Development Banks in the BRICs: the Brazilian case

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1. *Introduction*

Notwithstanding the heterogeneity in economic structure and experience in the BRICs, one aspect of commonality appears to be the continued role of publicly-owned banks and in particular the important role of a sub-set of these -Development Banks. Development Banks are banks with a mandate to pursue developmental, as opposed to but often in conjunction with strictly commercial, goals. This mandate can either be specific (for example lending to a particular sector or category of borrower) or general in relation to the promotion of 'development', in either economic or social terms.

There is a long tradition in development studies which argues that at early stage of development state ownership of banks can be an important catalyst in mobilizing and allocating savings (Gerschenkron, 1962). Experiences both in Europe and North America in the nineteenth century and in Japan and Korea in the early post 1945 period provided evidence in support of this position. In the era of privatizations and a shrinking state in the 1980's this view was challenged, in large part because of the fiscal drain poorly performing state banks were creating. Since then a research literature based on cross country studies has suggested that state ownership of a banking sector is negatively associated with economic growth and financial depth (La Porta et al 2002).

The evidence on this negative link is less robust than is sometimes stated and subsequent analyses have found conflicting results, although here is little evidence that state-owned banks positively support financial development in lower middle and low income economies. Part of the problem is that in such economies weak institutional development is associated with high state ownership, low financial depth and slower growth. Isolating the impact of state ownership alone is difficult and the negative association with growth may be caused by the association with poor institutions, which are the key causal factor. Re-working the original analysis by La Porta et al shows that once differences between countries in institutional and financial development are allowed for universal generalizations on the negative effects of public bank ownership do not hold and that the negative impact is only in

countries with very poorly developed financial sectors and very weak institutions (Korner and Schnable, 2011).

In the BRICs Development Banks continue to play an important role with at least two - Banco Nacional de Desenvolvimento Econômico e Social (BNDES) from Brazil and the China Development Bank – referred to frequently in the international literature, as major financial institutions with an increasingly global outlook. This chapter explores the role of such banks in the BRICs in the context of contemporary debates on their role in economic development. A second section gives some statistics on the nature and scale of Development Banks drawing on a recent detailed survey which reveals a very wide range of characteristics. A third section looks at the economic theory that rationalises the role of these banks and highlights how they can be used to meet development objectives – investing in and supporting strategic activities, funding SMEs and small borrowers, linking with and helping to develop financial intermediaries, as well as boosting demand at critical points in the economic cycle. A fourth section reviews the case of BNDES.

2. *Operations and characteristics of Development Banks*

State-owned banks in general were estimated to have around 22% of all banking system assets in developing countries in 2009. This is a very large reduction relative to 1970 where the comparable figure is put at 67%.This large reduction is due to the wave of privatizations in the 1980's and 1990's. However the impact of privatization has been very uneven and in a number of large economies including China and India state-owned banks still dominate taking over half the assets of the banking system in 2010. In others including Brazil and the Russian Federation, as well as Argentina, Indonesia, Korea, Poland, and Turkey they play a significant role accounting for between 20% and 50% (World Bank 2013: 103-104).[1] These figures do not separate Development Banks from state-owned commercial banks and other state-owned financial institutions. However, Development Banks tend to be some of the largest state–owned banks and some, such as BNDES and the China Development Bank, are very large.

There is considerable heterogeneity within the category of national Development Banks, which is revealed by the survey reported in Luna-Martinez and Vicente (2012). This covered 90 banks in 61 countries with data usually referring to 2009.[2] The survey results indicate most Development Banks are government owned, with many operating through intermediaries. Most target SMEs although they also lend to large public and private sector firms. Roughly half still offer subsidised lending, but

[1] The definition of state owned banks used in this source is not clear.

[2] Regional coverage is judged to be fairly representative apart from the Middle East and North Africa where only banks from Egypt and Oman responded to the survey. Banks in a few high income economies in Europe, as well as Canada responded.

overall their financial results are not markedly out of line with their own financial sectors. Most are regulated and supervised in the same way as commercial banks.

