direct investment → growth rate

The hypothesis is to test whether institution building is important as a determinant of foreign direct investment. To test the hypothesis, this paper analyzes a model in which foreign direct investment (hereafter FDI) is added as an explanatory variable.

$$GR = f(\ln FDI, GR(-1), \ln GDP, GC, OPEN, SEC, INV) \quad (1)$$

The definition of each variable is shown in Table 1, where GR is the economic growth rate. In this study, control variables are introduced following previous empirical analysis of growth theory. The control variables in equation (1) are GC for government spending, OPEN for the openness index, SEC for the secondary school enrollment rate, and INV for the domestic investment rate. The institutional variable one period earlier is used as the control variable for FDI, which represents foreign direct investment inflows.

The main data used are the dataset provided by the World Development Indicator, the International Country Risk Guide (ICRG) used by Knack & Keefer (1995) as institutional data, the Annual The data set provided by the International Country Risk Guide (ICRG) used by Knack & Keefer (1995) as institutional data, and institutional data provided by the Annual Report on Exchange Arrangements and Exchange Restrictions. The period of analysis covers 1980-2005 and includes 138 countries in the Barro & Lee (1991) data set. All data for annual and regional dummies are five-year averages, and six time points are used: 1980, 1985, 1990, 1995, 2000, and 2005.

The impact of institutions on economic growth has been analyzed by Mauro (1995) and others. Several multilateral empirical analyses have already been conducted on the determinants of FDI, and factors such as the income and education levels of the host country, the wage gap with developed countries, and the level of development of the financial system, as well as institutional capacity and regulations related to foreign capital entry, which is the subject of this study, have been pointed out as factors that cause disparities in foreign direct investment inflows. Asiedu & Lien (2002) found that deregulation of capital controls increases FDI worldwide. Using FDI as the explained variable, they used three types of regulatory variables that affect FDI: capital account restrictions, the existence of export repatriation restrictions, and the existence of multiple exchange rates for capital transactions. Fukumi (2005) used data for Latin America based on Asiedu & Lien (2002), and while Fukumi (2005) analyzed only Latin America, this paper covers the world as a whole.

Table 1. *List of Variables*

GR : economic growth rate	WDI
LAW : Rule of law)	ICRG
CORR : government corruption	ICRG
BEAU : bureaucratic efficiency	ICRG
CAPITAL: capital account restrictions	Annual Report on Exchange
Exchange Restrictions Arrangements and	
lnFDI : Period average of foreign direct investment inflows (% of GDP) vs.	IFS
lnGDP : GDP per capita in 1980 vs.	IFS
GC : Period average of government spending as a percentage of GDP	WDI
OPEN : Openness index (exports + imports/real GDP) period average	WDI
SEC : Secondary School Attendance Rate	WDI
INV : investment rate	IFS

Note: Institutional data from the ICRG collection, "rule of law," "bureaucratic efficiency," and "corruption," are used as institutional variables. In detail, (1) Bureaucratic quality: A high value indicates "insulated from political pressure," "strength and ability to conduct administration without extreme policy shifts or delays in government services," and "established mechanisms for recruiting and training personnel. (2) Government Corruption: When this value is low, it means that "government officials tend to demand special payments, and illegal payments are commonly demanded at the end levels of government. These take the form of bribes associated with import and export licenses, currency manipulation, taxation, policy maintenance, credit allocation, etc. (iii) Rule of law: reflects the degree of recognition by citizens of established institutions for legislating, enforcing, and mediating disputes. Thus, high values imply "a sound political system, a strong judicial system, and the assurance of solemn delegation of power." A low value implies "physical force and a tradition of conflict resolution by illegal means. When a change of government occurs in a country with low values, likely, the new authorities will not follow the existing rules. The hypothesis that institution building has an effect on foreign direct investment inflows is tested using the Blundell & Bond (1998) instrumental variables method, which takes into account serial correlation. Numerous multinational empirical analyses have already been conducted on the determinants of FDI, and it has been pointed out that the institutional capacity of the public sector, the focus of this study, is also a factor in bringing about inward FDI inflows, along with factors such as the income and education levels of the host country, the wage gap with developed countries, and the level of financial system development (Wei, 2000, Hausmann & Fernandez-Arias, 2000). With the above hypothesis as our main hypothesis, we examine whether the following two hypotheses hold.

Hypothesis 1.1.: Which legal system capabilities affect economic growth through foreign direct investment, among which broad legal system stability, specific laws, and broad legal system stability and specific laws are both necessary?

