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NSE Development Financing Research Report No.2

Mapping 500+ Development Banks: Qualification Criteria, Stylized Facts, and Development Trends

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Institute of New Structural Economics at Peking University
French Development Agency
October 2021

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Contents

Acknowledgements

The present Second New Structural Economics (NSE) Development Financing Research Report was authored by a team of researchers from the NSE Development Financing research program and the Agence française de développement (AFD). The team is led by two principal investigators—Jiajun XU, Executive Deputy Dean of the Institute of New Structural Economics at Peking University, and Régis Marodon, the Special Advisor on Sustainable Finance of the Agence française de développement (AFD). The team members include Xinshun RU, the research director, Wanxuan REN and Beina XIA, the project managers, Longyu LI, Vaibhav MISHRA, Yanjie YUAN, and Rui ZHAO, the core research assistants, and several other research assistants.

This report would not have been possible without the essential support of and contributions from research assistants who have expertise in accounting or finance, and are proficient in multiple languages such as Arabic, Chinese, English, French, Portuguese, and Spanish. Research assistants include Quancun CHEN, Shiyu CHEN, Xingru CHEN, Wenhu CHENG, Ziqi CHU, Zihan DONG, Yifan DU, Lei FAN, Xinhong FU, Xuyang FU, Yiran GAO, Xinying GUAN, Jingyi GUO, Lvliang GUO, Yaqi GUO, Jingyi HAN, Jiani HE, Ling HE, Zerui HE, Ruifang HU, Qiuji HUANG, Ruiting HUANG, Tao HUANG, Meiru JIANG, Zhihao JIANG, Yuxin KANG, Tianlin LAN, Yoojung LEE, Di LI, Longyu LI, Qiwei LI, Qianyi LI, Qingyang LI, Xingyi LI, Xingyu LIAO, Yan LIN, Yue LIN, Zekai LIN, Qi LIU, Yihang LIU, Yuqing LIU, Xiwen LUO, Yichen LUO, Yifan LV, Disi MAI, Haoming MAI, Fanyu MENG, Qi MENG, Gujunlin MIN, Vaibhav MISHRA, Xiaotong MO, Boyang MU, Yiqing NING, Deng PAN, Hongyi PAN, Bolun QIAN, Zitong QIN, Jingwen REN, Yanzhao SHANG, SHATAISIYASHCHAOSIN, Bingzhe SUI, Fangyuan TONG, Hongjin WANG, Jing WANG, Liudi WANG, Qichen WANG, Sirui WANG, Zhenyu WANG, Zichen WANG, Jiezheng WEI, Yiting WEI, Jiahui WU, Jingli WU, Linlong XIA, Yuning XING, Gary XIE, Wenqi XIE, Zhiyu XIE, Ran XU, Anni YANG, Hongyi YANG, Rui YANG, Yeshen YANG, Yiyang YAO, Zhaoyu YAO, Mingtian YE, Chenjie YUAN, Yanjie YUAN, Fangming ZHANG, Mian ZHANG, Puzhen ZHANG, Qing ZHANG, Qing ZHANG, Yinzhou ZHANG, Yingzi ZHANG, Zixin ZHANG, Rui ZHAO, Ruijie ZHAO, Siqi ZHAO, Yongfan ZHAO, Zimu ZHAO, Guojun ZHENG, Ruiqi ZHENG, Wenlu ZHENG, Lingyuxiu ZHONG, Huizhong ZHOU, Kunzhuo ZHOU, Minghe ZHOU, Qianqian ZHOU, Yingjie ZHOU, Diyun ZHU, Yilu ZHU, Ziqi ZHU, Mengqi ZOU.

The team has benefited greatly from the constructive feedback from peer experts, whose comments are provided in their personal capacity and do not represent the views of their institutions. The peer experts include (in alphabetical order) Richard CAREY, the former director of the Development Co-operation Directorate at the OECD; Professor Stephany GRIFFITH-JONES, Financial Markets Program director at the Initiative for Policy Dialogue at Columbia University; Professor Deborah J. LUCAS, Sloan Distinguished Professor of Finance at the MIT Sloan School of Management; Dr. Octavio PERALTA, the former secretary general of the Association of Development Financing Institutions in Asia and the Pacific. The team is also very grateful for the support and feedback from Professor Justin Yifu LIN, Dr. Kedi WANG, and other colleagues from INSE.

The present report is sponsored by the Ford Foundation and the International Development Finance Club. The team gratefully acknowledges the financial support.

Boxes

Tables

Figures

Abbreviations

AA	Articles of Agreement
AADFI	Association of African Development Finance Institutions
ADFIAP	Association of Development Financing Institutions in Asia and the Pacific
ADFIMI	Association of National Development Finance Institutions in Member Countries of the Islamic Development Bank
AFAP	Agência de Fomento do Amapá
AFD	Agence Française de Développement
AfDB	African Development Bank
AsDB	Asian Development Bank
AGRI	Rural and Agricultural Development
AIIB	Asian Infrastructure Investment Bank
ALIDE	Association of Development Finance Institutions in Latin America
ARTF	Afghanistan Reconstruction Trust Fund
BDMG	Banco de Desenvolvimento de Minas Gerais

BLADEX	Foreign Trade Bank of Latin America
BPI	Banque Publique d'Investissement
BRDE	Banco Regional de Desenvolvimento do Extremo Sul
BSTDB	The Black Sea Trade and Development Bank
CABEI	Development Bank of Central America
CAF	Development Bank of Latin America
CDB	China Development Bank
CDC	Caisse des Dépôts et Consignations
CDP	Cassa Depositi e Prestiti
DAC	The Development Assistance Committee
DEG	Deutsche Investitions- und Entwicklungsgesellschaft mbH
DFC	Development Finance Company
DFI	Development Financing Institution
EBRD	European Bank for Reconstruction and Development
EDFI	European Development Finance Institutions
EIB	European Investment Bank
EXIM	Promoting Exports and Foreign Trade
FLEX	General Development
GSE	Government-Sponsored Enterprise
HICs	High-Income Countries
HOUS	Social Housing
IADB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IIB	International Investment Bank
IMF	International Monetary Fund
INFRA	Infrastructure

INSE	Institute of New Structural Economics
INTL	International Financing of Private Sector Development
IsDB	Islamic Development Bank
KBN	Kommunalbanken Norway
KfW	Kreditanstalt für Wiederaufbau
LICs	Low-Income Countries
LMICs	Lower Middle-Income Countries
LOCAL	Local Government
MDBs	Multilateral Development Banks
MICs	Middle-Income Countries
MIGA	Multilateral Investment Guarantee Agency
MSME	Micro, Small, and Medium-Sized Enterprises
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OeEB	Development Bank of Austria
PDBs	Public Development Banks
RDBs	Regional Development Banks
SAWI	South Asia Water Initiative
SDGs	Sustainable Development Goals
SMEs	Small and Medium-Sized Enterprises
SPVs	Special Purpose Vehicles
TDB	Trade and Development Bank
TSKB	Industrial Development Bank of Turkey
UMICs	Upper Middle-Income Countries
UN	United Nations
USIDFC	U.S. International Development Finance Corporation
WBG	World Bank Group
WFDFI	World Federation of Development Financing Institutions

Executive Summary

The present report builds on the inaugural New Structural Economics Development Financing Research Report titled "Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties" by the Institute of New Structural Economics (INSE) at Peking University. The objective of the present report is to refine the qualification criteria of public development banks (PDBs) and development financing institutions (DFIs) and propose potential typologies to reveal their vast diversities.

Recognizing INSE's pilot effort to build a comprehensive list of PDBs and DFIs worldwide, the Agence Française de Développement (AFD) aims at identifying those that could form a world coalition to emphasize the importance of incorporating the Sustainable Development Goals (SDGs) into the corporate strategies of PDBs and DFIs. On that basis, INSE and AFD have collaborated to build on INSE's pilot effort to strengthen the firstever comprehensive database on PDBs and DFIs with rigorous criteria and methodologies.

Our aim is to make three decisive contributions: First, refine the qualification criteria and operational indicators of PDBs and DFIs to clearly distinguish them from other institutional arrangements, including (but not confined to) government credit programs, aid agencies, grant-executing agencies, state-owned commercial banks with policy functions, cooperative banks initiated by practitioners from specific sectors such as agriculture, forestry, animal husbandry, and fishery, and private financial institutions such as microfinance institutions initiated by private actors whose aim is in line with public policy objectives;

Second, identify a comprehensive list of PDBs and DFIs currently active in every part of the world in a consistent manner on the basis of empirical evidence;

Third, classify PDBs and DFIs into different categories to reveal the vast diversity within the PDB and DFI family by collecting their basic information (such as official mandate) and basic financial indicators (such as total assets). This systematic effort to identify PDBs and DFIs worldwide will lay the foundation for rigorous academic research in the future.

To ensure that we build a credible list of PDBs and DFIs, we propose the following three principles: conceptual clarity of qualification criteria, implementation consistency of operational indicators, and case-by-case verification of borderline cases.

First, the conceptual clarity of the qualification criteria is crucial in distinguishing PDBs and DFIs from other institutional arrangements. To answer the question of what PDBs and DFIs are, we propose to distinguish identity from modality. Identity refers to the defining features of PDBs and DFIs that distinguish them from other institutional arrangements, such as government credit programs, aid agencies, and state-owned commercial banks. Modality refers to different features within the PDB and DFI family that reveal their vast diversity. In short, the conceptual clarity of the qualification criteria is crucial in distinguishing identity from modality and to avoid making an unduly broad or narrow list.

Second, it is important to ensure implementation consistency in applying the operational indicators of the qualification criteria to avoid arbitrary decisions on whether to include some entities in our database. One pitfall in building our database would be to include some entities from certain types of institutional arrangements but exclude others within the same type without providing justification. To avoid making such an error, we need to apply the qualification criteria in a consistent manner.

Finally, dealing with borderline cases requires case-by-case screening. Though it is important to apply the qualification criteria in a consistent manner, it is also misleading to apply these criteria in a mechanical way. Borderline or exceptional cases require a judgment call based on professional knowledge. In such circumstances, the decision to include or exclude from the PDB and DFI list needs justification when such a decision goes against the standardized operational criteria. This verification process helps ensure the transparency of our database-building procedure and encourages dialogue with experts and practitioners on ways to improve our database.

The present report has refined the qualification criteria of PDBs and DFIs initially proposed in the inaugural NSE Development Financing Research Report. To qualify as a PDB or DFI, an institution must fulfill all the following five criteria.

1. A stand-alone entity: The entity should have a separate legal status, dedicated personnel, separate financial statements, and is not set to accomplish a short-term, specific goal, which helps distinguish PDBs and DFIs from government appropriation programs, certain ministerial agencies with credit programs, and special purpose vehicles (SPVs).

2. Fund-reflow-seeking financial instruments as the main products and services: The entity should deploy financial instruments as its main products and services, which helps to distinguish PDBs and DFIs from other public entities that pursue public policy objectives, such as central banks. Meanwhile, these financial instruments deployed by PDBs and DFIs, such as loans, equity investments, or guarantees, should permit some form of repayment, capital dividends, or risk premium. Provision of pure grants does not meet this criterion, as grants do not require repayments and are not assets of PDBs and DFIs. This helps to distinguish PDBs and DFIs from grant-executing agencies.

3. Funding sources go beyond periodic budgetary transfers: Without prejudice to its ability to receive grants, the institution must be able to finance itself beyond periodic budget transfers from governments, by borrowing from capital markets or financial institutions (though mobilizing funds from market actors requires government support such as public guarantees). This distinguishes PDBs and DFIs from aid agencies.

4. Proactive public policy-oriented mandate: This criterion reveals the key identity of PDBs and DFIs. The official mandate of PDBs and DFIs should focus on proactively implementing the public policy for which they were created. They are mandated to fill the financing gaps where private capital markets and commercial banks are unwilling or unable to offer financial support. The salient point is that PDBs and DFIs are not created to maximize profits as commercial banks do. This criterion helps us to distinguish PDBs and DFIs from state-owned commercial banks with policy functions.

5. Government steering of corporate strategies: As initiators of PDBs and DFIs, governments should play a steering role in ensuring that PDBs and DFIs pursue public policy objectives. The most commonly used means is for governments to be the majority shareholder. However, in some exceptional cases, governments have decided to join hands with private partners in creating and owning PDBs and DFIs. Government steering may be achieved by offering support for fundraising or subsidized interest rates, nominating the chief executive officer (CEO) or the president of the board, or sitting on the board of directors or designating directors.

After rigorously applying the above five qualification criteria, we have identified 527 PDBs and DFIs worldwide, among which 510 (97%) are PDBs, 4 (1%) are equity funds, and 13 (2%) are guarantee funds.

To reveal the diversity within the PDB and DFI family, we propose a classification based on ownership (who owns them), geographical operation (where they operate), size (how big their total assets are), official mandate (what they aim to do), and income levels of their home countries (for national PDBs and DFIs, which income level their home country belongs to). To arrive at a coherent set of institutions, we need more than one analytical dimension to make the classification.

Our classification yields the following key findings and stylized facts:

- According to the jurisdiction levels of ownership, we classify PDBs and DFIs into three categories, namely, multinational, national, and subnational. National PDBs and DFIs are the most prevalent category, accounting for 70%, whereas subnational ones account for 21%, and multinational ones account for 9%.

- Regarding shareholding, government agencies are the majority shareholders of most (94%) PDBs and DFIs, among which 75% are wholly owned by government agencies. Apart from acting as the direct major shareholders, governments can own their shares via state-owned PDBs and DFIs and other public entities. Taking into account indirect shareholding, governments are majority shareholders in 98% of PDBs and DFIs. Even in the few privately owned PDBs and DFIs, governments can still play a steering role in setting their corporate strategies through other means such as guaranteeing their debts.

- On the basis of ownership levels, we further classify PDBs and DFIs based on their geographical operation. PDBs and DFIs can operate at four levels: international, regional, national, and subnational.

  - Multinational PDBs and DFIs have two types of geographical operation: one is a global operational scope and the other is a regional operational scope, accounting for 1.5% and 7.5% respectively. In other words, a majority of multinational PDBs and DFIs confine their geographical operations to certain regions.

