IFPRI Discussion Paper 02349

July 2025

Banking Systems, Capital Markets, and Financing the Transformation of Food Systems

The Role of Macroeconomics, Regulations, and Incentives

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Abstract

Improving food systems requires significant expenditures and investments from both the public and private sector. In the case of public outlays, the decisions are taken by the government or by multilateral international organizations (with governments as their owners), while, obviously, private expenditures and investments depend on choices by the private sector. These private financial flows are guided by the decisions of consumers, producers, banking system institutions, and operators in capital markets. Public policy cannot dictate directly how those private actors act (for instance, governments cannot mandate that consumers must eat healthy diets), but it can influence those decisions through adequate macroeconomic, regulatory, and incentive frameworks. This discussion paper will focus briefly on some ideas about how those frameworks can reorient and expand current levels of funding towards food systems transformation, focusing particularly on banking systems and capital markets. First, it briefly analyzes the levels of financial flows in the banking system and capital markets. Then it looks at the role of macroeconomic policy in influencing the operations of food systems, followed by suggestions about other regulatory and incentive frameworks to create healthy, equitable, sustainable and climate-resilient food systems.

Keywords: Financing, food systems, banking systems, capital markets

Acknowledgments

This work was, in part, financed by IrishAid.

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INTRODUCTION

The proper operation of food systems is an important component of any global effort to achieve the objectives of the 2030 Agenda and Paris Agreement. Improving food systems requires significant expenditures and investments from both the public and private sector. Those outlays come mainly from small agricultural producers, large commercial companies and a variety of small and medium enterprises (SMEs) within agri-food value chains. The internal cash flows of the operators of those food value chains (which in turn depend on consumers' expenditure on food) are the main sources of financing for the expenditures and investments required. But those flows may be, and are, supplemented by sources coming from outside agri-food systems (what in Díaz-Bonilla, Swinnen, and Vos, 2021 has been called "external flows"). These "external flows" can be broadly categorized into four groups: international development funds; public budgets; banking systems; and capital markets.[1]

Decisions regarding some of those flows are taken by the government or by multilateral international organizations (with governments as their owners), whereas others depend on the private sector's choices. These private financial flows are guided by the decisions of consumers, producers, banking system institutions, and operators in capital markets. Public policy cannot dictate directly how those private actors act (for instance, governments cannot mandate that consumers must eat healthy diets), but it can influence those decisions through adequate macroeconomic, regulatory, and incentive frameworks. This policy note will focus briefly on some ideas about how those frameworks can reorient and expand current levels of funding towards food systems transformation, focusing particularly on banking systems and capital markets.

In what follows we will first briefly discuss the levels of financial flows in the banking system and capital markets and note that they do not currently reach the scale and composition needed to achieve the desired objectives in food systems. Then we will discuss the role of macroeconomic policy in influencing the operations of food systems, followed by suggestions about other regulatory and incentive frameworks to create healthy, equitable, sustainable and climate-resilient food systems.

FINANCIAL FLOWS IN BANKING SYSTEMS AND CAPITAL MARKETS

There is no data on bank lending for all actors in agri-food value chains, but FAOSTAT collects information on the loan portfolio (not the loan flow) for primary production activities related to agriculture, fisheries and forestry (AAF). Table 1 shows the data on the value of loans (billions of 2015 constant dollars), the share of AAF loans on total banking credit, and the "agricultural orientation index" (AOI),[2] by regions for the period 2020–2022.

[1] The approach of flows of funds used in the framework proposed by Díaz-Bonilla, Swinnen, and Vos, 2021 is in line with how national accounts are structured (Pyatt and Round, 1985) and with Article 2c of the Paris Agreement that defines as an objective aligning all financial flows towards the objectives of mitigation (Article 2a) and adaptation and resilience (Article 2b) (see also Standing Committee on Finance biannual report: UNFCCC, 2021).