Hypothesis 1.2: Will the increase in individual institutional capabilities of legal system indicators, government corruption, and bureaucratic efficiency have different impacts on economic growth through foreign direct investment?

To test the above hypotheses, we use the following five legal institutional indicators as the control variables in Section 5. To focus on the impact of the establishment of property rights and maturity of the rule of law on FDI and economic growth, we use the ICRG's LAW, which represents the rule of law in a broad sense, and the existence of capital account regulations, which Asiedu & Lien (2002) pointed out as a variable that affects FDI. CAPITAL,

and the intersection term between LAW and CAPITAL. The intersection term allows us to examine the importance of both the legal system indicator in a broad sense, including customary practices, and the individual impact of specific laws and regulations. By using multiple legal system indicators, we will be able to identify the impact of differences in indicators on foreign direct investment inflows and economic growth8). In addition, to examine the impact of institutional factors other than legal system indicators on FDI and economic growth, we use the ICRG's CORR, which represents government corruption, and the BEAU, which represents bureaucratic efficiency. The estimation is based on a panel estimation that takes into account the serial correlation in Blundell & Bond (1998).

5. Estimation results: relationship with individual elements of the system

Table 2 presents the results of the first stage of panel estimation considering Blundell & Bond (1998) serial correlation.The Blundell & Bond (1998) estimation is an estimation proposed to solve the weak correlation and initial value problems of the operating variables, and the first stage estimation includes the explanatory variables of the factorial It includes the factorial variables of the explanatory variables in the first stage of estimation. Specifically, a variable that is the current period's variable minus the previous period's variable is added to the first-stage estimation along with the level variable of the explanatory variable.

Table 2. *Comparison among Institutional Variables Stage 1*

	(1)	(2)	(3)	(4)	(5)
Dep.var.	lnfdi	lnfdi	lnfdi	lnfdi	lnfdi
GR(−1)	0.0003*	0.0003*	0.0004*	0.0004	0.0002
	[0.0003]	[0.0003]	[0.0003]	[0.0003]	[0.0003]
gc	−0.0016***	−0.0016***	−0.0015***	−0.0013**	−0.0017***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
open	0.0059***	0.0062***	0.0063***	0.0062***	0.0062***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
sec	−0.0003	−0.0005*	−0.0004	−0.0003	−0.0003
	[0.0003]	[0.0003]	[0.0003]	[0.0003]	[0.0003]
inv	0.0015**	0.0007*	0.0001	0.0010*	0.0018***
	[0.001]	[0.001]	[0.990]	[0.001]	[0.001]
gc−gc(−1)	−0.0005	0.0004	0.0003	0.0001	−0.0004
	[0.002]	[0.001]	[0.002]	[0.002]	[0.002]
open−open(−1)	−0.0053**	−0.0057**	−0.0051*	−0.0054*	−0.0056**
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
sec−sec(−1)	0.0004	0.0007**	0.0007*	0.0004	0.0004
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
inv−inv(−1)	−0.0011	−0.0005	−0.0007	−0.0010	−0.0014
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
LAW	0.2293*				
	[0.043]				
CAPITAL		0.6361***			
		[0.159]			
LAW*CAPITAL			0.0312***		
			[0.034]		
CORR				0.1779	
				[0.057]	
BEAU					0.2578
					[0.067]
Constant	2.5302***	1.5594***	2.0173***	2.3442***	2.5660***
	[0.293]	[0.290]	[0.292]	[0.293]	[0.293]
Wald	165***	168***	120***	147***	168***
Observations	239	251	228	239	239
Number of country	85	93	82	79	79

Note: The figures in parentheses are standard errors. *** means statistically significant at the 1% level, ** means statistically significant at the 5% level, and * means statistically significant at the 10% level.

As operating variables, equation (1) uses the ICRG's rule of law, equation (2) uses the presence of capital account regulation, and equation (3) uses the intersection term between the ICRG's rule of law and capital account regulation indicators. Equation (4) uses the ICRG's government corruption indicator and equation (5) uses the ICRG's bureaucratic efficiency indicator. Hypothesis 1.1 is tested in equations (1)-(3) and hypothesis 1.2 in equations (4) and (5).

The estimation results show that all of the legal system variables are significant with the expected signs, while the government corruption and bureaucratic efficiency indices in equations (4) and (5) show no significant relationship. This means that the relationship between the manipulated and endogenous variables is not weakly correlated for the legal and institutional variables, indicating that institutional capacity increases the inflow of foreign direct investment. The results for variables other than the legal

system variables do not confirm that institutional capacity increases FDI inflows.