Financial outcomes need not be a satisfactory indicator of Development Bank performance because of their non-commercial mandate. However, as noted above, state owned banks in general have been criticized for their poor financial performance relative to private sector banks.[3] In the case of the banks covered in the survey financial performance is uneven, but less weak than is sometimes implied in discussions of Development Banks. A minority of banks (15%) have serious problems with non-performing loans (NPLs) which are more than 30% of the portfolio. However a majority (55%) have relatively low NPL ratios of below 5%.[4] The second tier banks showed significantly lower NPL ratios with all second tier banks having a ratio below 5%, while only around a quarter (27%) of first tier banks had ratios below 5%. This could imply greater care in credit allocation amongst the second tier group, but also that as expected first tier banks took greater risks on 'strategic' projects. However the NPL figures were not high enough to cause widespread financial losses, since only 14% of the banks reported financial losses.

Banks from the BRICs

In terms of the BRICs eight Development Banks are covered in the survey three from Brazil (BNDES and two regional banks Banco Da Amazonia (BASA) and Banco Do Nordeste DO Brasil), three from India (National Bank for Agriculture and Rural Development (NABARD), Small Industries Development Bank of India, Export-Import Bank of India), the Development Bank of South Africa and the China Development Bank. Of these eight banks by far the largest are the China Development Bank and BNDES. All are government owned, although the two regional banks from Brazil have 10% private capital, and four report their lending is guaranteed by their government. None of the larger banks take deposits from the public and raise funds through the capital market and receive funds from governments or international agencies. Six out of the eight lend through other financial institutions and some of these also lend directly to borrowers. The regional banks from Brazil, and the small industry bank from India have large branch networks. All but the Development Bank of South Africa report that they lend to SMEs and all but the banks in India and the Development Bank of South Africa report that they lend to individuals and households. All respondents report lending long term with maximum periods ranging from 10 to 20 years and some banks also lend for working capital. The Development Bank of South Africa and NABARD do not finance start-up companies. All report positive returns on assets and equity and NPLs are always below 5% and only close

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[3] Demirguc-Kunt and Huizinga (2000), for example, provide evidence on relatively profitability. De la Torre et al (2007: 17) cites evidence on macro costs of Development Bank recapitalization that came to 6% of GDP in Brazil and as much as 15% in Turkey.

[4] Definitions of NPLs differ across countries so comparative statistics need to be used with caution.

to this in the case of Development Bank of South Africa (4.9%) and Banco Do Nordeste DO Brasil (3.5%). All report that they are subject to the same financial regulations, including capital adequacy ratios, as commercial banks. Table 1 summarises information on the Development Banks from the BRICs from the survey.

Table 1 Development Banks from the BRICS

Name of your institution	Development Bank of Southern Africa	Banco Nacional de Desenvolvimento Econômico e Social (BNDES)	Banco Da Amazonia (BASA)	Banco Do Nordeste DO Brasil	Small Industries Development Bank of India	Export-Import Bank of India (Exim Bank)	National Bank for Agriculture and Rural Development	China Development Bank
Country	South Africa	Brazil	Brazil	Brazil	India	India	India	China, People's Rep. of
Total assets $ mill	6108	222369	1961	27957	7690	10723	23194	667000
Gross loan portfolio $ mill	4559	163151	750	19768	6864	8769	19401	544493
Number of branches	0	4	210	185	100	17	28	np
Number of staff	680	2398	2977	15178	1049	232	4886	6711
Deposits from the public	no	no	yes	yes	yes	yes	no	no
External borrowing	yes	yes	no	yes	yes	yes	yes	yes
Government guarantees	yes	yes	np	np	yes	no	no	yes
Retailing lending	no	no	np	yes	yes	yes	no	np
Lending for start-ups	no	yes	yes	yes	yes	yes	no	yes
Lending to SMEs	no	yes	yes	yes	yes	yes	yes	yes
Lending working capital	no	np	np	np	yes	yes	yes	yes
Return on Assets %	2.3	2	4.0a	3.4a	3.1	1.1	1.7	0.8
Return on Equity %	5.5	25.5	12.0a	23.8	6.7	12.2	18.9	8.8
Non-performing loans %	4.9	0.2	np	3.5	0.1	0.2	0.3	0.9
Prudential regulation as for commerical banks	no	yes	yes	yes	no	yes	no	yes