[2] AOI is the percentage of AFF loans over total credit divided by the percentage GDP of the AFF activities. A number smaller/equal/greater than 1 would indicate that the AFF activities are getting less/equal/more banking loans than their percentage in overall economic activity.

Table 1. Banking loans to agriculture, fisheries and forestry (average 2020–2022)

Region	Billion US$, 2015 prices	Share of Total Credit (%)	AOI
Africa	22.6	4.04	0.21
Asia	554.4	2.16	0.29
Europe	300.3	3.34	1.92
LAC	35.3	3.42	0.62
Northern America	87.7	0.91	1.01
Oceania	94.7	8.27	2.25
World	1094.9	2.32	0.53

Source: Diaz-Bonilla 2021a, 2023a, b, and c

The AOI is clearly below 1 in developing regions (Díaz-Bonilla, 2023), showing that agriculture is getting a proportion of loans that is inferior to its participation in the economy. Using AOIs by countries facilitates some benchmarking, which can then be utilized to analyze the reasons for low values of the indicator and help find ways to improve credit coverage. This exercise requires a more detailed country analysis of the operation of the banking system, with a focus on agriculture, rural development, and food systems. The general question to consider is how the banking system performs the triple function of operating payment systems, intermediating between savings and investments, and providing risk-management instruments (Díaz-Bonilla, 2015), while helping to finance the transformation of food systems.

Capital markets[3] are another important source of external funding for operators in food systems both nationally and internationally. Capital markets can support social and environmentally oriented investments, a potentially relevant source of funds for the transformation of food systems, considering the current global trend toward investments that include broader societal objectives along with financial returns. They include operations with environmental, social and governance (ESG) objectives (the broader category of sustainable and responsible financing), along with more specific instruments such as impact investment, and “thematic” bonds (such as green bonds, social bonds, and sustainability bonds) all of which attempt to generate a measurable positive social and environmental impact along with a financial return (see KPMG 2019; and International Capital Markets Association 2020).[4] Because of the variations in definitions, data on the actual volume of operations vary depending on the source (Table 2).

Table 2. ESG, Impact investment, and thematic bonds (billions of current dollars)

	Stock ($USD Billions)	Flow ($USD Billions)	Year of the estimate
ESG (a)	30000	78	2018
Impact investors (b)	715	n/a	2020
Green bonds (c)	750	260	2019
Social bonds (d)	167	131	2020

Source: Díaz-Bonilla 2021a, using the following: (a) KPMG (2019); (b) GIIN (2020); (c) Climate Bonds Initiative (2019); and (d) Amundi Asset Management (2020). The large value of the ESG stock is because of the broad definition of its environmental, social and governance components. The other categories, which are only some of the assets counted as having ESG components, are defined more narrowly.

However, the largest shares of investments in capital markets appear to take place in developed countries, and the amounts oriented towards agriculture and the transformation of food systems are small

[3] The main difference with banking systems is that capital markets do not offer payment services (by maintaining checking deposits), but they perform the other two functions mentioned of intermediating savings and investments and offering risk management instruments.

[4] There is some information about foreign direct investments (FDI) for AFF and Food, Beverage and Tobacco, collected by UNCTAD. That information is not reported here because of limited current coverage. Also, FDI for agriculture and agri-industries, in the aggregate, is part of the internal flows within food systems, even though for individual countries, they can be considered external financing.

(Díaz-Bonilla, 2021a and 2023; Diaz-Bonilla and Echeverria, 2022). For instance, of the sample of green bond issuers surveyed by the Climate Bond Initiative (2022), 26 countries have issued about 231 billion USD (covering up to the third quarter of 2022), but only about 10% was originated by developing countries (and China represented the largest percentage with about half of the total amount).

In particular, financial flows for climate change in the agriculture, forestry, and land use (AFOLU) sector (coming from all sources, and not only capital markets), was estimated to be about US$20 billion annually—less than 4 percent of total climate finance (see Díaz-Bonilla and Echeverria 2022 and the sources cited there). However, the financial requirements for a climate-positive transformation of food systems and meeting other Sustainable Development Goals are far larger. Many of the cost estimates for developing countries (without China) suggest the need of additional financing of $3 trillion-$4 trillion (CGD, 2023) annually, and up to $680 billion (UNDS, 2023) annually for food systems only.