  - National PDBs and DFIs have three types of geographical operation: mainly domestic, both domestic and international, and mainly international, accounting for 55%, 10%, and

4% respectively. Thus, a majority of national PDBs and DFIs are dedicated to operating within their home country, and may expand business overseas when the income level of their country is elevated.

- Subnational PDBs and DFIs have two types of geographical operation: subnational and domestic. A majority of subnational PDBs and DFIs operate in their subnational areas. However, another rare yet interesting category is that in 5 countries local governments have jointly set up subnational PDBs and DFIs, which provide capital within the entire country.

- According to absolute size of total assets, we classify PDBs and DFIs into five size categories: mega (more than $500 billion), large (between $100 billion and $500 billion), medium (between $20 billion and $100 billion), small (from $500 million to $20 billion), and micro (less than $500 million). It shows the Pareto principle is robust: a few (6%) mega and large banks possess 84% of the total assets.

- Even though in absolute terms almost half of PDBs and DFIs are very small (small ones accounting for 29%, micro ones accounting for 21%), in relative terms they may carry substantial weight in their respective countries or regions (total assets of some national PDBs may account for 60% of their country's GDP).

- After comparing the economic weight of PDBs and DFIs by subregion, we find that the inclusion of mega PDBs and DFIs clearly shows that their weight is significant in the Northern America and Eastern Asia subregions, accounting for about one quarter of their respective subregion's GDP. If we exclude mega PDBs and DFIs, the relative weight is most significant in Central America, accounting for 14% of GDP, even though the absolute size is on a par with Northern America and South America. The absolute and relative weight of African PDBs and DFIs is small compared to the rest of the world.

- We classify official mandates as flexible or not. Flexible (FLEX) means that official mandates are not confined to a specific mission. If they are not flexible, we further classify them into seven categories by specific sectors or clients, including rural and agricultural development (AGRI), promoting exports and foreign trade (EXIM), social housing (HOUS), infrastructure (INFRA), international financing of private sector development (INTL), local government (LOCAL), and micro, small, and medium-sized enterprises (MSME). PDBs and DFIs with FLEX mandate are the main type, accounting for 35%. In terms of single-mandate PDBs and DFIs, MSME mandate is the most popular one, accounting for 28%. When total assets are factored in, the weight of PDBs and DFIs with FLEX mandate remains almost unchanged, while the weight changes significantly for MSME and HOUS, with the former's share shrinking and the latter's increasing. This might indicate that HOUS-focused PDBs and DFIs have larger total assets on average, while MSME-focused ones have smaller total assets.

- We further classify national PDBs and DFIs according to the income level of their home country: high-income countries (HICs), upper middle-income countries (UMICs), lower middle-income countries (LMICs), and low-income countries (LICs). We analyze whether national PDBs and DFIs in countries with different income levels show any distinctive patterns in terms of official mandates, total assets, and so on. We highlight the following key findings:

  - In terms of the average number of national PDBs and DFIs, LICs have 0.8 PDBs and DFIs, LMICs have 2.4, UMICs have 2.0, and HICs have 2.0. LICs have the lowest average number of national PDBs and DFIs.

- All mega and large national PDBs and DFIs are from HICs and UMICs, while LICs only have small and micro PDBs and DFIs.
- INTL-focused national PDBs and DFIs are all from HICs. One rationale may be that HICs are abundant in capital, but investing in emerging economies and developing countries entails greater uncertainty and higher risks. Hence, HIC governments tend to establish INTL-focused national PDBs and DFIs to overcome the first-mover challenge.
- Few AGRI-focused national PDBs and DFIs are located in HICs, as their cooperative systems are full-fledged, smallholder farms are being phased out, and private banks provide direct financing to large-scale agriculture.
- More than half of national PDBs and DFIs from LICs have flexible mandates, probably because there are various market failures at early development stages and such market failures evolve as LICs move to more advanced stages of economic development.
- MSME-focused national PDBs and DFIs are evenly distributed across HICs, UMICs, and LMICs. As MSMEs are the backbone of most economies, supporting SMEs is crucial to any region or country.
- INFRA-focused national PDBs and DFIs are most concentrated in LMICs.

Moving forward, we will periodically apply the five qualification criteria to identify PDBs and DFIs worldwide, and update the list to incorporate new ones and delete those that have been commercialized or abolished. Meanwhile, we plan to use diverse data collection methodologies—including manual data collection, machine learning, and expert verification—to collect and triangulate the publicly available quantitative variables such as financial indicators. We hope that our persistent effort to build the database will lay the foundation for rigorous academic and policy research in the future.

I. Introduction

The objective of the present report is to refine the qualification criteria of public development banks (PDBs) and development financing institutions (DFIs) and propose potential typologies to reveal their vast diversities.

The present report builds on the inaugural New Structural Economics Development Financing Research Report titled "Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties" by the Institute of New Structural Economics (INSE) at Peking University. The objective of the present report is to refine the qualification criteria of public development banks (PDBs) and development financing institutions (DFIs) and propose potential typologies to reveal their vast diversities.

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Our aim is to make three decisive contributions: (1) refine the qualification criteria and operational indicators of PDBs and DFIs to clearly distinguish them from other institutional arrangements, including (but not confined to) government credit programs, aid agencies, grant-executing agencies, state-owned commercial banks with policy functions, cooperative banks initiated by practitioners from specific sectors such as agriculture, forestry, animal husbandry, and fishery, and private financial institutions such as microfinance institutions initiated by private actors whose aim is in line with public policy objectives; (2) identify a comprehensive list of PDBs and DFIs currently active in every part of the world in a consistent manner on the basis of empirical evidence; and (3) classify PDBs and DFIs into different categories to reveal the vast diversity within the PDB and DFI family by collecting their basic information (such as official mandate) and basic financial indicators (such as total assets). This systematic effort to identify PDBs and DFIs worldwide will lay the foundation for rigorous academic research in the future.

In the report, we use "PDBs" and "DFIs" to refer to all samples in our database. These terms include almost all public financial institutions in line with our proposed qualification criteria, including multilateral development banks, national development banks, subnational development banks, equity investment funds, and guarantee funds. Yet the terms PDB and DFI are not universal. Depending on the country, institutions are sometimes referred to as policy banks or promotional banks, which are subcategories of national banking systems that clearly separate these specialized development-oriented banks from profit-driven commercial banks. See Box 1 on the justification for choosing the terminology of PDBs and DFIs. In total, we have identified 527 PDBs and DFIs, among which 510 (97%) are PDBs, 4 (1%) are equity funds, and 13 (2%) are guarantee funds.[1]

The rest of the report proceeds as follows: in Section II we discuss the principles of building a credible list of PDBs and DFIs; in Section III we propose how to refine the qualification criteria of identifying PDBs and DFIs proposed in the INSE inaugural report; in Section IV we classify PDBs and DFIs into different subcategories according to ownership, geographical operation, size of total assets, official mandate, and income levels of the countries that establish national PDBs and DFIs; finally, we conclude with key findings and propose future plans for the database-building project.

Box 1: Terminology: What Name to Designate Them All?

No internationally agreed-upon terminology exists to refer to public financial institutions that perform development financing on behalf of governments. In short, they are all "mission-driven institutions", which use financial instruments to execute a public mandate on behalf of their governments. These missions are highly diversified, but all, in one way or another, bear the responsibility to transform into reality the SDGs that all United Nations member countries have adopted.

In Europe, the term "development banks" is the most general, while institutions that mainly finance private sector activities in developing countries are often called "development finance institutions" (DFIs). But the term DFI is also used in a much broader sense by the associations of development financing institutions (DFIs), referring to a wider range of specialized financial institutions in pursuit of public policy objectives. Indeed, the World Federation of Development Financing Institutions (WFDFI) brings together other regional associations such as the Association of Development Financing Institutions in Asia

[1] As the business model of insurance companies differs from that of banks and equity funds, the present report temporarily excludes public policy-oriented insurance companies such as China Export & Credit Insurance Corporation and Korea Trade Insurance Corporation.

and the Pacific (ADFIAP), and the Association of Development Financing Institutions in Latin America (ALIDE). Their members mostly include development banks, although membership is also open to nonbank financial institutions providing equity investments, guarantees, or insurance to achieve public policy goals.

We use the terms "PDB" and "DFI" in parallel, primarily with the same objective of designating all in the community, as PDBs are the main category in the DFI family. To avoid confusion, we use "development financing institution" instead of "development finance institution" as the generic term. This includes development banks as well as guarantee- and equity-focused financial institutions carrying out a public policy financing mission on behalf of the state.

Box 2: A Brief History of PDBs and DFIs

The rapid industrialization of continental Europe in the nineteenth century was fueled by prototypes of modern DFIs that provided large-scale and long-term finance (Gerschenkron 1962; Diamond 1957). One example is the Crédit Mobilier founded in 1852 in France, described as "a potent force for economic development" (Cameron 1953, 488) in Europe providing much-needed infrastructure financing. It later became the model for similar government-supported financial institutions across Europe (Cameron 1953; Collister 2007).

The number of newly established PDBs and DFIs exhibits a rise, plateau, and peak pattern following World War II, as discovered in the inaugural INSE report (Xu, Ren, and Wu 2019). PDBs and DFIs sprang up in the wake of WWII because developing countries in Asia, Africa, and Latin America were eager to achieve faster industrialization and create their own national development banks after gaining political independence. But this momentum stalled in the 1980s when development banks came under fire in the broader context of prevailing free-market-oriented neoliberalism. This plateau was followed by a peak in the 1990s when newly independent Eastern European countries established PDBs and DFIs after the collapse of the former Soviet Union to channel international financial support and generate confidence and accountability.

Recently, the world is witnessing a renaissance of PDBs and DFIs at both the international and national levels.

Recently, the world is witnessing a renaissance of PDBs and DFIs at both the international and national levels. To fill the vast infrastructure financing gaps in developing countries and shape the international development finance system (Xu 2018), China has taken a leadership role in creating the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank. Both developed countries and developing countries have recently established or plan to establish PDBs and DFIs. From 2019 to 2021, at least 8 new PDBs and DFIs have been established. They are the U.S. International

Development Finance Corporation (a consolidated agency that brings together the capabilities of the Overseas Private Investment Corporation and the U.S. Agency for International Development's Development Credit Authority), the Banco del Bienestar in Mexico, the Banque Nationale d'Investissement of Guinea, the Scottish National Investment Bank, the UK Infrastructure Bank, and the National Bank for Financing Infrastructure and Development in India.

Looking ahead, as policymakers are attaching more and more importance to PDBs and DFIs, it is of paramount importance to ensure that PDBs and DFIs, which are aimed at addressing market failures, are well designed and managed so that they can avoid government failures and steer clear of the pitfalls of past failures and realize their full potential.

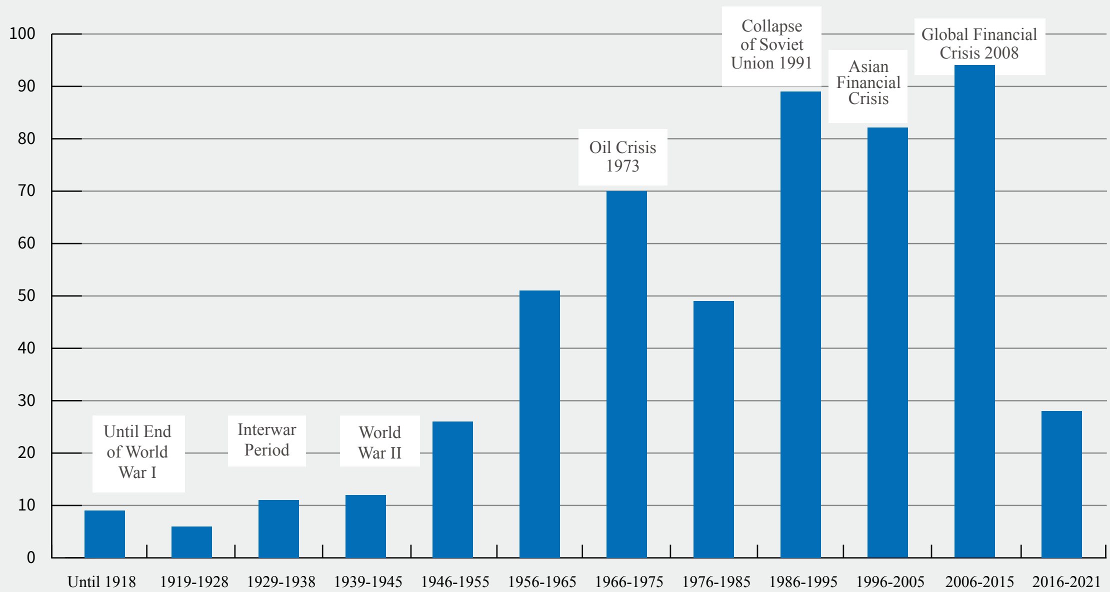

Figure 1: Number of Newly Established PDBs and DFIs

Note:

1. In terms of time periods, we have chosen the following divisions: i) until the end of World War I (WWI); ii) the interwar period, divided by decade; (iii) World War II (WWII); and iv) the period from the end of WWII in 1946 to the present day, divided by decade.
2. The graph above represents institutions that have remained active to the present day, meaning that development banks that were created and subsequently liquidated, for a variety of reasons, are not captured here.

II. Principles for Building a Comprehensive List of PDBs and DFIs

To ensure that we build a credible list of PDBs and DFIs, we propose the following three principles: conceptual clarity of qualification criteria, implementation consistency of operational indicators, and case-by-case verification of borderline cases. We elaborate on each principle as follows.

To ensure that we build a credible list of PDBs and DFIs, we propose the following three principles: conceptual clarity of qualification criteria, implementation consistency of operational indicators, and case-by-case verification of borderline cases.