Notes np = data not provided, a
a = data for 2008, all other data for 2009
Source: World Bank Global Financial Development Report website

3. *Role of Development Banks*

Development Banks are typically rationalised in terms of filling gaps in the financial market that commercial banks whether privately or publicly-owned cannot fill. For this reason they have been given prominence in recent discussions of industrial policy. The three key roles that have figured in recent policy discussions are

- Lending to or investing long-term in strategic or innovative high –risk activities with external benefits
- Contributing to financial inclusion objectives by lending (and possibly providing other financial services) to disadvantaged or low income borrowers
- Lending counter-cyclically to boost demand in recessions.

The theory underlying the first of these points is illustrated graphically in Figure 1. The right hand segment I shows the demand and supply of loanable funds relating the market interest rate R to the demand DI and SI in the market. Demand is based on the marginal productivity of the investment the funds will finance and DI reflects the private returns to the borrowers. It is downward sloping as more funds are demanded at lower interest rates and the profit maximizing investor will invest up to

the point at which r equals the expected return on additional investment. The supply curve for loanable funds is shown as rising with the interest rate up to interest rate R* at which point it bends backwards with the supply of funds falling at rates beyond R*.

The rationale for this backward bending supply curve stems from the analysis of an imperfect credit market under uncertainty (Stiglitz and Weiss 1981).The supply offer of banks will be based on expected returns from a loan portfolio which is the product of the interest charge and the probability of repayment aggregated over all borrowers. The probability of repayment is likely to be negatively associated with the interest rate due to 'adverse selection' (as the riskier borrowers accept loans at high interest rates) and 'incentive effects' (any individual borrower will tend to make the project more risky to generate a sufficiently high return to pay the higher interest rate). This relation is shown in the left hand segment II, which has the expected return on loans on the horizontal axis. Beyond R* the increase in the probability of default due to the increase riskiness of the loans outweighs the impact of a high R on expected returns. Hence due to uncertainty in a competitive financial market banks would set R* as the interest rate and not the market-clearing rate of R^1. There will be an unsatisfied private demand for funds of Q^2Q^1due to the banks' attitude towards risk.

If positive externalities from investment are introduced into the analysis there will be a new demand curve DI*, which reflects the marginal economic productivity of investment. At an interest rate of R* there will be a second unsatisfied economic demand for funds Q^3Q^2 reflecting the fact that externalities by definition are not taken into account in the borrowing decisions of investors.[5] In total therefore left to themselves commercial banks will undersupply the credit market by the sum of these two credit gaps or the distance Q^3Q^1.

In practice it is not possible to isolate these two gaps but they provide a rationale for a Development Bank to lend to both high risk, but high return projects, and to projects which benefit not just the investor, but others in the economy. External benefits are typically innovation and knowledge spillovers, which the innovator or pioneer does not capture in monetary charges and the benefits from various forms of physical infrastructure, like roads or water systems, which have public good characteristics, so private providers cannot charge fully for these benefits. In principle, it is possible to incorporate the other two objectives into this framework by treating outreach to target groups and counter-cyclical lending as a form of external benefit which are incorporated into DI*.

[5] DI reflects ex ante perceptions of returns by investors whilst DI* can be interpreted as probability weighted outcomes. In theory the optimal level of investment will be determined by the intersection between DI* and the supply of funds from savers, so the marginal economic productivity of investment equals the social time preference cost of saving.