How can the macroeconomic, regulatory, and incentive frameworks help to mobilize the needed financial flow? The next sections present some ideas of topics and interventions to be considered, organized into five groups: macroeconomic policy; overall programming and incentives; topics related to banking systems; topics related to capital markets; and some conclusions.

MACROECONOMIC POLICY

Adequate macroeconomic policies are basic requisites for the operation of food systems (Díaz-Bonilla, 2015). A key macroeconomic objective is to manage aggregate demand to ensure stable growth and avoid economic crises. If this is not done properly, the economy may experience recessions (if aggregate demand is below aggregate supply) or high inflation and balance of payments crises (if aggregate demand significantly exceeds aggregate supply). Macroeconomic policies also influence growth through macro prices, such as the exchange rate and the interest rate. Economic crises may result from imbalances between aggregate demand and aggregate supply and/or misalignments in macro prices.

Many of the economic crises in developing countries result from inadequate domestic macroeconomic policies, such as large fiscal deficits, in part financed by excessive money creation or public debt issuance, and fixed exchange rates that end up being grossly overvalued; in turn this combination leads to fiscal and balance of payment crises, which force sharp devaluations, affecting the banking system (particularly if it is “dollarized”), and cause unemployment and inflation (Díaz-Bonilla, 2015; a recent example was Argentina in 2018–2019).

Developing countries also need to always be prepared for exogenous shocks, such as natural catastrophes or economic shocks related to volatility in global growth, capital flows, interest rates, and prices of commodities, which combined with deficient macroeconomic policies have historically led to deep crises. Those crises increase poverty and food insecurity and deteriorate human capital (health and education). They also tend to affect long-term growth prospects because they impair installed productive capital, and their recurrence increases uncertainty, thereby reducing investment and future capital. Crises also tend to leave a legacy of public and private debt, weakening fiscal accounts, banking and financial systems, all of which negatively impacts growth, efficiency, and equity (Díaz-Bonilla, 2015).

Economic policies needed to align aggregate demand and supply, support growth, avoid crises, and manage exogenous shocks include monetary, fiscal, exchange rate, and trade measures. History and economic analysis suggest several policy prescriptions:

1. Strengthen the fiscal position of the public sector, reducing debt ratios and building countercyclical funds during good times. Given the increase in the debt levels associated with the COVID-19 pandemic in many developing countries, they will need international support. Initiatives, such as the Common Framework,[5] proposed by the G20 and endorsed by Paris Club countries[6], can reduce the burden of debt in developing countries and expand their fiscal space can help. But they are advancing too slowly and should also be expanded to middle income countries. Another initiative that would help to strengthen resilience is the inclusion of automatic clauses in public loans that allow debt suspension or stretching of payments when systemic shocks occur, such as climate disasters[7] and pandemics. Also, debt-for-climate (an agreement between a sovereign and its creditors that redirects a portion of debt obligations toward investments in climate action[8]) and debt-for-nature swaps (the conversion of a debtor country's external debt into a commitment to fund a designated environmental project[9]) (Georgieva, Chamon, Thakoor, 2022) can reduce fiscal pressures, freeing resources to address SDGs and the Paris Agreement objectives. Finally, developing countries should also benefit from the implementation of international initiatives to control corruption, tax evasion, and other practices that erode their tax bases. For instance, the October 2021 OECD member agreement that established a global minimum effective corporate tax rate of 15% for large multinational enterprises, if widely implemented will benefit developing countries (OECD, 2022).

2. Avoid rigid and appreciated real exchange rates. Overvaluation of the exchange rate leads to trade deficits and is also associated with excessive accumulation of foreign debt, low growth, and widespread adoption of a foreign currency (or "dollarization of the economy"). It often ends up in damaging economic, financial, and balance-of-payment crises, which increase poverty and food insecurity.