First, the conceptual clarity of the qualification criteria is crucial in distinguishing PDBs and DFIs from other institutional arrangements. Grasping the core features of PDBs and DFIs helps avoid proposing a working definition that is so broad as to include institutional arrangements such as state-owned commercial banks with public policy functions in practice. We also want to avoid a definition so narrow that it excludes certain entities that possess essential PDB and DFI features but exhibit some characteristics that are atypical in conventional ones, such as deposit-taking financial institutions established by governments with an explicit development-oriented mandate, like financial inclusion. The analysis boils down to the fundamental question of what PDBs and DFIs are. To answer this question, we need to distinguish identity from modality. Identity refers to the defining features of PDBs and DFIs that distinguish them from other institutional arrangements, such as government credit programs, aid agencies, and state-owned commercial banks. Modality refers to different features within the PDB and DFI family that reveal their vast diversity. In the present report, we use qualification criteria to capture the identity of PDBs and DFIs, which we explain in Section III. Then we use different analytical dimensions of modality to classify PDBs and DFIs into different subcategories in Section IV. In short, the conceptual clarity of the qualification criteria is crucial in distinguishing identity from modality and to avoid making an unduly broad or narrow list.

Second, it is important to ensure implementation consistency in applying the operational indicators of the qualification criteria to avoid arbitrary decisions on whether to include some entities in our database. One pitfall in building our database would be to include some entities from certain types of institutional arrangements but exclude others within the same type without providing justification. For instance, cooperative banks and microfinance institutions may often have development-oriented mandates, but not all of them are qualified as PDBs and DFIs if they are not initiated by governments. To avoid making such an error, we need to apply the qualification criteria in a consistent manner.

Finally, dealing with borderline cases requires case-by-case screening. Though it is important to apply the qualification criteria in a consistent manner, it is also misleading to apply these criteria in a mechanical way. Borderline or exceptional cases require a judgment call based on professional knowledge. In such circumstances, the decision to include or exclude from the PDB and DFI list needs justification when such a decision goes against the standardized operational criteria. This verification process helps ensure the transparency of our database-building procedure and encourages dialogue with experts and practitioners on ways to improve our database.

In summary, we follow the principles of conceptual clarity of qualification criteria, implementation consistency of operational indicators, and case-by-case verification of borderline cases to build a comprehensive list of PDBs and DFIs in a reliable manner. To the best of our knowledge, our effort is the first of its kind.

III. Qualification Criteria of PDBs and DFIs

PDBs and DFIs are the brainchildren of governments because they are public financial institutions designed to address market failures and incubate markets in a proactive manner.

PDBs and DFIs are the brainchildren of governments because they are public financial institutions designed to address market failures and incubate markets in a proactive manner. Here, the term market failure broadly means any circumstances preventing the market from backing socially beneficial projects (i.e., the value created by projects including positive externalities is greater than the cost). It covers the cases of poor repayment enforcement cutting off credit access to low-collateral firms, or risk aversion penalizing innovative and long-gestation projects. Even more relevant in the SDGs era is the crucial question of externalities. The case of climate change exemplifies the necessity to account for social and environmental consequences apart from financial returns. The role of PDBs and DFIs is to provide or help mobilize the required financial support for productive investments of social and environmental value that the market fails to finance.

PDBs and DFIs are financial institutions that operate at the large frontier between state and market. Agencies and credit programs administered by government agencies or ministries exist toward the state end of the spectrum. These institutions are development-oriented and rely on regular funding support from governments. At the other end of the spectrum, toward the market, lie commercial banks, investment banks, venture capital firms, and equity investment funds aimed at maximizing profit. PDBs and DFIs lie at the intersection of state and market because they are aimed at using market means to achieve development goals. We define PDBs and DFIs as financial institutions initiated and steered by governments with the official mission to proactively orient their operations to pursue public policy objectives. Hence, the core task of defining PDBs and DFIs is to draw dividing lines distinguishing PDBs and DFIs from other institutional arrangements on the spectrum.

The INSE inaugural report proposes three minimum criteria for categorizing PDBs—namely, a legally independent and self-sustaining financial institution, pursuing public policy objectives, and receiving government support (Xu, Ren, and Wu 2019, 14–19). Upon publication, the inaugural report has received increasing attention from scholars, experts, and practitioners from universities, think tanks, governments, international organizations, and PDBs and DFIs. We have received constructive feedback that helps us clarify confusion and improve our PDB and DFI qualification criteria.

Based on the constructive comments received after the launch of the inaugural New Structural Economics Development Financing Research Report, as well as international and operational experience and feedback from PDBs and DFIs themselves, INSE and AFD have proposed a set of five qualification criteria that should be met simultaneously to qualify an entity as a PDB or DFI:

1. A stand-alone entity:

The entity should have a separate legal status, dedicated personnel, separate financial statements, and is not set to accomplish a short-term, specific goal, which helps distinguish PDBs and DFIs from government appropriation programs, certain ministerial agencies with credit programs, and special purpose vehicles (SPVs).

2. Fund-reflow-seeking financial instruments as the main products and services:

The entity should deploy financial instruments as its main products and services, which helps to distinguish PDBs and DFIs from other public entities that pursue public policy objectives, such as central banks. Meanwhile, these financial instruments deployed by PDBs and DFIs, such as loans, equity investments, or guarantees, should permit some form of repayment, capital dividends, or risk premium. Provision of pure grants does not meet this criterion, as grants do not require repayments and are not assets of PDBs and DFIs. This helps to further distinguish PDBs and DFIs from grant-executing agencies.

3. Funding sources go beyond periodic budgetary transfers:

Without prejudice to its ability to receive grants, the institution must be able to finance itself beyond periodic budget transfers from governments to borrow from capital markets or financial institutions (though mobilizing funds from market actors requires government support such as public guarantees). This distinguishes PDBs and DFIs from aid agencies.

4. Proactive public policy-oriented mandate:

This criterion reveals the key identity of PDBs and DFIs. The official mandate of PDBs and DFIs should focus on proactively implementing the public policy for which they were created. They are mandated to fill the financing gaps where private capital markets and commercial banks are unwilling or unable to offer financial support. The salient point is that PDBs and DFIs are not created to maximize profits as commercial banks do. This criterion helps us to distinguish PDBs and DFIs from state-owned commercial banks with policy functions.

5. Government steering of corporate strategies:

As initiators of PDBs and DFIs, governments should play a steering role in ensuring that PDBs and DFIs pursue public policy objectives. The most commonly used means is for governments to be the majority shareholder. However, in some exceptional cases, governments have decided to join hands with private partners in creating and owning PDBs and DFIs. Government steering may be achieved by offering support for fundraising or subsidized interest rates, nominating the chief executive officer (CEO) or the president of the board, or sitting on the board of directors or designating directors. To continue to qualify as PDBs and DFIs in such circumstances, there must be proof that the government is playing an active role in ensuring that these institutions proactively pursue a development-oriented mandate.

To qualify as a PDB or DFI, an institution must fulfill all five criteria.[2] It is worth noting that criterion 5 is not a prerequisite to criterion 4. For example, private or grassroots initiatives such as microfinance institutions may proactively pursue development-oriented goals. Meanwhile, criterion 5 does not necessarily imply criterion 4. For instance, some state-owned commercial banks may carry out development financing such as SME financing in an ad hoc manner. Although their action may help to achieve SDGs, they regard such ad hoc policy functions as policy burdens rather than proactive actions, given their objective of maximizing profits. Therefore, we have decided not to retain these state-owned commercial banks with policy functions in the database because they do not proactively pursue public policy objectives.

The first operational indicator is that an entity has a separate legal personality. In judging whether an entity has a separate legal status, we determine whether it has articles of agreement (AA) or quasi-AA (which is not a legal document in a strict sense) upon its establishment. This can help to distinguish PDBs and DFIs from government credit programs. It is worth noting that legal independence does not necessarily imply operational autonomy. Although some specialized government departments may carry out missions with large degrees of autonomy, they often do not have separate legal personalities, and their governance and modus operandi follow government rules. As a matter of fact, some PDBs and DFIs may enjoy greater professional independence than others. For the purpose of our study, legal independence means that the entity has a separate legal personality, can contract or borrow in its own name, and can sue and be sued.[3] Hence, we refine this criterion by using the more neutral phrase of a "separate legal personality and financial account."

3.1. A stand-alone entity is a prerequisite

The first qualification criterion proposed is a stand-alone entity. This means that the entity should have a separate legal status, dedicated personnel, separate financial statements, and is not set up to accomplish a short-term, specific goal, thus distinguishing it from public agencies affiliated with governments.

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[2] Self-identity appears to be a convenient qualification criterion for identifying PDBs or DFIs because it is straightforward enough to include those who claim to be PDBs or DFIs and exclude those who identify themselves as commercial banks. Even so, it could make our list arbitrary. Because practitioners lack a common definition of DFIs, different organizations may refer to different features to classify themselves as DFIs or not. Self-identity is a subjective judgment by organizations themselves that may not be consistent over time or across institutions. For instance, some microfinance institutions may regard themselves as DFIs by joining DFI associations, whereas others do not despite having similar functions and modalities. This would have made our list inconsistent. Hence, we use self-identity as indicative information instead of a qualification criterion.

[3] Though state-owned public entities may possibly enjoy immunities, as a separate legal entity they can sue and be sued by others in principle.

Another operational indicator of being a stand-alone entity is that the entity has its own dedicated staff. For example, although the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) have separate legal personalities, they share the same bank management and are two legs of the World Bank Group. The very reason for the IDA's creation was the need to separate the "banking activities" of the World Bank at cost, meaning with an operational margin on the cost of funds, from the "subsidized" activities dedicated to a short list of countries (see Box 3 for further analysis on the IDA and the IBRD). Another possible confusion may appear between a proper DFI and "special purpose vehicles or funds." Special purpose vehicles (SPVs) are dedicated entities created to isolate the risk from the parent investor. As such, they are quite a classic feature for governments or PDBs themselves when financing a project that they want to isolate from their general course of business. Governments and PDBs may also create "trust funds" to serve specific projects or objectives, which are not to be confused with PDBs and DFIs. The World Bank, the European Investment Bank, the Inter-American Development Bank, and many others receive money from governments or civil society, in particular to deliver advisory services. The World Bank in particular has created hundreds of these trust funds, sometimes with quite large financial resources. Examples are numerous and diverse, such as the Afghanistan Reconstruction Trust Fund (ARTF) or the South Asia Water Initiative (SAWI). A stricter criterion has therefore to include separate personnel as a criterion of being a stand-alone entity. For instance, InfraMed, created as an autonomous entity by the French Caisse des Dépôts et Consignations and the Italian Cassa Depositi e Prestiti to support investment in infrastructure around the Mediterranean area, has its own legal status, accounts, and staff, and can qualify as such as a full-fledged DFI.

Box 3: IDA vs. IBRD

The World Bank is composed of different entities. The International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA) are autonomous, with their own operations and staff, so there is little doubt that they qualify as stand-alone DFIs. The case is more complex with the IDA and the IBRD. The IDA needs to replenish its resources every three years by mobilizing donations (i.e., taxpayers' money) from donor countries. The IDA provides grants or interest-free concessional loans to low-income countries; therefore, it relies on budgetary transfers from governments to continue with its development assistance operations. However, the IDA has its own financial statements, and, since 2018, it has started to issue bonds and use reflows to repay its debt. After borrowing from capital markets, the IDA has moved closer to being a financial institution as opposed to an aid agency.

By contrast, its sister institution, the IBRD, relies on sovereign creditworthiness to raise funds from capital markets, which helps it reduce its borrowing costs. The IBRD provides loans with ordinary terms, guarantees, risk-management products, and advisory services to middle-income and creditworthy low-income countries. Hence, reflows from its financial products can cover both overhead costs and borrowing costs from capital markets. Accordingly, the IBRD can operate without resorting to tangible fiscal transfers from governments, though sovereign guarantees play an indispensable role in lowering borrowing costs to make the seemingly self-sustaining operation feasible. In this type of business model, the IBRD does not need periodic replenishments and hence is much more financially independent from its member countries than the IDA. Historically, the IDA was created to provide concessional loans which were cheaper than the IBRD loans and to avoid contaminating a development banking model that is supposed to be self-sustainable and not call on the shareholders' budgets, apart from when the necessity arises to increase the bank's capital to cope with the increase in its activity. The IDA, on the other hand, is seen more as a "financial window" of the World Bank, an executing agency using the IBRD's capacities to pursue its mission using economies of scale, its administrative services, and staff. Hence, in our database we decided to merge the IBRD and the IDA into one PDB.

A third operational indicator of being a stand-alone entity is that the entity has its own financial account. Owning a separate financial account implies that this entity is supposed to be accountable for its own financial performance. For that reason, there is a particular case for including sufficiently autonomous subsidiaries of PDBs themselves in our database. Several of these institutions, such as Proparco of France or DEG of Germany, have been created by their parent PDBs as specialized DFIs to finance private sector activities. In many instances, this activity is conducted mainly in other countries where financial markets are underdeveloped or where partnership for commercial or strategic interest is part of the government policy. The rationale for creating these subsidiaries is that private activities, especially those of SMEs, are the backbone of any economy, and the investment by the private sector, in some countries, may justify some public support and a less demanding return on the capital mobilized. A moral hazard may result from transferring grants or subsidies to private interests. What is more, a soft loan to a private entity is unlawful in Europe because it distorts fair competition between companies. In Europe, there are strict constraints on the use of public subsidies or grants when the customers are private entities, which might not be the case in other continents. For the aforementioned reasons, when these institutions have their own financial and legal structure and governance, they can be considered autonomous and should therefore be incorporated into the database.

A fourth operational indicator of being a stand-alone entity is that the entity is not set up to achieve short-term and specific goals. This helps to distinguish PDBs and DFIs from special purpose vehicles (SPVs). SPVs are government-financed special funds for investing in specific companies or infrastructure projects. Governments or PDBs themselves create these financial vehicles to focus on a specific activity. Though these special funds may have separate legal personalities and financial statements, they often expire after the mission has been accomplished. For example, the Banque publique d'investissement (BPI) of France and the China Development Bank have set up a fund, the Sino French Midcap Fund I and II, to promote investments in innovative small and medium-sized enterprises (SMEs), focusing on boosting business between the two countries. It is simply a joint investment vehicle, which will disappear once its mission is accomplished, and, as such, it does not qualify as a DFI.