Table 3 presents the results of the second stage of Blundell & Bond's (1998) estimation, which can be improved by the small-sample correction by Windmeijer (2005), although it is pointed out that the standard errors from Blundell & Bond's (1998) system estimation have an under bias. However, this can be improved by the small-sample correction by Windmeijer (2005). System estimation guarantees consistent estimation under the condition that there is no serial correlation in the error terms. To check for serial correlation, the Arellano and Bond test allows a negative and significant level for the AR(1) test, but not for the AR(2) test, which means that there is no serial correlation in the error terms. In other words, it must be shown that there is no serial correlation in the error terms. This is the case with the first-order difference model, which may show a negative serial correlation since the t-1 period error term is commonly included in both the t and t-1 period differences. Therefore, the second-order difference is used to check for serial correlation between the error term in the tth period and the error term in the t-1st period. If the error terms do not have autocorrelation above the second order, then the explained variable lagged by two periods will be unrelated to the factorial difference in the error terms. This means that the manipulated variable is strongly exogenous, and if the error term has more than second-order autocorrelation, the manipulated variable is no longer appropriate.

Table 3. *Comparison among Institutional Variables Phase 2*

	(1)	(2)	(3)	(4)	(5)
Dep.var.	GR	GR	GR	GR	GR
GR(−1)	0.0524	0.0229	0.0121	0.151	0.851
	[0.0600]	[0.0518]	[0.0580]	[1.784]	[1.647]
lngdp	27.67	−122.2	−107.1	−434.2	−654.6
	[85.97]	[90.64]	[92.47]	[1,417]	[1,469]
gc	−0.359*	−0.745**	−0.393	−1.238	−0.689
	[0.366]	[0.364]	[0.399]	[1.871]	[1.775]
open	0.366	−0.484	0.19	8.316	11.47
	[0.402]	[0.498]	[0.410]	[7.901]	[8.012]
sec	0.244***	0.275***	0.243***	0.445	0.287
	[0.0717]	[0.0636]	[0.0676]	[0.546]	[0.499]
inv	1.321***	1.124***	1.474***	1.702	1.463
	[0.275]	[0.272]	[0.283]	[1.171]	[1.227]
lnfdi †	210.7***	152.9***	162.5***	987.8**	829.2**
	[41.58]	[38.88]	[39.85]	[473.7]	[407.0]
Constant	−556.5	326.4	38.22	−735.3	−55.07
	[363.9]	[400.7]	[405.9]	[5,178]	[5,386]
Wald	57.45***	52.08***	57.99***	23.69***	33.58***
AR(1)	−5.091***	−5.090***	−4.788***	−5.005***	−4.984***
AR(2)	−0.958	−0.501	−0.724	−1.079	−1.071
Sargan	2.324	10.31	9.911	2.597	1.707
Davidson MacKinnon	3.218*	6.286**	2.889*	0.039	1.623
IV	LAW	CAPITAL	LAW*CAPITAL	CORR	BEAU
Observations	239	251	228	239	239
Number of country	85	93	82	79	79

Note: The figures in parentheses are standard errors. *** means statistically significant at the 1% level, ** means statistically significant at the 5% level, and * means statistically significant at the 10% level.

The control variables for † are as follows: equation (1) uses the ICRG's rule of law, equation (2) uses the presence of capital account regulation, equation (3) uses the intersection term between the ICRG's rule of law and capital account regulation indicators, equation (4) uses the ICRG's government corruption, and equation (5) uses the ICRG's bureaucratic efficiency.

The results of the Arellano & Bond (1991) serial correlation test AR(2), which tests for second-order autocorrelation in the error term, show that all equations adopt the null hypothesis of no autocorrelation. The results of Sargan's overidentification test adopt the null that all equations are overidentified. In addition, to test whether FDI is an endogenous variable, the Davidson & MacKinnon (1993) endogeneity test were conducted. The results of the test indicate that the null hypothesis that FDI is an exogenous variable is rejected by equations (1)-(3), and thus the endogenous variable and the manipulated variable are considered to be valid. This means that the endogenous variables in this study are confirmed to be endogenous and the manipulated variables are uncorrelated with the error term and overidentified. However, equations (4) and (5) did not confirm that lnfdi is an endogenous variable as a result of the endogeneity test.

The signs of the FDI were all positive and significant as expected. This suggests that the hypothesized institutional capacity raises foreign direct investment and economic growth, and the fact that the cross terms with the regulatory indicators of the ICRG law and the capital account regulations suggested in previous studies were significant at the 1% level confirms that these indicators play an important role in foreign direct investment inflows. This confirms that these indicators play an important role in foreign direct investment inflows.