   Food systems, and agricultural primary production within them, with their large component of tradable goods, are particularly affected by exchange rate policies. Many times, developing countries try to compensate with trade protection which is usually a macroeconomic problem linked to excess aggregate demand and/or misaligned exchange rates.

3. Monetary, financial, and exchange rate policies must be considered in an integrated framework that defines a realistic inflation target, utilizes the different monetary instruments in a coordinated manner, and ensures that the exchange rate is properly valued.

4. Maintain reasonable levels of reserves in the central banks as a precaution against possible global declines in growth and commodity prices, as well as reversals in capital flows.

These policies are usually managed by the Central Bank and the Ministry of Finance or Economy. The capacity of institutions in the agricultural sector and food systems to influence the design of macroeconomic policies is limited. There is often a lack of knowledge over how macroeconomic policies impact agriculture and food systems. Capacity building for the Ministries of Agriculture and other agencies related to food systems will be needed to foster a knowledge-based dialogue with macroeconomic public entities.

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[5] Questions and Answers on Sovereign Debt Issues (imf.org)

[6] The CF was established to support low-income countries through orderly and coordinated debt restructurings, ensuring broader participation from a wider range of creditors Common Framework (Paris Club). There are 22 permanent members of the Paris Club that include the

[7] Natural Disaster & Pandemic Clauses Are Critical - Foreign Affairs and Foreign Trade

[8] Debt for climate swaps: exploring avenues and opportunities (Green Climate Fund)

[9] Debt-for-nature swaps: The Right Kind of Climate Finance or Not? (The Climate Reality Project)

INTEGRATED PROGRAMS AND INCENTIVES FOR FOOD SYSTEMS

Currently, the country-based programs for the transformation of food systems are approached under two separate tracks: the National Pathways delineated at the UNFSS, and the Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs) of the Paris Agreement within the negotiations under the UNFCCC. The latter plans cover more than food systems and the national pathways include more than only climate change objectives. But these approaches need to be integrated into comprehensive national plans to achieve the transformation of food systems. During the last COP28, the Convergence Initiative[10] was announced to integrate the work of the UN agencies on these topics.

Such coordination must extend beyond the UN system and must be conceptually and institutionally owned and guided by national governments. Achieving the SDGs and the Paris Agreement objectives requires individual developing countries to develop their own programs, bringing together the separate work tracks mentioned, and which must have detailed objectives, policy instruments, institutional arrangements, costs, and financing. Unfortunately, the UNFSS summary (UNFSS, 2021) looking at the development of outputs as steps towards the implementation of a Food Systems Transformation Pathway shows that among surveyed countries, only 33% acknowledged "Costing of the pathway/implementation plan" and just 29% mentioned having an "Investment plan/strategy for the implementation of the pathway." Also, the report notes that only a couple of countries referenced their NDCs in the national pathways.

Authorities in developing countries are overwhelmed by the multiple demands on their time placed by so many international initiatives, on top of having to attend to their immediate problems (particularly food security, with the different definitions; see Díaz-Bonilla, 2023d). Therefore, they need support to develop those integrated programs; otherwise, additional funding will not be utilized properly.

Those integrated programs must also include other aspects of the regulatory and incentive framework. For instance, it may include governance of carbon markets, legislated net-zero targets (including related sectoral targets), and adequate pricing of carbon and other externalities, all of which will be crucial to guiding decisions of consumers, producers and other agents in food systems. In this regard, the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board has suggested disclosure of climate-related risks that could help steer financial institutions away from investments adversely affecting climate resilience.

Furthermore, it would also be useful to improve the regulatory frameworks to guide food consumption and production decisions towards sustainable and healthy diets. Consumers want affordable, convenient, good-tasting, and safe food, and many claim that they value healthy food and environmental sustainability; however, their actual choices may not reflect those aspirations. Governments can influence the food environment—including prices, incomes, preferences, and the market structure that frame consumers' decisions—using taxes and subsidies, income support, nutritional information and regulations (for example, labeling requirements, advertisement guidelines, school lunches) (Díaz-Bonilla et al, 2018b).