Insert Figure 1

High risk/long term lending

The role of Development Banks in stimulating new activities in low and lower middle income countries has been stressed in recent discussions of industrial policy (Hausmann et al 2008, Rodrik 2007). The argument is that innovation creates external benefits as followers can learn from the first-movers and this innovation justifies support and a subsidy, in the sense of a loan at an interest rate that does not reflect the risks involved. By pooling their risk and investing government funds across a wide portfolio Development Banks can afford to fund some loss making projects, provided successes outweigh failures. This is an illustration of a Development Bank both ignoring risks that would dissuade a commercial bank and at the same time supporting an externality-generating activity. Furthermore, as part of a wider industrial policy, this approach suggests that Development Banks should take a pro-active not a passive role. This implies researching market opportunities, taking an equity stake in projects, helping to initiate a dialogue between the government and prospective investors and pointing out to the government bottlenecks to investment that need to be addressed.[6] The more established development banks such as BNDES and GfW already play an 'intelligence role' as a guide to policy makers in Brazil and Germany, respectively (Crespi at al 2014: 201-202).

The alternative means of addressing the risk issue is for a Development Bank not to lend directly but to provide funding to or guarantee lending by other institutions in a second tier role. As noted above this has the advantage of drawing on the credit assessment skills and branch networks of the intermediary, but the disadvantage that it leaves final decisions on who receives the funds to the intermediary. Where the aim is to reach large number of borrowers and the Development Bank does not have a large branch network working on a second tier basis seems inevitable. Guarantees have become a popular tool for supporting risk and best practice advice on how to apply these suggests that where private financial intermediary institutions are the recipient that Development Banks should not offer too high a coverage ratio of a loan portfolio (for example, no more than 80% of a portfolio of loans to SMEs) to give the intermediary adequate incentive to apply a sound loan assessment. In addition, the guarantee should be priced so that the charge to the intermediary is high enough to ensure the financial viability of the Guarantee Fund so that it does

[6] For example, in relation to their proposals for industrial policy in South Africa, Hausmann et al (2008: 11) discuss development banks as 'sources of ideas about high return activities and about the obstacles that need to be addressed to increase chances of success of projects that attempt to realise those ideas. This is particularly useful for strategic projects where the relevant actors will not come knocking at your door.'

not become a drain on the Development Bank's budget, but low enough to attract participation from intermediaries and ultimate borrowers. The counter argument to these positive roles for Development Banks are that as these banks have access to relatively low cost government funding a large Development Bank presence risks blocking the emergence of a more efficient system of private sector financial intermediation.

Financial Inclusion

In theory, due to the market failure caused by lack of information on the part of banks illustrated in figure 1, at interest rate R* that there will be some potential borrowers who are indistinguishable from those who receive credit, who could afford to repay at R* , but who do not receive funds. Access to finance has been cited widely as a key constraint on firms in low and middle income countries (Ayyagari et al 2008) and exclusion from financial services is also seen as a major barrier to poverty reduction. Development Bank lending is one means of addressing this lack of inclusion. As noted part of the mandate of many Development Banks is lending targeted at small firms who would otherwise have difficulty in accessing finance either because of a perceived high risk, a lack of credit history or lack of collateral. However, the mandate can also be extended to excluded low income households who do not receive financial services, like savings accounts and insurance, because of the high cost (for example due to the small size of individual transactions or the remoteness of their locations). Development Banks can be used to address both these client groups of small firms and poor households. Microfinance has emerged as a segment of the financial sector geared towards small borrower clients. Microfinance can be delivered by different types of institution, such as NGOs, co-operatives, regulated non-bank financial institutions and commercial microfinance banks. In addition lending can be on a group or individual basis. In principle a Development Bank can also offer a microfinance lending window, as well providing a range of financial services such as deposit and current accounts for small low income savers. Microfinance is a specialist operation which has proved highly profitable in commercial terms in many places and Development Banks deciding to move into this area would need to develop specialist skills. How far it has actually succeeded in reducing poverty amongst borrowers is the subject of considerable debate, in part because of the difficulty of assessing its true impact.[7]