3.2. Fund-reflow-seeking financial instruments as main products and services

PDBs and DFIs use fund-reflow-seeking financial instruments, not grants, as their main mode of intervention. This qualification criterion can help to distinguish PDBs and DFIs from other public entities, such as central banks, whose main products and services do not involve providing financial instruments although they pursue public policy objectives. This qualification criterion helps to further distinguish PDBs and DFIs from grant-executing agencies. A PDB or DFI deploys financial instruments such as loans, equity investments, or guarantees to provide financial support for its customers, whose business model must permit some form of repayment, capital dividends, or risk premium, depending on the type of financing they have received. It should not simply offer outright grants only. The Green Climate Fund, for example, would not qualify as a PDB for that reason, even if it manages a specific private sector facility.

PDBs and DFIs use fund-reflow-seeking financial instruments, not grants, as their main mode of intervention.

However, this does not necessarily mean that repayments will have to cover all borrowing costs. Yet, such an emphasis on clients' financial discipline does not prevent PDBs and DFIs from extending grants or soft loans with subsidized interest rates in their portfolios if they have governmental support to do so. When seeking to distinguish DFIs from aid agencies by focusing on financial products, the most challenging borderline consideration is how to deal with "concessional loans." After examining the definition of concessional loans, we decided that concessional loans are more of a modality than an identity when defining PDBs and DFIs. See Box 4 for more information.

Box 4: Concessional Financing

The Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) has used the "grant element" to determine to what degree a loan is soft (or concessional) to make the judgment on whether a loan should be classified as official development assistance (ODA). The central question concerns how soft the loan is to be counted as ODA in the OECD-DAC aid reporting system (Scott 2017). The OECD-DAC sets 25% of the grant element as the threshold, whereas the OECD-Export Credit Group initially set the bar at 20% and later raised it to 35%, and the International Monetary Fund (IMF) and the World Bank use 35% in their debt sustainability surveillance framework. The seemingly technical definition of concessional loans was born out of political considerations. In the 1960s, the United States urged its allies to step up their aid efforts to counterbalance the Soviet influence in the Third World. The Export Credit Group attempted to make "tied aid" too expensive to be used as a disguised form of trade promotion (Xu and Carey 2015). That is why China's rise as a development finance provider poses significant challenges to the existing ODA reporting system and export credit discipline;

China was not at the negotiating table when the rules were made (Xu and Carey 2014). For the aforementioned reason, operationalizing the criterion of "concessionality" may be arbitrary when drawing the threshold and politically controversial.

Furthermore, concessionality may not necessarily rely on budgetary transfers. For instance, some DAC donors, such as France, Germany, and the European Investment Bank, have raised money on financial markets at extremely low rates, using implicit or explicit state guarantees, and then relent to developing countries without any tangible and explicit fiscal effort. Such financial flows are still qualified as ODA in the sense that they are concessional, but they do not require tangible budgetary transfers. In these cases, the line between aid agencies and DFIs seems to be blurred, because both use the market-based fundraising approach to provide development financing to developing countries. Given the trend of blended finance, this might be an artificial dividing line between aid agencies and DFIs, because not all self-identified DFIs are fiscally self-sustaining, and some aid agencies innovate new financial products and search for market-based funding sources by relying on sovereign guarantee.

3.3 Funding sources go beyond periodic budgetary transfers

One important point in assessing the identity of PDBs and DFIs is to distinguish them from aid agencies. One salient feature of aid agencies is that they primarily rely on periodic budgetary transfers from governments to sustain their operations. By contrast, PDBs and DFIs rely on government support to use market means to mobilize resources, such as issuing bonds on capital markets or lines-of-credit mobilization from other banking sources. A proper financial institution must have diversified sources of funds in its liabilities. The constitution of a capital base and regular government budgetary transfers can be one of these sources. However, governments usually expect PDBs and DFIs to leverage the balance sheet by relying on various other sources of financing. Otherwise, it is hard to qualify an institutional arrangement as a financial institution if there is no financial liability on its own balance sheet.

It is hard to qualify an institutional arrangement as a financial institution if there is no financial liability on its own balance sheet. Even though PDBs and DFIs may sometimes claim to be financially sustainable, financial sustainability is not a characteristic that helps distinguish PDBs and DFIs from aid agencies.

Even though PDBs and DFIs may sometimes claim to be financially sustainable, financial sustainability is not a characteristic that helps distinguish PDBs and DFIs from aid agencies. Even though some PDBs and DFIs may not receive any fiscal transfers from governments, such as the IBRD and the China Development Bank, governments play an indispensable role in mobilizing funds to support their operations. PDBs and DFIs often rely on sovereign creditworthiness to issue bonds from capital markets. If we take into account the cost of risk that taxpayers and the general public bear in their role as equity holders, PDBs and DFIs cannot be financially sustainable because they are mandated to provide high-risk and long-term capital that private banks are unwilling to offer (Lucas 2012; 2014). Owing to different financing structures, some PDBs and DFIs may rely less on governments than others. Hence, financial sustainability is more of a modality than an identity.

▪ 3.4. Proactive public policy orientation

In the INSE inaugural report, we operationalized the criterion of public policy orientation by coding the official mission, including both general development purposes and specific sector/segment focuses (such as infrastructure, agriculture, housing, and SMEs). However, this operationalization method brings two problems. First, some banks have ambivalent identities: while claiming to pursue development, they also aim at enhancing shareholder value as commercial banks do. As a result, our inaugural DFI list contains some banks conventionally regarded as commercial banks, such as Banco do Brasil S.A. and Caixa Econômica Federal in Brazil, that undertake both development financing and commercial banking business. To highlight their ambivalent identities, the inaugural report denoted them as "universal banks." Second, commercial banks may also emphasize corporate social responsibility and include some element of public interest in their mission statements. These are state-owned commercial banks whose business model is based on managing a network of branches that collect funds, take household deposits, manage accounts, and provide services to individuals. Owing to public ownership, governments may sometimes delegate state-owned commercial banks to undertake policy lending, but implementing development finance is not the proactive effort of these public commercial banks.

We have strengthened the criteria by excluding state-owned commercial banks from our list. The exclusion criteria include the aim of enhancing shareholder value, profit maximization, and an extensive network of household deposit-taking in direct competition with private commercial banks.

To address the aforementioned problem, we have strengthened the criteria by excluding state-owned commercial banks from our list. The exclusion criteria include the aim of enhancing shareholder value, profit maximization, and an extensive network of household deposit-taking in direct competition with private commercial banks. Hence, we exclude large deposit-taking, state-owned banks with an extensive network of agencies in which household deposits and individual accounts form the core of the business model in terms of commercial approach, marketing strategy, and competition with the private commercial sector. Although these deposit-taking, state-owned banks may officially claim to pursue development-oriented objectives, their business model differs too much from the traditional development bank model. Another element to take into consideration is their capacity to create money through banks' usual mechanism of money creation, while development banks recycle existing liquidities by collecting funds available in the market and directing them toward investment. In terms of control by monetary authorities, the two models are polar opposites. Hence, while recognizing that a development role can go hand in hand with some commercial activities, we label the dual identity of these state-owned banks under the term "universal banks,"[4] but we do not incorporate them into our main database this time. Meeting any of the said exclusion criteria will help us exclude commercially oriented financial institutions from our database.

In addition, we include, on a case-by-case basis, a few deposit-taking banks that meet the five qualification criteria, even though deposit-taking may be conventionally regarded as a core feature of commercial banks. After a thorough analysis and justification, we include banks taking deposits from specific customers, in the process of diversification of sources of funds, and deposits for guarantees or security purposes, or that take individual accounts for the purpose of financial inclusion in poor regions where private banks are not active. For instance, some public banks have the mandate to enhance financial inclusion by setting up branches in underdeveloped regions of their own country, such as the Banco de Fomento Agropecuario in El Salvador. This is certainly a public concern and a priority for social equality. It is of particular interest that these types of banks should be identified and supported in their struggle for more social SDGs.

3.5. Government steering

Government support is certainly a common feature expected for all PDBs and DFIs, yet the criterion of government support is too loose to help distinguish PDBs and DFIs from those market-oriented financial institutions that receive government support to perform a policy function on an ad hoc basis. For instance, state-owned commercial banks, private commercial banks, microfinance institutions, and cooperative banks, which are not PDBs, also finance SMEs. Because promoting SME financing is often regarded as a public policy objective, given the importance of SMEs and the severity of credit constraints owing to information asymmetry and lack of collateral, governments may provide policy support to incentivize private commercial banks to undertake more SME financing, without needing to create their own SME bank.

To strengthen this criterion of government support, the key is to identify concrete evidence that the government can play a steering role in setting their corporate strategies so that PDBs and DFIs can operate in the public interest to address market failures or incubate markets that drive their mandate.

To strengthen this criterion of government support, the key is to identify concrete evidence that the government can play a steering role in setting their corporate strategies so that PDBs and DFIs can operate in the public interest to address market failures or incubate markets that drive their mandate. The most straightforward operational indicator is for the government to hold a majority of the capital and therefore control the board, nominate the CEO, and validate the overall strategies of PDBs and DFIs.

However, government steering can be achieved via

[4] The term "universal banks" is conventionally used to refer to financial institutions undertaking both investment banking and commercial banking. Recently, however, DFI practitioners have used this term to refer to banks that undertake both commercial banking business and development financing.

other means, such as guaranteed bond-issuing, low-interest or interest-free loans, liquidity guarantees, and preferential tax treatment. History shows that formal shareholding is not necessarily the only means by which governments can shape boards' decision-making. In the wake of World War II, the World Bank Group (WBG) supported the establishment of dozens of privately owned development finance companies (DFCs) with government support to provide industrial finance and foster entrepreneurship. DFCs are often privately owned but fulfill public policy objectives. The WBG allocated a substantial amount of its resources via these DFCs. Although governments did not formally own these DFCs, they provided lines of credit without a date of repayment that acted as equity capital. Hence, these DFCs were regarded as quasi-government institutions (Diamond 1965; 1968; 1973; 1974).

Given the lack of consensus on the definition of PDBs and DFIs among scholars and practitioners, it is important that we convincingly justify our qualification criteria and then apply them in a consistent manner.

In some specific cases, governments can still provide some support, even if the capital is in private hands. The Industrial Development Bank of Turkey (TSKB) is a prime example. It was established with the support of the World Bank in the 1950s as the only bank capable of supplying the local market with foreign currency credit. When it was privatized, the Turkish government maintained its guarantee for external borrowing, therefore facilitating access to lines of credit from international institutions that the TSKB could then redirect to private businesses. The TSKB is the only institution borrowing both from the IFC (because it is a private bank) and from the World Bank (because it is a development bank enjoying sovereign guarantee). In short, government steering can help ensure that DFIs fulfill their development-oriented official mandate.

Therefore, for all cases where government control of the capital is not clearly established, we examine whether governments established or initiated the PDBs or DFIs, whether government officials sit on the board of executive directors, or whether governments provide support for fundraising. By doing so, we open our list of PDBs and DFIs to institutions for which governments have decided to rely on other partners to execute the public policy or compensate for the market failure they have identified.

In a nutshell, our ultimate objective is to compile a credible list of PDBs and DFIs worldwide. Given the lack of consensus on the definition of PDBs and DFIs among scholars and practitioners, it is important that we convincingly justify our qualification criteria and then apply them in a consistent manner. We should avoid two kinds of errors: including some institutions but excluding others in the same category, such as microfinance institutions or cooperative banks; and failing to include institutions qualified as PDBs and DFIs. There is a trade-off between the aforementioned two errors: the attempt to build a comprehensive DFI list may include multifaceted institutions that fall in the gray areas. To address this trade-off, we give more weight to accuracy: only when clear evidence shows that an entity meets all five qualification criteria can it be included in our database. To deepen our understanding of the vast diversity of the DFI family, we move to the next section about how to classify DFIs.

IV. Typologies of PDBs and DFIs

In this section, we will identify analytical dimensions to classify PDBs and DFIs into different categories to reveal their vast diversity. Applying the five qualification criteria in Section III, we have identified 527 PDBs and DFIs worldwide in total. Many criteria can be used to classify banks and financial institutions—as a biologist would do for plants or animals—to organize a typology. To start with, we focus on basic analytical dimensions, namely, ownership structure (who owns them), geographical operation (where they operate), asset size (how big their total assets are), official mandate (what they aim to do), and income levels of their home countries (for national PDBs and DFIs, which income level their home country belongs to). To arrive at a coherent set of institutions, we would need more than one analytical dimension to make the classification. Figure 2 presents the typologies used to classify the PDBs and DFIs.

Box 5: Some Key Figures on PDBs and DFIs

The database initiated by INSE and then collaborated between INSE and AFD conveniently allows researchers to not only identify PDBs and DFIs worldwide in a comprehensive manner but also provide information on quantitative indicators that assesses their size through some of their balance sheet figures. Before entering details, the global landscape can be highlighted with a few salient figures:

- **Number of PDBs and DFIs in the entire world:** 527+ (To be prudent, we use "+" here as some entities may not disclose sufficient information for us to qualify them as PDBs and DFIs.)
- **Total assets of all PDBs and DFIs in 2019:** $18.7 trillion with Freddie Mac and Fannie Mae; $13 trillion without Freddie Mac and Fannie Mae.

Figure 2: The Variety of Typologies of PDBs and DFIs

- **Estimation of annual contribution to the financing of global investment:** Estimating the balance sheet rotation at an average of six years, an estimate is that PDBs and DFIs contributed $2.2 trillion of new financing in 2019. According to World Bank estimates, gross capital formation—a reasonable proxy of global investment—was $22.34 trillion USD in 2019. This means that a reasonable estimate of annual financing of PDBs and DFIs is about 10% of the world's investment.

- **China Development Bank** is the largest general-mandate public development bank in the world: it has $2.37 trillion on its balance sheet, $200 billion of shareholders' equity, and $17 billion of net income in 2019. As a special development bank of its own kind, Fannie Mae is indeed a bit larger, but its activity is very specific and concentrated on the secondary mortgage market. By way of comparison, the largest generalist US bank in 2019 was J.P. Morgan, with a balance sheet of $2.7 trillion.