On the supply side, governments already influence the decisions of food value-chain operators using regulations and controls related to health, nutrition, and food safety. Other interventions will be needed to address climate and social objectives, such as stopping deforestation and the displacement of vulnerable communities from their land and reducing food loss and waste. For example, producers and consumers could be charged for the effective environmental costs of their waste. In addition, pledges by food companies to achieve net-zero carbon or net-zero emissions may require public mechanisms

[10] https:/www.unfoodsystemshub.org/docs/unfoodsystemslibraries/convergence-initiative/the-convergence-initiative-framework-brochure.pdf

for monitoring and enforcement. Some of these pledges, however, have been watered down or just abandoned recently by several companies.

TOPICS RELATED TO BANKING SYSTEMS

A basic issue in banking systems is the origin of the funds that are intermediated by them. These can include sources such as budget allocations by the government; monetary sources related to the money supply (such as rediscounts by the monetary authorities or the reduction of the minimum reserves required when a bank lends to certain specific sectors); checking and saving deposits; regulatory mandates (such as bank loans mandatorily directed to the agricultural sector of a certain percentage of deposits or banks mandated to buy government bonds dedicated to fund agricultural lending programs); financing from the rest of the world, such as loans from international organizations that are then directed to farmers, usually through public sector banks; borrowing in capital markets; and others. Each mechanism has its advantages and disadvantages that must be analyzed in each country. Financial and banking regulations determine the possibility of using and scaling up different sources.

A second level of analysis is the type of banking and financial institutions (or agents) that can intermediate those funds. There is a wide variety of formal and informal operators that provide loans, manage savings, and offer other financial services to the rural population and to the agri-food system in general. They include general public development banks, agricultural development banks, commercial banks, savings and credit cooperatives, community and village banks, microcredit formal institutions, NGOs and charitable institutions, and informal lenders.

Many developing countries during the 1960s and 1970s used a series of interventions in the banking and financial system to pursue developmental objectives, such as using public banks to direct credit to certain activities at below-market interest rates. These approaches were criticized for leading to "financial repression" (McKinnon, 1973), which, it was argued, tended to reduce growth and foster inefficiencies and corruption. These analyses were later extended to similar financial operations for the agricultural sector (see Adams, Graham, and von Pischke, (eds) 1984). Those studies along with more general analyses of agricultural policies (World Bank, 1986) led to a reformulation of the traditional approach of preferential lending to agriculture through public banks[11] (see Díaz-Bonilla, 2015). However, the decline in agricultural credit as a result of the gap not being covered by private banks and the example of some successful public development and/or agricultural banks has led to a more recent reconsideration of those institutions (see Fernández-Arias, Hausmann, and Panizza, 2019).[12] Well-managed *public development banks* (with incentives, performance metrics, and controls to avoid problems experienced by these institutions in the past) can be powerful instruments for addressing market failures that affect agricultural and rural financial markets and climate finance, and for crowding-in private sector funds from commercial banks and private investors by using blended finance and de-risking arrangements with their own public capital. In addition, public development and agricultural banks could be revitalized and modernized to increase loans, including environmentally linked loans and can offer other financial services to small farmers, rural populations, and SMEs in food systems that consider women, vulnerable ethnic minorities, and the youth.

The funding could come in part from the reactivation of the developmental role of central banks, which already happened for more general objectives during the 2008–2009 global financial crisis, and the COVID-19 pandemic. Central banks, within the framework of a consistent monetary program that maintains control of inflation, can offer specific lines of credit to financial entities. These, in turn, can finance

[11] Funded by loans either from international financial organizations or central bank loans (operating as "developmental central banks").