In our model, when there is support for FDI inflows through specific legislation in the form of the absence of capital account regulation, FDI inflows are more likely to increase, leading to economic growth. We also confirm that when there is extensive legal institutional stability and a high value of legal institutional stability in the form of no capital account regulation, FDI inflows are brought about and the economy grows.

As for the control variables, the expected sign of the initial value of income lnGDP in equation (1) is negative, but the inclusion of post-1990 data did not allow us to find a significant relationship. The sign of GC, which represents the decline in government spending, is negative from the perspective that the decline in investment efficiency associated with opportunity-based behavior leads to lower economic growth. The sign of equation (1) is negative and significant as expected. The expected sign of the secondary school enrollment SEC is positive, but negative and significant. The expected sign of OPEN, which represents openness, was positive but not significant. The expected sign of the investment rate INV was positive and significant as expected.

Equation (2), using capital account regulation as the operating variable, and equation (3), using the intersection term between capital account regulation and the ICRG's regulatory index of law as the operating variable,

did not find significant differences compared to equation (1). This confirms that in the model of this study, along with the path of specific laws alone affecting FDI inflows and economic growth within the legal system, an increase in broad-based legal system stability, or the relaxation of capital account regulations and legal system stability, promotes FDI and economic growth. The main hypothesis is that the ICRG's legal system will be more stable than that of the FDI market.

The main hypotheses are confirmed by the results using the ICRG legal system indicator, the capital account regulation indicator, and the intersection term between the ICRG legal system indicator and the capital account regulation indicator. Furthermore, hypothesis 1.1, the need for broad-based legal system stability, specific legislation, or both, was confirmed as necessary for foreign direct investment inflows. However, the effect of changes in indicators other than the legal system in Hypothesis 1.2 on economic growth through FDI inflows could not be confirmed because, in addition to not passing the endogeneity test in the second stage estimation, the institutional variables did not yield significant results in the first stage estimation. Specifically, we could not confirm the effects of the reduction in opportunistic behavior represented by corruption and the improvement in the capacity of administrative organizations on economic growth through FDI inflows.

6. Conclusion

This study tests the hypothesis that institution building leads to FDI inflows and promotes economic growth rates, and compares the estimation results when multiple institutional variables are used. We examine whether broad legal and institutional stability is important and whether specific provisions are important for FDI inflows.

We conclude that institutional development leads to FDI inflows and stimulates the rate of economic growth. Furthermore, a comparison using several legal system indicators confirmed that among the legal system indicators used in this study, robust results were obtained regardless of the indicator.

Within the legal system, the specific law of deregulation of capital account regulations was confirmed as a pathway that influences foreign direct investment inflows, leading to economic growth. Furthermore, an increase in the stability of the broader legal system or a combination of deregulation of capital account regulations and stability of the legal system was found to promote FDI inflows and economic growth. Investor and public confidence in the government and judiciary for the stability of the broader legal system, including the protection of property rights, was confirmed to bring about a real inflow of foreign direct investment.

The importance of both capital account regulations, an indicator that directly affects foreign investors considering FDI, and indicators of the legal system that show the degree of legal compliance by domestic residents indicates that the relaxation of capital account regulations alone is not

enough to promote FDI inflows. It means that the degree of legal compliance of domestic residents must be high in order to further promote FDI inflows. In other words, FDI inflows will lead to economic growth through the maturation of the rule of law.

In addition to the ICRG rule of law variable as a control variable, this study also used the ICRG government corruption indicator, which represents opportunistic behavior, and the bureaucratic efficiency indicator, which represents the capacity of administrative organizations, in order to compare the legal system indicators with non-legal system indicators. However, since the institutional variables did not yield significant results in the first stage of estimation and did not pass the endogeneity test in the second stage of estimation, we were unable to confirm a growth-promoting path in the framework of this study, whereby reduced corruption and increased bureaucratic efficiency lead to foreign direct investment inflows. In other words, only legal and institutional stability was confirmed to bring about economic growth through FDI inflows.

In previous studies, the framework that institutions affect growth rates through investment, in general, has been assumed and demonstrated. The outcome of this paper is the finding that this mechanism is particularly important in the context of foreign direct investment.

While FDI inflows are important for economic growth, we also find that among the institutional elements, improvements in legal and institutional capacity are particularly effective in bringing about economic growth through an increase in FDI inflows. The growth path with increased FDI inflows is robust, and any institutional architecture, in the framework of this paper, is shown to bring about an increase in FDI inflows.

Although this study uses manipulated variables, we leave it to the reader to make a judgment on the validity of the manipulated variables.

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