- **The PDBs and DFIs of the 27 European Union member countries,** including their regional development banks EIB and EBRD, have a total of $4 trillion in assets, or nearly the same size as that of all Chinese PDBs and DFIs.

- **The most longstanding:** Caisse des Dépôts et Consignations (France 1816); followed by Cassa Depositi e Prestiti (Italy 1850) and KommuneKredit (Denmark 1898).

- **The largest multilateral:** The European Investment Bank, a European regional bank with a balance sheet total of $623 billion, profitability (net income of $2.8 billion, 2,900 employees), financial strength (AAA-rated by all rating agencies), and governance, is shared among the 27 member states of the European Union.

- **A few mega banks possess two-thirds of the total assets of all PDBs.** 9 mega PDBs and DFIs, whose assets exceed $500 billion, hold almost two-thirds of the total assets of all PDBs and DFIs, even though the number of mega PDBs and DFIs accounts for merely 2% of the total. 27 (6%) mega and large PDBs and DFIs, whose total assets are in excess of $100 billion, account for 84% of aggregate total assets. By contrast, the vast majority of PDBs and DFIs are small. Although 37% of PDBs and DFIs are micro ones, whose total assets are less than $500 million, they account for merely 0.14% of aggregate total assets. For instance, the development agency of Roraima in Brazil has a balance sheet of only $2 million. The Fondo Ganadero (an agricultural bank in Paraguay for financing small livestock farmers) in 2019 had a balance sheet of only $21 million and $2 million in shareholders' equity. Development banks in island states such as Tuvalu, Niue, or American Samoa also have small balance sheets of the same order of magnitude.

4.1 On ownership structure

According to which jurisdiction levels PDBs and DFIs' owners belong to, we classify them into three groups: multinational, national, and subnational.

In this subsection, we classify PDBs and DFIs by the jurisdiction levels of ownership. According to which jurisdiction levels PDBs and DFIs' owners belong to, we classify them into three groups: multinational, national, and subnational. Then we take a step further to examine the geographical location of owners in terms of regions and subregions at each jurisdiction level. In addition, we explore the direct and ultimate shareholder structure of PDBs and DFIs.

4.1.1 Jurisdiction levels of ownership

We first classify PDBs and DFIs into three categories according to their ownership structure: multinational, initiated and owned by entities from more than two countries; national, created and owned by a central government[5] (or national public entities), or private sectors in rare cases; and subnational, established and owned by a local government entity or jointly by several local governments. If not specified, we use "multinational/national/subnational PDBs and DFIs" to

[5] If a PDB or DFI is set up by two central governments, we classify it as national, since under these circumstances it is easy to identify which country is the majority shareholder. Even if the two countries' shares are 50/50, we can use other indicators such as the headquarters, main customers, and operators to determine which country of the two is the "main character."

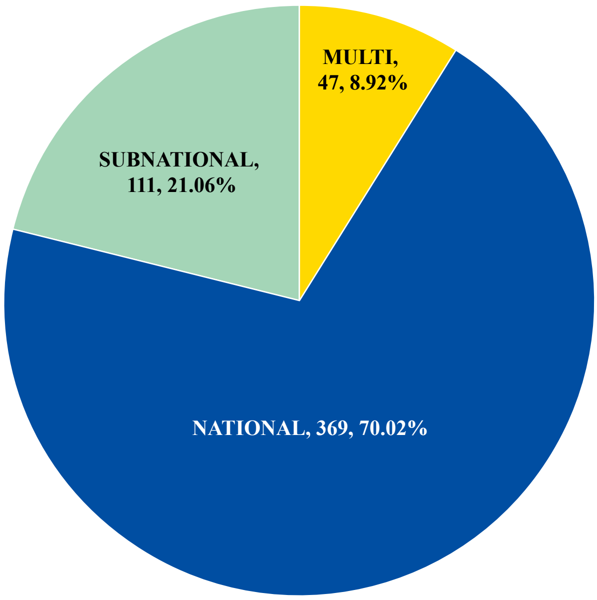

Figure 3: Distribution of PDBs and DFIs by Ownership Level

refer to the jurisdiction level of ownership of a specific PDB or DFI.[6]

We identified 369 national PDBs or DFIs, representing 70% of the total.

As shown in the pie chart in Figure 3, of the 527 PDBs and DFIs worldwide, the number of multinational PDBs and DFIs is 47, accounting for 9% of the total. This number may appear relatively small, but it is in fact surprisingly high. Apart from the most well-known group of multilateral banks at the international and regional level—i.e., the World Bank Group and regional development banks, such as the Inter-American Development Bank, the African Development Bank, the Asian Development Bank, the European Investment Bank, or the European Bank for Reconstruction and Development—many countries have collaborated to create their own multilateral PDBs and DFIs in their own subregions. We outline below that it is highly related to some more specific geographical scope, whereby a group of countries jointly create a common supranational institution by pooling resources to better leverage available resources. The multilateral bank acts as a pooled fund, with mutual counter guarantees of member states on the liabilities of the bank. This solidarity, legally binding and organized through a banking structure, permits easier access to international lines of credit and more credibility in some bond issuance. Examples are numerous, but the success of the model is embodied by institutions such as the Development Bank of Central America (CABEI), the Development Bank of Latin America (CAF), the Trade and Development Bank (TDB) in East Africa, and the Black Sea Trade and Development Bank (BSTDB).

The most common model remains national PDBs and DFIs, whereby a central government or its public entities, sometimes inviting private investors around

[6] Again, if entities from different levels jointly establish a PDB, we use 50% as the threshold to determine the level.

the table, have created an institution to transform public policy objectives into actual financing. We identified 369 national PDBs or DFIs, representing 70% of the total. The variety of these institutions is remarkable. The following sections will detail this diversity, in particular considering their size and mandate.

The third ownership category is banks owned by local governments. This can be any subnational political division of a country and/or decentralized government entity. The designation of such subnational entities may vary according to the territorial administrative structure of each country, e.g., states, regions, provinces, or cities. This category is probably the most unknown to the international financial community. Even though there are 111 such institutions—amounting to 21% of the total, a very significant figure—, they are usually quite small and have virtually no visibility in the international arena. Indeed, being subnationals, they have little legitimacy to participate in international debates.

4.1.2 Geographical region of owners

In this subsection, we identify the geographical regions of PDBs and DFIs' owners. Here we adopt the classification of geographical regions by the Statistics Division of the United Nations (UN). These geographical regions are based on continental regions, which are further subdivided into subregions and intermediary regions, drawn up so as to obtain greater homogeneity in population sizes, demographic circumstances, and so on.[7]

To reveal the diversity, we further classify the geographical regions of PDBs and DFIs according to the three categories mentioned above, namely, multinational, national, and subnational. Regarding multinational PDBs and DFIs, if a PDB or DFI is owned by more than two countries dispersed in different geographical regions, we classify it as "world"; if its membership structure is deliberately divided into distinctive categories such as regional and nonregional members, and regional members enjoy the majority shareholding of more than 50%, we classify it as "regional" or "subregional." In terms of subnational or national PDBs and DFIs, if their majority shareholders are from public or private entities of a specific country, we put them into the region or subregion where their countries are located.

Regarding multinational PDBs and DFIs, 5 (11%) are classified as "world," that is, their member states come from different regions.

As shown in Table 1, regarding multinational PDBs and DFIs, 5 (11%) are classified as "world," that is, their member states come from different regions. They include both established ones such as the World Bank (IBRD and IDA), the IFC and the MIGA from the World Bank Group, and the International Fund for Agricultural Development, and recent multilateral initiatives such as the New Development Bank. A vast majority (89%) of multinational PDBs and DFIs are primarily owned by member states from a particular region or subregion. At the regional level, apart from Oceania, most regions have their own regional development banks (RDBs), including the African Development Bank in Africa, the Asian Development Bank and the Asian Infrastructure Investment Bank in Asia, the European Investment Bank and the European Bank for Reconstruction and Development in Europe, and the Inter-American Development Bank in the Americas. In terms of the number of subregional

[7] For further information on the UN's classification of geographical regions, see https://unstats.un.org/unsd/methodology/m49/.

Table 1: The Distribution of PDBs and DFIs by Geographical Region at Different Ownership Levels

Continents and Sub-regions	Number of Multinational PDBs & DFIs	Multinational (%)	Number of National PDBs & DFIs	National (%)Number of Sub National PDBs & DFIs	Number of Sub National PDBs & DFIs	Subnational (%)	Number of Total PDBs & DFIsTotal (%)	Total (%)	Number of Countries	Average Number of National PDBs & DFIs per Country
World	5	10.64%	/	/	/	/	5	0.95%	/	/
Eastern Africa	4	8.51%	27	7.32%	0	0.00%	31	5.88%	18	1.50
Middle Africa	1	2.13%	8	2.17%	0	0.00%	9	1.71%	9	0.89
Northern Africa	2	4.26%	10	2.71%	0	0.00%	12	2.28%	6	1.67
Southern Africa	0	0.00%	23	6.23%	1	0.90%	24	4.55%	5	4.60
Western Africa	3	6.38%	24	6.50%	2	1.80%	29	5.50%	16	1.50
Africa	1	2.13%	0	0.00%	0	0.00%	1	0.19%	/	
Africa Total	11	23.40%	92	24.93%	3	2.70%	106	20.11%	54	1.70
Caribbean	1	2.13%	8	2.17%	1	0.90%	10	1.90%	13	0.62
Central America	1	2.13%	23	6.23%	0	0.00%	24	4.55%	8	2.88
Northern America	1	2.13%	9	2.44%	19	17.12%	29	5.50%	2	4.50
South America	3	6.38%	25	6.78%	22	19.82%	50	9.49%	12	2.08
America	2	4.26%	0	0.00%	0	0.00%	2	0.38%	/	/
Americas Total	8	17.02%	65	17.62%	42	37.84%	115	21.82%	35	1.86
Central Asia	0	0.00%	4	1.08%	0	0.00%	4	0.76%	5	0.80
Eastern Asia	0	0.00%	17	4.61%	1	0.90%	18	3.42%	5	3.40
South-eastern Asia	0	0.00%	34	9.21%	22	19.82%	56	10.63%	11	3.09
Southern Asia	0	0.00%	38	10.30%	14	12.61%	52	9.87%	9	4.22
Western Asia	7	14.89%	24	6.50%	1	0.90%	32	6.07%	17	1.41
Asia	2	4.26%	0	0.00%	0	0.00%	2	0.38%	/	/
Asia Total	9	19.15%	117	31.71%	38	34.23%	164	31.12%	47	2.49
Eastern Europe	5	10.64%	14	3.79%	1	0.90%	20	3.80%	10	1.40
Southern Europe	0	0.00%	20	5.42%	9	8.11%	29	5.50%	14	1.43
Northern Europe	2	4.26%	21	5.69%	5	4.50%	28	5.31%	8	2.63
Western Europe	1	2.13%	23	6.23%	12	10.81%	36	6.83%	11	2.09
Europe	5	10.64%	0	0.00%	0	0.00%	5	0.95%	/	/
Europe Total	13	27.66%	78	21.14%	27	24.32%	118	22.39%	43	1.81
Australia and New Zealand	0	0.00%	4	1.08%	0	0.00%	4	0.76%	2	2.00
Pacific Islands	1	2.13%	13	3.52%	1	0.90%	15	2.85%	14	0.93
Oceania	0	0.00%	0	0.00%	0	0.00%	0	0.00%	/	/
Oceania Total	1	2.13%	17	4.61%	1	0.90%	19	3.61%	16	1.06
Total	47	100.00%	369	100.00%	111	100.00%	527	100.00%	195	1.89

development banks, Western Asia, Eastern Europe, and Eastern Africa make up the top three, with 7, 5, and 4 currently active multinational PDBs and DFIs respectively.

In terms of the number of subregional development banks, Western Asia, Eastern Europe, and Eastern Africa make up the top three, with 7, 5, and 4 currently active multinational PDBs and DFIs respectively. In terms of national PDBs and DFIs, they seem to be most popular in Southern Asia. We have identified 38 currently active national PDBs and DFIs in Southern Asia, accounting for 10% of total national ones.

In terms of national PDBs and DFIs, they seem to be most popular in Southern Asia. We have identified 38 currently active national PDBs and DFIs in Southern Asia, accounting for 10% of total national ones. On average, each Southern Asian country has 4.2 national PDBs and DFIs. By contrast, in most subregions each country has 1 or 2 national PDBs and DFIs on average. As for subnational PDBs and DFIs, we have identified currently active ones mainly concentrated in South America (20%), South-eastern Asia (20%), and Northern America (17%).

As for subnational PDBs and DFIs, we have identified currently active ones mainly concentrated in South America (20%), South-eastern Asia (20%), and Northern America (17%).

4.1.3 Public versus private ownership

According to the qualification criteria presented in Section III, governments play a steering role in setting the corporate strategies of PDBs and DFIs to ensure that they proactively pursue public policy objectives. The main tool for governments to steer PDBs and DFIs is through majority shareholding. To classify PDBs and DFIs by public or private ownership, we have collected the information on direct shareholders.[8] We classify direct shareholders into the following broad categories: governments (including central banks), PDBs and DFIs, other public entities, and private entities (including the general public). Governments can directly own PDBs and DFIs by inserting share capitals via government agencies such as finance ministries or central banks. Alternatively, governments can indirectly own PDBs and DFIs through state-owned PDBs and DFIs or other public entities such as state-owned enterprises or sovereign wealth funds. Here we use 50% as the cut-off point to distinguish state-owned entities from privately owned ones.

Table 2 and Table 3 show that majority shareholding is the main approach for governments to steer a PDB or DFI: of the total sample of 527 PDBs and DFIs, 501 (95%) have governments among their direct shareholders. Furthermore, among PDBs and DFIs with governments as direct shareholders, governments are the major shareholders in 496 cases (or 94% of all PDBs and DFIs), and 395 PDBs and DFIs (or 75% of all PDBs and DFIs) are wholly owned by government agencies.