[12] An example is the "Finance in Common" initiative of public development banks (see https://financeincommon.org/).

credit lines focusing on small farmers and SMEs in food value chains, including women and youth, for improved technologies that address the economic, social and environmental objectives.

Obviously, c*ommercial banks* have an important role to play. They can mobilize deposits and offer different types of financial services. However, they may be concentrated in urban areas and lend mostly to market-oriented and large farmers. Consequently, some governments have imposed regulatory obligations on them, such as expanding branches in rural areas and requiring banks to lend some percentage of their deposits to agricultural activities (or buy government bonds dedicated to fund agricultural financial programs). *Savings, credit cooperatives*, *community and village banks, and microfinance* institutions can also intermediate funds but in many cases the regulatory environment needs to be carefully adjusted to support their operations (Díaz-Bonilla, Fernández-Arias, Piñeiro, Prato, and Arias, 2019). In summary, each type of financial institution has its own advantages and disadvantages that must be analyzed at the country level, and the regulatory frameworks adjusted accordingly.

The third level of analysis refers to financial instruments. Public debates usually center on *loans*, usually with the recognition that banks have an anti-agricultural bias in their lending, and, if they lend to agriculture, that they focus on the short term and do not provide the longer-term credit needed. Some of these problems are due to objective constraints. First, banks' funding is usually short-term deposits and there is a limit to how long they can lend. Other constraints are the dispersion and low scale of customers, and the presence of correlated and widespread risks (weather, prices, pests, seasonality of production). Innovative insurance and guarantee schemes, technical assistance, better weather and market information, and adequate infrastructure can mitigate some of those risks. But there are other reasons as well, including regulations designed for the urban sector and based on activities with more regular cash flows than the agricultural sector. In any case, the development of credit for long-term investment may require funding from public fiscal or monetary sources, or intermediation in capital markets.

Another form of financing that can help to better include small farmers and firms is *supply-chain or value-chain lending,* where lending goes to companies operating with farmers (traders, processors, supermarkets, and even input and equipment suppliers), which then on-lend to farmers (de Brauw and Swinnen, 2023).

Besides credit, there is a lack of other financial products and services that small farmers, rural populations, and SMEs in the food value chains need. On the financing side, instruments such as leasing with an option to purchase, storage receipts ("warrants"), offering pledges over products as guarantees, transferring sales contracts with a third party also as guarantees, and the discount of invoices, among others, are not widely available in many developing countries, in part because of a lack of supportive regulations and operational mechanisms (Díaz-Bonilla, Fernández-Arias, Piñeiro, Prato, and Arias 2019).

On the side of instruments for financial inclusion, it is important to develop options to manage payments and savings for the rural population and SMEs along food value chains, such as different types of simplified checking and saving deposits (Díaz-Bonilla, Fernández-Arias, Piñeiro, Prato, and Arias 2019).

There are new instruments such as sustainability-linked loans and bonds that are being used to finance decarbonization transition plans, with interest rates that fluctuate depending on the attainment of emissions-reduction goals or supply chain sustainability metrics. However, further innovations may be needed to mobilize funds from banks and capital markets on the scale needed.

A crucial aspect of the design of the instruments is related to the transaction costs involved: small farmers, SMEs in food value chains, and other vulnerable operators, may not be in a position to comply with all the steps needed to accede to loans and other financial instruments. Also, for banks, the transaction costs related to those possible clients and to some new lines of credit (such as for climate change miti-

gation or adaptation) may lead to the no utilization of available funds. There are different ways, not mutually exclusive, to address those problems: one is to design simpler financial instruments; another is to use public money to subsidize transaction costs in banks; and yet another is to have a separate cadre of extensionists that also have the financial knowledge to help poor and vulnerable operators in food value chains to prepare bankable projects and complete the needed paperwork. Digitalization and education for financial literacy can also help (see Díaz-Bonilla and Fernández-Arias 2019).