Apart from direct shareholding, governments can also own PDBs and DFIs via state-owned PDBs and DFIs or other public entities. 25 PDBs and DFIs (5%) and

[8] The reason why we focus on direct shareholders rather than tracing the ownership chain is that in most cases governments fully own PDBs and DFIs, or act as the majority shareholder. Hence, we can usually make the judgment on whether PDBs and DFIs are state-owned or not without the need of tracing the ownership chain.

Table 2: Types of Direct Shareholders

Types of Direct Shareholders	Observation	Mean	Min	Max	Std Dev	Median
Government Agencies	501	93.69%	0.10%	100%	17.33%	100%
PDBs and DFIs	25	49.25%	1.49%	100%	26.85%	38.38%
Other Public Entities	82	38.04%	0.01%	100%	37.86%	27.55%
Private Entities (including general public)	58	25.63%	0.01%	100%	24.05%	20.05%

Note: Government agencies include ministries of central governments, local governments, and central banks. Private entities include the general public who own shares of PDBs and DFIs that are listed on stock markets.

Table 3: Majority Shareholding

Types of Direct Shareholders	Government-owned		Privately owned	
	Number of PDBs and DFIs	Of which, fully owned by governments	Number of PDBs and DFIs	Of which, fully privately owned
Government Agencies	496	396	5	0
PDBs and DFIs	23	0	2	0
Other Public Entities	80	0	2	0
Private Entities (including general public)	50	0	8	2
Total PDBs and DFIs	519	395	8	2

Note: If PDBs and DFIs are owned by state-owned other public entities, which are often fully owned by governments, governments broadly defined act as their majority shareholder.

82 other public entities (16%) have injected share capital in other PDBs and DFIs. For instance, AFD set up the Société de Promotion et de Participation pour la Coopération Economique (Proparco) in 1977 and currently owns 78% of its shares. The Development Bank of the Philippines established the Al-Amanah Islamic Investment Bank of the Philippines in 1973 and owns 99.90% of its shares. It is worth exploring the implications of indirect government ownership, compared with direct government ownership, on the governance of PDBs and DFIs.

Private participation as direct shareholders is less common but not rare, with 58 institutions (11%) including direct private shareholders. However, in terms of majority shareholders, only 8 PDBs and DFIs (1.5%) are controlled by private sectors; 2 PDBs and DFIs (0.38%) are fully owned by private sectors, namely, the Industrial Development Bank of Turkey (TSKB) and the Development Bank of

Austria (OeEB). Even for those privately owned PDBs and DFIs, governments still steer their corporate strategies in other ways to ensure that PDBs and DFIs are development-oriented, such as guaranteeing their liabilities as in the case of the OeEB and the TSKB, or enjoying super voting rights as in the case of the Infrastructure Bank PLC in Nigeria and the Foreign Trade Bank of Latin America.

Of the total sample of 527 PDBs and DFIs, 501 (95%) have governments among their direct shareholders. Furthermore, among PDBs and DFIs with governments as direct shareholders, governments are the major shareholders in 496 cases (or 94% of all PDBs and DFIs), and 395 PDBs and DFIs (or 75% of all PDBs and DFIs) are wholly owned by government agencies.

4.2 Geographical operation

In this subsection, we classify PDBs and DFIs based on their geographical operation. Regarding the geographical scope of their operations, PDBs and DFIs can operate at four levels: international, regional, national, and subnational. To enrich our database, we have collected information on whether PDBs and DFIs restrict their operations to specific areas within and beyond national boundaries. For any single PDB or DFI, international and regional are marked as mutually exclusive, as an institution that can operate internationally can, by definition, also operate in its own geographical region. We apply the same exclusion rule between national and subnational, to identify institutions that are allowed to operate only in a specific territory within national boundaries. If a PDB or DFI can invest in any country without restricting its operation to particular regions or areas, we classify it as "international." As most multinational PDBs and DFIs are established to finance developing countries, they can be classified as "international" as long as they do not restrict their operation to certain regions or areas within the developing world. Otherwise, we classify those that confine their operations to certain regions or areas as "regional." Here "regional" does not necessarily refer to geographical continents or subregions; it can also refer to restriction in geographical operations due to political or religious reasons, such as only operating in Islamic countries. By the same token, if PDBs and DFIs can operate in any area within national boundaries, they are classified as "national"; otherwise, if they can only operate in certain areas within national territories, they are classified as "subnational."

To group similar entities into one subcategory, we tabulate geographical operation with the jurisdiction levels of their ownership, namely, multinational, national, and subnational, to obtain a more homogeneous set of institutions in each subcategory.

Of the 47 (9%) multinational PDBs and DFIs, 8 (1.5%) operate without geographical restriction, whereas 39 (7.4%) focus their operations on certain regions.

1. Multinational PDBs and DFIs have two types of geographical operation: one is a global operational scope and the other is a regional operational scope. Of the 47 (9%) multinational PDBs and DFIs, 8 (1.5%) operate without geographical restriction, whereas 39 (7.4%) focus their operations on certain regions.

- **A. Multinational PDBs and DFIs with a global operational scope,** whose operation is not limited to specific regions or areas in developing countries. Below are some examples:

- The World Bank Group[9] has an international operational scope without restricting its activities to certain regions, though today it primarily focuses on developing countries, after having financed the reconstruction of developed countries in the wake of WWII.
- The New Development Bank, known as the BRICS bank, which was founded by Brazil, Russia, India, China, and South Africa in 2014. The BRICS bank is currently seeking to enlarge its membership to all UN member countries. Though its current operation focuses on the BRICS countries, its articles of agreement allow it to operate in developing countries and emerging markets.
- The International Fund for Agricultural Development (IFAD), a specialized agency of the United Nations, was founded in 1977 and carries out missions to finance agricultural development in developing countries.
- The European Investment Bank (EIB) has shareholders from a certain region (i.e., the 27 members of the European Union), and its main activity is to finance public and private projects to the benefit of its shareholders. As a complement, the EIB is also compelled to have an international perspective and be the financial arm of the EU members in Africa, Asia, and Latin America.

B. Multinational PDBs and DFIs with a regional operational scope, which concentrate their operations in a specific region. It is relevant to point out that most continents possess these kinds of banks, such as the African Development Bank, the Asian Development Bank, the Inter-American Development Bank, and the Development Bank of Latin America (CAF).

In addition, we also note that some public development banks, although not many, concentrate on a specific geographical space, which is not necessarily a subcontinent. Although not really "regional" from a geographical point of view, these institutions restrict their operations to certain areas and hence belong to this subcategory:

- The International Investment Bank (IIB), which is an institution that was established in 1970 by the Council for Mutual Economic Assistance (Comecon)—which was an economic organization from 1949 to 1991 under the leadership of the Soviet Union—and remains active today despite the fall of Communism.
- The Islamic Development Bank is also a particular case of a regional bank, as it extends credit only to Muslim-majority countries and ensures that financial instruments are compatible with Sharia, the Islamic law that is issued to verify the compatibility of the financing with the principles of the sacred Koran.

National PDBs and DFIs: The geographical operation of national PDBs and DFIs can be divided into three main categories in descending order of frequency: primarily national, both national and international, and primarily international.

[9] Though the IBRD focuses its operation mainly in MICs and the IDA concentrates its assistance primarily in LICs, we merge the two into the World Bank in our database, as explained in Section 3.1. Hence, the World Bank as a whole can provide financial support to both MICs and LICs.

2. National PDBs and DFIs: The geographical operation of national PDBs and DFIs can be divided into three main categories in descending order of frequency: primarily national, both national and international, and primarily international.

A. Primarily national: This category includes a vast majority of PDBs, as they are national banks extending financing exclusively to the benefit of the national territory and within its boundaries.

B. Both national and international: These national PDBs and DFIs provide financial support to clients both within and beyond their national boundaries. Apart from promoting domestic development, they may execute international financing on behalf of their governments, such as KfW from Germany or CDB from China. They may also provide export financing to national investors and participate in international project finance when a national provider is involved.

C. Primarily international: Some governments have created PDBs or DFIs to channel funds internationally by providing resources to other countries, especially developing countries. This is particularly the case of European Development Finance Institutions, which channel development financing, not always concessional, to developing countries. DEG from Germany or AFD from France[10] are cases in point.

Apart from the above three main categories of geographical operations, we have discovered three other rare subcategories, reflecting to some extent the varieties of PDBs and DFIs.

One rare subcategory is national PDBs and DFIs created by the national authorities to serve the needs of a particular subnational territory. For instance, the Bank of Northeast Brazil is owned by the central government. However, its operation is restricted to the Northeast region, one of the poorest regions of Brazil.

Another rare subcategory is national PDBs and DFIs that finance certain regions outside their national boundaries as well as providing financial support within their national territory. For example, the Development Bank of Southern Africa is wholly owned by the Government of South Africa, but it seeks to accelerate sustainable socio-economic development and improve the quality of life of the people of the Southern African Development Community.

Last but not least, governments have set up a series of funds that are dedicated to financing projects in specific regions abroad. The Albanian-American Enterprise Fund of the US is an example of a dedicated institution created to promote local investment in Albania.

Subnational PDBs and DFIs: Most subnational PDBs and DFIs concentrate their operations in their jurisdiction at the subnational level. However, in some notable cases, subnational governments have joined forces to create their own PDB to serve local governments throughout the national territory.

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[10] AFD of France is devoted to international financing, but it also has the mandate to finance French overseas territories, which are formally administrative department or regions of France. Setting aside this idiosyncratic historical reason, we classify AFD into the subcategory of "primarily international financing."

A. Subnational operational scope: Given a lack of adequate finance for projects and investments in their own local jurisdiction, some local governments have created their own local DFI to boost local development. Brazil and Vietnam have established quite a few subnational development banks—19 and 18 respectively. For instance, Brazil has different kinds of subnational banks. The country is a federation divided into states, all of different sizes, demography, and levels of income. Most Brazilian states possess a type of development bank or agency that meets the qualification criteria of PDBs and DFIs established in this paper. The large and mature Banco de Desenvolvimento de Minas Gerais (BDMG) or the smaller Agência de Fomento do Amapá (AFAP) exemplify this case. But we can also identify the case of the Banco Regional de Desenvolvimento do Extremo Sul (BRDE), which was founded on the initiative of the three Brazilian states that comprise the South region of the country. Despite being an official geographical division of the country, the South region does not contain any official political administration at this level. Therefore, the bank was created by the union of different states, and because these are decentralized government entities the origin of the bank's capital is classified as local government. Alongside the major national institutions, these two countries have set up local banks that channel financing to subnational territories. In addition, the recent development of a network of so-called "green banks" in the US by local entities is following that same philosophy.

B. National: As a rare but interesting case, local governments in five countries have jointly set up their own subnational PDBs and DFIs to operate in the entire territory to the benefit of sub-sovereign entities;

Table 4: Distribution of PDBs and DFIs by Geographical Operations at Different Ownership Levels

Geographical Ownership	Geographical Operation	Number	Percentage
Multinational	International	8	1.52%
	Regional	39	7.40%
Subtotal	-	47	8.92%
National	Only National	290	55.03%
	International/National	51	9.68%
	International	23	4.36%
	Others	5	0.95%
Subtotal	-	369	70.02%
Subnational	Subnational	106	20.11%
	National	5	0.95%
Subtotal	-	111	21.06%
Total	-	527	100%

this finances the local governments themselves. Just as countries within a region aggregate their forces in a regional bank to appear financially stronger than each member individually, local governments can do the same at the national scale. We identified only five institutions in this category: Iller Bankasi in Turkey, Agence France Locale in France, MuniFin in Finland, Kommuninvest in Sweden, and KommuneKredit in Denmark. At a time when decentralization is being highlighted as a potential key factor in order to efficiently manage, at the territorial level, the challenges of the transition toward the 2030 agenda, the small number of institutions dedicated to this specific mandate is probably questionable.

4.3 Size of PDBs and DFIs

As much as we have succeeded in identifying 527 PDBs and DFIs worldwide, the collection of key financial information, such as the size of their balance sheet, is still a challenge. For those banks publishing annual activity reports, or disclosing their annual accounts on their website, we conducted a systematic collection with the support of a team of analysts trained for this purpose. However, quite a few banks do not publish this information, or publish it with substantial delays. We identified 449 banks (85%) with proper data, which we will analyze in this subsection.

We use total assets as a criterion to classify PDBs and DFIs into five size categories: mega (more than $500 billion), large (between $100 billion and $500 billion), medium (between $20 billion and $100 billion), small (from $500 million to $20 billion), and micro (less than $500 million).

We use total assets as a criterion to classify PDBs and DFIs into five size categories: mega (more than $500 billion), large (between $100 billion and $500 billion), medium (between $20 billion and $100 billion), small (from $500 million to $20 billion), and micro (less than $500 million).

It is particularly important to isolate the “mega” category, as their size could be predominant and cause a bias to our analysis. As a matter of comparison, according to the S&P Global Market Intelligence

Table 5: Distribution of PDBs and DFIs by Asset Size

Category of Absolute Size	Number of PDBs and DFIs	Percentage	Total Assets (billion USD)	Percentage
Mega	9	2.00%	12,118.26	64.83%
Large	18	4.01%	3,547.29	18.98%
Medium	47	10.47%	2,195.85	11.75%
Small	209	46.55%	803.59	4.30%
Micro	166	36.97%	26.40	0.14%
Total	449	100%	18,691.39	100%

Table 6: The Top Ten PDBs and DFIs

Rank	Name of PDB	Country	Acronym	Establishment Year	Total Assets (USD billion)
1	Federal National Mortgage Association	US	Fannie Mae	1938	3,503
2	China Development Bank	China	CDB	1994	2,370
3	Federal Home Loan Mortgage Corp	US	Freddie Mac	1970	2,203
4	Agricultural Development Bank of China	China	ADBC	1994	1,007
5	Caisse des Dépôts et Consignations	France	CDC	1816	683
6	Export-Import Bank of China	China	ChinaExim	1994	656
7	European Investment Bank	-	EIB	1958	623
8	Kreditanstalt für Wiederaufbau	Germany	KfW	1948	568
9	Cassa de Depositi y Prestiti	Italy	CDP	1850	504
10	The World Bank	-	WB	1944	472

report, the number of private banks worldwide that have reported assets of more than $500 billion was only 57.[11]

A few (6%) mega and large banks possess 84% of total assets. A closer look at the distribution reveals that mega banks (representing just 2% of the sample) own 65% of total assets.