Finally, it should be noted that for subsistence farmers, and other poor operators in food value chains, loans, even with preferential terms, may not be the best instrument to support a just transition towards improved food systems: rather they may need cash transfers/safety nets with poverty, productivity, environmental, and nutritional components.

TOPICS RELATED TO CAPITAL MARKETS

National macroeconomic and trade policies define the general business environment, including aspects such as price stability that can facilitate investment. There are also challenges related to banks and investors continuing to finance fossil-fuel operations and activities linked to deforestation (UNFCCC, 2021), among other negative activities for the desired transformation of food systems. These topics were addressed as part of the overall macroeconomic and incentives framework mentioned before. In addition, there are other incentives that can be implemented to guide capital markets flows.

For instance, investors need a robust pipeline of investable opportunities with the right risk/reward profile (including individual projects, impact investment funds, green bonds, and other instruments). To develop such a pipeline, it may help to establish government-supported mechanisms for project preparation/incubation/ acceleration facilities (Díaz-Bonilla et al., 2018a; Apampa et al. 2021) to structure productive opportunities for small farmers into investable opportunities for impact investors, using economic, social, and environmentally sound technologies.

Some banks and other investors have already made pledges and formed coalitions such as the Glasgow Financial Alliance for Net Zero (GFANZ) and the Climate Finance Leadership Initiative. GFANZ has argued it can mobilize $100 trillion through 2050 for climate-positive investments, with an annual flow of about $3 trillion to $4 trillion. However, standards for nonfinancial objectives vary, as do monitoring and reporting expectations. For these pledges to be effective in reorienting investment, it is necessary to develop the macroeconomic, regulatory and incentives framework discussed above, including the legislation of net-zero emissions targets, pricing of externalities, development of carbon markets and risk disclosures, thus generating demand and creating markets for the financial flows.

International development funds should also be used more strategically to leverage and mobilize the vast liquidity in global private capital markets. Blended and parallel finances, guarantee to de-risk specific projects and socially or environmentally themed bonds can support private investments that address larger humanitarian and development objectives. There is a parallel dialogue on how to use more effectively the Special Drawing Rights (SDRs) issued by the International Monetary Fund (IMF)—reallocating some percentage from countries that do not need them to instead finance support to vulnerable developing countries. IMF member countries may need to consider additional options beyond the reallocation of SDRs for the Poverty Reduction and Growth Trust (PRGT)[13] and the Resilience and Sustainability Trust (RST).[14] For instance, further SDRs could be allocated to the capitalization of multilateral development banks, or to constitute a guarantee fund at the IMF to secure the interest payment

[13] https://www.imf.org/en/Topics/PRGT

[14] https://www.imf.org/en/Topics/Resilience-and-Sustainability-Trust#:~:text=The%20IMF's%20Resilience%20and%20Sustainability,term%20balance%20of%20payments%20stability.

of perpetual bonds issued by developing countries to replace shorter-term debt and finance programs to achieve developmental objectives (Díaz-Bonilla, 2021a, 2021b, and, 2023).

FINAL COMMENTS

Financing the transformation of food systems involves reorienting and scaling up several financial flows. It is always important to consider the “budget constraints” that frame those options, based on double-accounting principles, highlighted by the use of the framework of financial flows presented in Díaz-Bonilla, Swinnen and Vos, 2021. This is necessary to avoid the common mistake of discussing “financing” as if there were free funds in the economic system. There are not. If some activities receive more funding, then others will receive less, with general equilibrium effects that need to be considered.

In any case, some of those flows operate under direct decisions taken by governments or by multilateral international organizations whose shares are owned by countries (they are public financial flows). But some others, function based on decisions of the private sector (decisions by consumers, producers, banks and capital markets investors). Governments cannot decide their uses or applications directly but can influence those decisions through different public policies (used in a general sense). Here, we discussed a set of macroeconomic, regulatory and incentive frameworks, focusing mainly on banks and capital market investors, which can help to reorient and scale up the related financial flows. As noted, the need to consider the general equilibrium effects of those options must be kept in mind.

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