Table 5 presents the distribution of PDBs and DFIs by asset size. It shows that the Pareto principle[12] is robust: a few (6%) mega and large banks possess 84% of total assets. A closer look at the distribution reveals that mega banks (representing just 2% of the sample) own 65% of total assets. Table 6 lists the top 10 PDBs and DFIs.

The relative size of PDBs and DFIs is as important as their absolute size. It could be possible that though the absolute size of certain PDBs and DFIs is modest, they have substantial weight in relative terms in their respective countries or regions. We use total assets as a percentage of GDP in a given country or region

[11] S&P Global Market Intelligence, "The World's 100 Largest Banks, 2020," April 7, 2020, https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/the-world-s-100-largest-banks-2020-57854079.

[12] The Pareto principle, or the 80-20 rule, stipulates that 80% of the effects are the product of 20% of the causes.

Table 7: Descriptive Statistics of the Relative Size of PDBs and DFIs by Categories of Absolute Size

Category of Absolute Size	Observations	Average	Standard Deviation	Maximum	Minimum	Median
Mega	8	14.98%	7.60%	25.15%	4.60%	15.53%
Large	13	8.44%	5.78%	18.53%	2.38%	6.91%
Medium	33	5.34%	5.28%	24.44%	0.21%	3.53%
Small	152	2.83%	7.79%	13.60%	0.03%	0.99%
Micro	108	2.07%	5.32%	42.31%	0.00%	0.31%

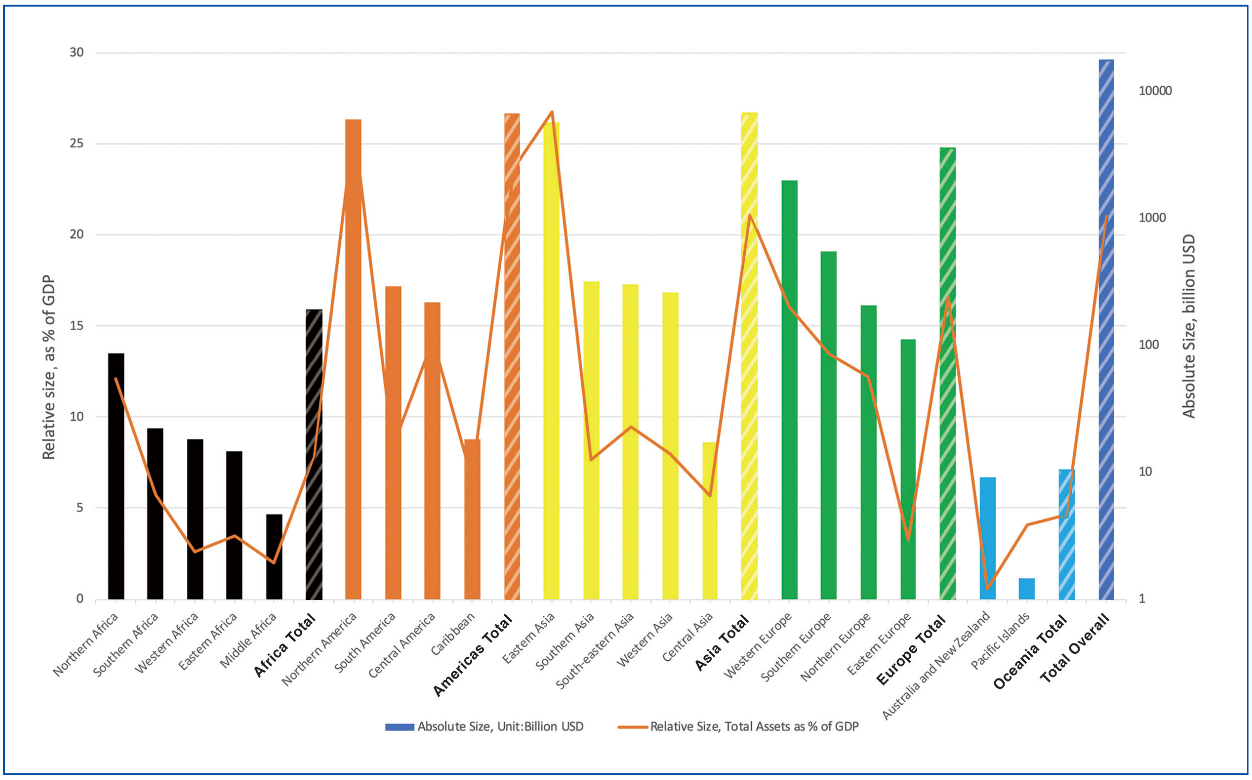
Note: Due to a lack of data about GDP at the subnational level, we exclude subnational PDBs and DFIs in the above analysis.

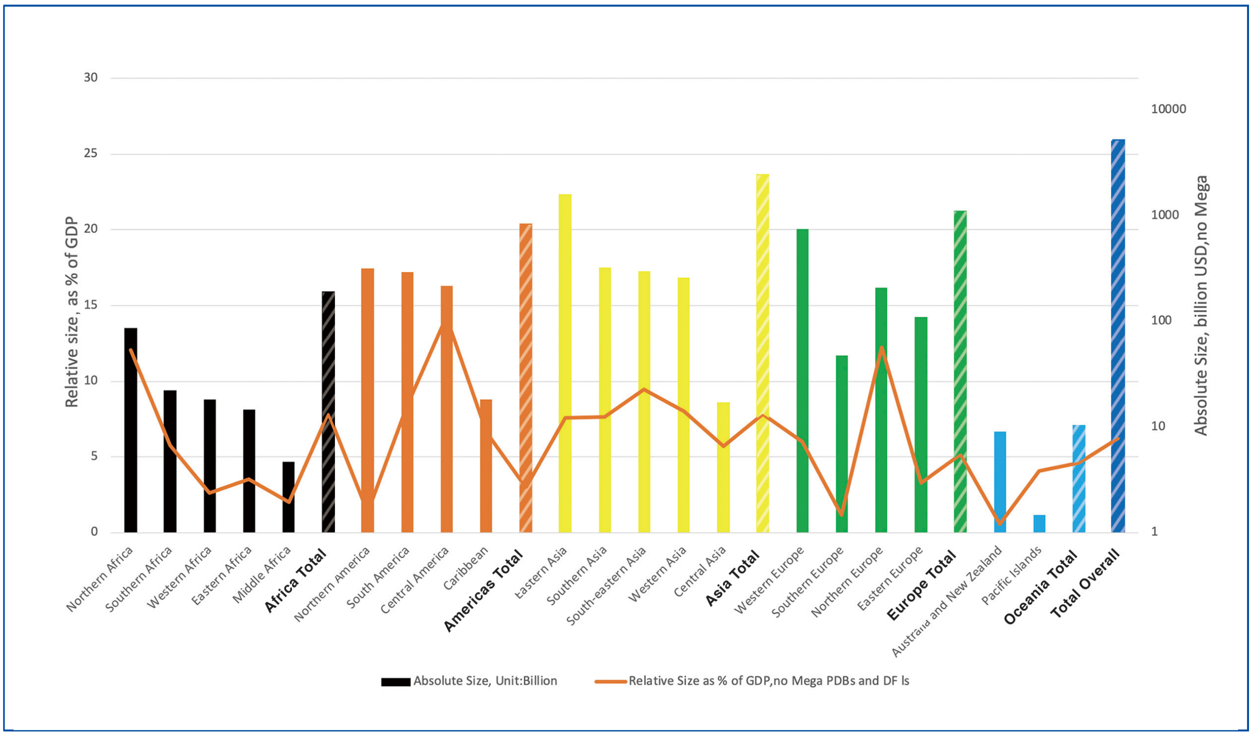
to evaluate the relative size of PDBs and DFIs. Table 7 indicates that even though in absolute terms many PDBs and DFIs are very small, in relative terms they may carry substantial weight in their respective countries or regions. Furthermore, we would like to compare the absolute weight of PDBs and DFIs with the relative weight by subregion. To evaluate the relative weight of PDBs and DFIs in each region or subregion, we calculate the aggregate total assets of all PDBs and DFIs in a specific region or subregion divided by the total GDP of all countries in that region or subregion.

Even though in absolute terms many PDBs and DFIs are very small, in relative terms they may carry substantial weight in their respective countries or regions.

Figure 4 compares the economic weight of PDBs and DFIs by subregion. The right axis presents in the bar chart the absolute size of assets—on a logarithmic scale to cope with the tremendous difference in size between banks—, while the left axis presents the relative weight (total assets as a percentage of GDP) by using the line chart. The inclusion of mega banks clearly shows that their weight is significant on a global scale, even in large economies such as the US or China. In the Northern America and Eastern Asia subregions, they account for 26% and 27% of the GDP of their respective subregion. The picture is dramatically different if we exclude mega banks. We then note that the relative weight is most significant in Central America, accounting for 14% of GDP, even though the absolute size is on a par with Northern America and South America. Another interesting conclusion can be drawn in Africa: although the continent concentrates some of the world's poorest countries, both the absolute size and the relative weight are small compared to the rest of the world. This is particularly compelling, as Africa is one of the regions in the world where the mandate and needs for PDB and DFI activities are most relevant, as compared to more mature economies with a lively private sector market. This paradox is clearly outlined by the figures extracted from our database.

Figure 4: Comparison between the Absolute Size and Relative Weight of PDBs and DFIs by Subregion (with and without mega PDBs and DFIs)





Note: The scale of absolute size is adjusted by common logarithm.

▪ 4.4 Official mandate

In this subsection, we use official mandates to classify PDBs and DFIs. The official mandate stands for the mission to fulfill a particular public policy that a PDB or DFI is mandated to carry out. These missions are often related to one or more financing needs for achieving the Sustainable Development Goals in a context in which private commercial banks or capital markets are not willing or able to fund such financing needs.

We first classify the official mandates into flexible or not. Flexible means that official mandates are not confined to a specific mission. If they are not flexible, we further classify them by specific sectors or clients, including rural and agricultural development, promoting exports and foreign trade, social housing, infrastructure, international financing of private sector development, local government, and micro, small, and medium-sized enterprises. We have identified seven main types of mandates:

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General Development (FLEX): PDBs and DFIs with a flexible development mandate are mandated to support social, economic, and environmental development without confining their missions to specific sectors or clients. This type of PDB is usually very large. Representative cases include CDB in China, KfW in German, and many MDBs.

Rural and Agricultural Development (AGRI): Agricultural development banks or financial institutions, with a specific mandate to support the agricultural industry and mostly concerned with small-scale family farming, since agriculture is certainly the key sector, while the price of agricultural products is volatile and the income of farmers is relatively low. Agricultural PDBs can be as big as the Agricultural Development Bank of China, with $1 trillion of total assets, or as small as the Banco Agropecuario in Peru, with a size of $96 million.

Promoting Exports and Foreign Trade (EXIM): Exim banks use financial facilities such as letters of credit, forfaiting, and export factoring to promote trade. Forty countries have established an Exim bank.

Social Housing (HOUS): This type of PDB or DFI specializes in financing buildings or housing, most often for underprivileged populations. To provide social housing, PDBs and DFIs utilize financial instruments both in the "primary market" with traditional mortgage lending and in the "secondary market" with mortgage-based securities and asset-based securities to facilitate the liquidity of the mortgage market. Two mega banks, Freddie Mac and Fannie Mae, fall into the latter category, with $2.2 trillion and $3.5 trillion in total assets respectively. See Box 6 for a brief analysis of Freddie Mac and Fannie Mae.

Infrastructure (INFRA): Infrastructure financing is often characterized by long-term, large-scale, and high-uncertainty projects, so commercial banks and private capital markets alone are unwilling or unable to fill the infrastructure financing gap. Specialized PDBs are DFIs are established to fill the infrastructure deficit. Typical cases are the Asian Infrastructure Investment Bank (AIIB) and PT Sarana Multi Infrastruktur in Indonesia.

International Financing of Private Sector Development (INTL): This group of PDBs and DFIs specializes in financing private or public companies (commercially managed), rather than providing financial support to sovereign governments. A typical example is the International Finance Corporation at the World Bank Group. European countries in particular have created a strong network of DFIs to promote the private sector abroad or to accompany their own national actors in investing in emerging or low-income economies.

Local Government (LOCAL): Considering the growing importance of the megalopolis and the role of cities in delivering infrastructure, transport, housing, jobs, and a decent life to many, it is worth identifying PDBs and DFIs that serve local governments. Local governments usually face more challenges compared with central governments in raising funds to finance key sectors such as primary education and municipal utilities. Some governments have established specialized financial institutions to finance municipalities, states, and local governments. Typical PDBs and DFIs include Iller Bankasi in Turkey, KommuneKredit in Denmark, and the Cities and Villages Development Bank in Jordan. Some international institutions also provide financing to local governments.

Micro, Small, and Medium-sized Enterprises (MSME): This group of PDBs and DFIs is devoted to financing micro, small, and medium-sized enterprises. Typical cases include the Banque publique d'investissement (BPI) in France, the Business Development Bank of Canada, the Industrial Bank of Korea, the Small Enterprise Finance Agency in South Africa, and the Small Industries Development Bank of India.

PDBs and DFIs with FLEX mandate are the main type, accounting for 35%. In terms of single-mandate PDBs and DFIs, MSME mandate is the most popular one, accounting for 28%,

Figure 5 presents the distribution of PDBs and DFIs by official mandate. PDBs and DFIs with FLEX mandate

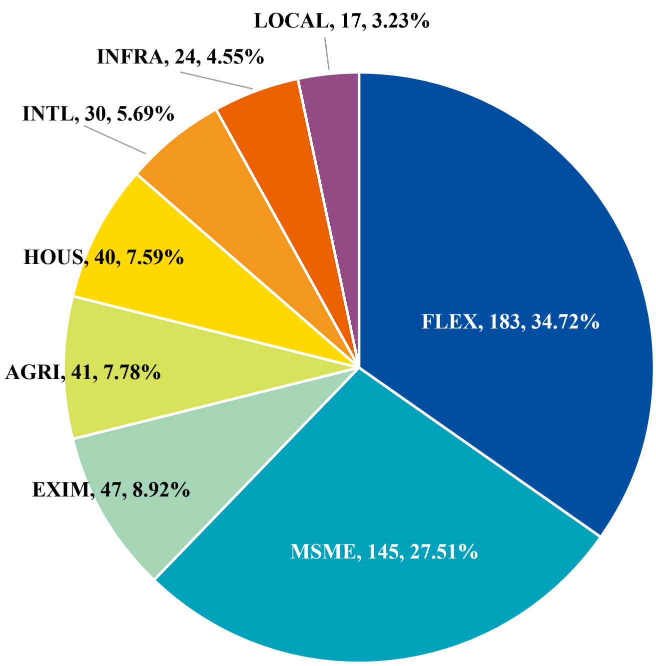

Figure 5: Distribution of PDBs and DFIs by Official Mandate

are the main type, accounting for 35%. In terms of single-mandate PDBs and DFIs, MSME mandate is the most popular one, accounting for 28%, followed by EXIM (9%), AGRI (8%), HOUS (8%), INTL (6%), INFRA (5%), and LOCAL (3%).

However, when total assets are factored in, the relative weight of PDBs and DFIs changes significantly for MSME and HOUS, with the former's share shrinking from 28% to 5%, and the latter's increasing from 8% to 36%. Given the gigantic size of mega banks, we exclude mega banks to analyze the relative weight of PDBs and DFIs by mandate. It turns out that the pattern still holds. This indicates that HOUS-focused PDBs and DFIs may have larger total assets on average.

Furthermore, we would like to analyze whether the size of total assets varies across different mandates. Table 8 shows that on average HOUS-focused PDBs and DFIs have the largest total assets, whereas INFRA, INTL, and MSME-focused PDBs and DFIs have modest total assets, at about 5% of that of HOUS-focused ones. Another interesting finding is that INFRA, INTL, and MSME-focused PDBs and DFIs have relatively small variation in their size within the subcategory, whereas HOUS, FLEX, and AGRI-focused PDBs and DFIs have relatively large variation in their size.

On average HOUS-focused PDBs and DFIs have the largest total assets, whereas INFRA, INTL, and MSME-focused PDBs and DFIs have modest total assets

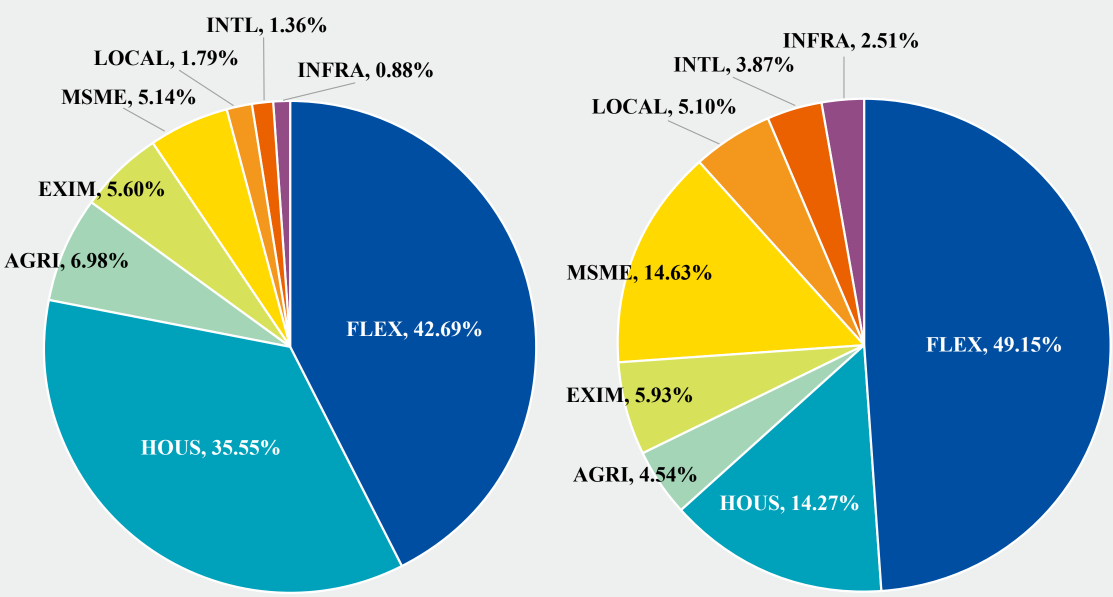

Figure 6: Distribution of PDBs and DFIs' Assets by Official Mandate (with and without mega PDBs and DFIs)

Table 8: Summary Statistics of PDBs and DFIs' Total Assets by Official Mandate

Classifications		Official Mandate							
		FLEX	AGRI	EXIM	HOUS	INFRA	INTL	LOCAL	MSME
Statistics (unit: Billion USD)	Obs	157	34	43	35	18	28	15	119
	Mean	50.82	38.37	24.33	189.86	9.16	9.09	22.34	8.08
	Min	0.002	0.019	0.060	0.048	0.021	0.017	0.005	0.002
	Max	2370.31	1006.53	656.38	3503.32	50.75	99.26	83.97	275.53
	Std	215.86	172.59	99.89	686.03	16.86	22.73	27.23	32.86
	Median	1.41	1.20	3.42	5.32	0.96	1.32	4.89	0.54
Number of PDBs and DFIs by Size	Mega	5	1	1	2	0	0	0	0
	Large	12	1	0	3	0	0	0	2
	Medium	13	2	6	5	4	2	6	9
	Small	66	18	27	16	6	20	6	50
	Micro	61	12	9	9	8	6	3	58

Box 6: A Brief Introduction to Fannie Mae and Freddie Mac

Fannie Mae and Freddie Mac are short for the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation. The establishment of Fannie Mae dates back to the 1930s, when, following the Great Depression, lending institutions dared not provide loans to the housing market. The US established Fannie Mae as part of President Franklin D. Roosevelt's New Deal with the aim of encouraging the federal government to provide financial support to local banks to stimulate the mortgage market to finance buildings and housing. Later on, in the 1960s, due to the financial distress caused by the Vietnam War, Fannie Mae was privatized and operated as a government-sponsored enterprise (GSE). To avoid a monopoly, a second GSE, Freddie Mac, was set up by Congress in the 1970s. However, in 2008, the two mortgage giants were hit by the subprime mortgage crisis and were mired in losses. Subsequently, in September of the same year, the US government announced that it would take over and pump capital into Fannie Mae and Freddie Mac.

Though Fannie Mae and Freddie Mac are not development banks in a general sense, in that they do not directly provide loans or development finance, they meet our five qualification criteria. First, they are stand-alone entities as they have a separate legal personality, dedicated personnel, a separate financial account, and are not set to achieve short-term, specific goals. Second, though operating in the secondary market, they deploy fund-reflow-seeking financial instruments as their main products and services. Third, their main funding source is issuing bonds guaranteed by the government. Fourth, they have a public policy-oriented official mandate, i.e., proactively financing buildings and housing, since their establishment. Fifth, the government is their major shareholder and plays a steering role in their corporate strategies.

It is worth mentioning that there is an emerging discussion in the US on the privatization of Fannie Mae and Freddie Mac. If they are privatized and the government ceases to play a steering role in their corporate strategies, they will be excluded from our database.

4.5 National PDBs and DFIs by income levels

In this subsection, we analyze whether national PDBs and DFIs from countries with different income levels present any distinctive patterns. Here we adopt the World Bank's income level classification, which classifies countries into four categories: high-income countries (HICs), upper middle-income countries (UMICs), lower middle-income countries (LMICs), and low-income countries (LICs).

Table 9 shows that a majority of countries have established national PDBs and DFIs across different income levels. In terms of the average number of national PDBs and DFIs, LICs have 0.8 PDBs and DFIs, LMICs have 2.4, UMICs have 2.0, and HICs have 2.0. LICs have the lowest average number of national PDBs and DFIs. 29 LICs have just 18 PDBs and DFIs. This may imply that these countries may severely depend on bilateral and multilateral donors to enhance development rather than their own PDBs and DFIs. In terms of the relative weight of PDBs and DFIs at different income levels (as measured by total assets of PDBs and DFIs as a percentage of aggregate GDP in each income group), when including mega PDBs and DFIs, their weight is as high as 20% in HICs and UMICs, much higher than other income levels. But when excluding mega PDBs and DFIs, the relative weight is the highest in LMICs, accounting for 7%.

In terms of the average number of national PDBs and DFIs, LICs have 0.8 PDBs and DFIs, LMICs have 2.4, UMICs have 2.0, and HICs have 2.0. LICs have the lowest average number of national PDBs and DFIs.

Table 10 shows that all mega and large national PDBs and DFIs come from HICs and UMICs, whereas LICs only have small and micro ones. It is worth noting that more than half of national PDBs and DFIs from LICs have not disclosed data on total assets. They are likely to be small in terms of their asset size.

Table 9: Distribution of National PDBs and DFIs by Income Level

Income Level	Number of Countries	Number of countries with PDBs or DFIs	Percentage of countries with PDBs or DFIs	Number of National PDBs and DFIs	Number of National PDBs and DFIs per Countries	Economic Weight % GDP	Economic Weight % GDP, no Mega PDBs and DFIs
HICs	62	50	80.6%	122	2.0	19.6%	5.8%
UMICs	55	41	74.5%	108	2.0	19.2%	3.4%
LMICs	49	41	83.7%	116	2.4	6.7%	6.7%
LICs	29	18	62.1%	23	0.8	2.0%	5.8%
Total	195	150	76.9%	369	1.9	18.5%	5.1%

Table 10: Distribution of the Number of National PDBs and DFIs (by Income Level) and Multinational Ones by Size Category

Classification	Income Levels								Multinational	
	HICs		UMICs		LMICs		LICs			
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Mega	5	4.10%	3	2.78%	0	0.00%	0	0.00%	1	2.13%
Large	12	9.84%	1	0.93%	0	0.00%	0	0.00%	3	6.38%
Medium	16	13.11%	12	11.11%	5	4.31%	0	0.00%	8	17.02%
Small	51	41.80%	56	51.85%	41	35.34%	4	17.39%	27	57.45%
Micro	26	21.31%	29	26.85%	47	40.52%	6	26.09%	6	12.77%
Undisclosed	12	9.84%	7	6.48%	23	19.83%	13	56.52%	2	4.26%
Total	122	100%	108	100%	116	100%	23	100%	47	100%

Table 11 shows that INTL-focused national PDBs and DFIs are all from HICs, as it is one of the ways through which development finance is channeled, especially in Europe. One rationale may be that HICs are abundant in capital, but investing in emerging economies and developing countries entails greater uncertainty and higher risks. Hence, HICs established INTL-focused PDBs and DFIs to overcome the first-mover challenge. But there are very few AGRI-focused national PDBs and DFIs from HICs, as their cooperative systems are full-fledged, smallholder farms are being phased out, and private banks provide direct financing to large-scale agriculture. More than half of national PDBs and DFIs from LICs have flexible mandates, probably because there are various market failures at early development stages and such market failures evolve as LICs move to more advanced stages of economic development. MSME-focused national PDBs and DFIs are evenly distributed across HICs, UMICs, and LMICs, as MSMEs are everywhere the backbone of the economy. INFRA-focused national PDBs and DFIs are more concentrated in LMICs. It is worth investigating in the future why and how the mandates of PDBs and DFIs in countries with different income levels may vary, as countries face different development challenges when they move toward more advanced stages.

Table 11: Distribution of the Number of National PDBs and DFIs (by Income Level) and Multinational Ones by Official Mandate

Classification	Income Levels								Multinational	
	HICs		UMICs		LMICs		LICs			
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
FLEX	30	24.6%	36	33.3%	37	31.9%	13	56.5%	21	44.7%
AGRI	4	3.3%	15	13.9%	16	13.8%	5	21.7%	1	2.1%
EXIM	21	17.2%	12	11.1%	8	6.9%	1	4.3%	5	10.6%
HOUS	14	11.5%	13	12.0%	10	8.6%	1	4.3%	1	2.1%
INFRA	1	0.8%	2	1.9%	9	7.8%	0	0.0%	4	8.5%
INTL	17	13.9%	0	0.0%	0	0.0%	0	0.0%	13	27.7%
LOCAL	4	3.3%	4	3.7%	3	2.6%	0	0.0%	0	0.0%
MSME	31	25.4%	26	24.1%	33	28.4%	3	13.0%	2	4.3%
TOTAL	122	100%	108	100%	116	100%	23	100%	47	100%

V. Conclusion

Our report has refined the qualification criteria of PDBs and DFIs in the inaugural New Structural Economics Development Financing Research Report by INSE. The five refined qualification criteria are: (1) a stand-alone entity; (2) fund-reflow-seeking financial instruments as the main products and services; (3) funding sources go beyond periodic budgetary transfers; (4) proactive public policy-oriented mandate; and (5) government steering of corporate strategies. This analysis of the qualification criteria enables us to grasp the core features of PDBs and DFIs, as distinct from similar institutional arrangements such as aid agencies, government credit programs, and state-owned commercial banks with policy functions.

We then take a step further to classify PDBs and DFIs by ownership structure (who owns them), geographical operation (where they operate), asset size (how big their total assets are), official mandate (what they aim to do), and income levels of their home countries (for national PDBs and DFIs, which income level their home country belongs to). This helps us to grasp the vast diversity within the PDB and DFI family.

Moving forward, we will periodically apply the five qualification criteria to identify PDBs and DFIs worldwide, and update the list to incorporate new ones and delete those that have been commercialized or abolished. Meanwhile, we plan to use diverse data collection methodologies—including manual data collection, machine learning, and expert verification—to collect and triangulate the publicly available quantitative variables such as financial indicators. We hope that our persistent effort to build the database will lay the foundation for rigorous academic and policy research in the future.

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