Counter-cyclical lending

The tendency for private sector banks to become less risk averse in the upturn of an economic cycle and more risk averse in the downturn has been suggested after the global financial crisis of 2008-09 and if valid means that commercial banks can exacerbate the economic cycle. The recent financial crisis has stimulated interest in

[7] See for example ECG (2010).

the role of state-owned banks, including Development Banks, in counteracting this tendency (World Bank 2013). Many governments injected capital into their state-owned banks to fill the gap in the credit market left by commercial banks. In some countries this role was taken by Development Banks.[8]

Definitive assessments of this type of macro-intervention are not yet available. Part of the difficulty is that the three different roles for Development Banks highlighted here are potentially contradictory. To lend to high risk activities or to target special groups of borrowers requires a specialist focus to identify suitable clients who would not be eligible for commercial bank funding. On the other hand, the counter-cyclical role is principally about demand stimulation in the aggregate and requires lending to clients many (if not most) of whom are the recipients of commercial bank loans. Here the gap that is to be filled is credit in the aggregate not in relation to any specific niche, since lending to niches will not by definition have a significant macro impact.

The counter argument to these positive roles for Development Banks are that as these banks have access to relatively low cost government funding a large Development Bank presence risks blocking the emergence of a more efficient system of private sector financial intermediation. In addition, where a significant capital injection to a Development Bank occurs to support counter-cyclical lending, there is the risk that it is used to support lending expansion beyond the point in the economic cycle where counter cyclical loans are needed. As commercial bank clients are targeted in counter cyclical lending there is the risk of the original goal of a Development Bank becoming blurred with this expansion and of it retaining these clients and moving into more commercially focussed activity.[9] The importance of the counter-cyclical role will vary between economies depending on the size of state financial institutions and how far the central bank can encourage commercial banks to lend to stimulate demand, for example through adjustments to the base rate or through direction or 'administrative guidance'. It is likely to be more of a significant role in high income and upper middle income emerging economies than for poorer countries.

4. BNDES Brazil: the model Development Bank?

BNDES combines many of the features of a Development Bank highlighted in the previous section and due to its size and influence in Brazil is arguably the most influential development bank in terms of its national impact. In terms of assets it is

[8] In Brazil BNDES expanded credit by 70% in real terms from September 2008 to December 2011 and offered credit at rates 7.5 percentage points below the market rate (World Bank 2014).

[9] One suggestion to counter this is for the capital injection to be on terms that require it to be repaid within a period related to the repayment of loans granted during the downturn (Gutierrez et al 2012:10).

the third largest Development Bank after the China Development Bank and KfW of Germany. The bank has always acted as a 'policy bank' with aspects of a 'knowledge bank' also and its role and responsibilities have changed in line with changing government objectives and priorities (Tavares de Aruajo 2013). It was established in 1952 specifically to channel funds from US Aid to infrastructure projects, with an initial focus on energy and transport and the construction of a new capital Brasilia. From the 1970's it started to lend to manufacturing on a large scale in support of the import substitution programme set out in the Second National Development Plan. This meant that annual funding allocation shifted from around 90% to the public sector until the mid-1960's, due to the emphasis until then on infrastructure, to around 20% by the late 1970's as funds were directed at large private sector firms in manufacturing (Hermann 2010:196).

In 1982 its mandate was broadened to encompass social goals and an S was added to the acronym of the bank (it had previously been BNDE) to reflect this. An external debt crisis with associated tight fiscal and monetary policy in the 1980's limited the bank's lending activity and real disbursements fell by 64% between 1979 and 1990 (Hermann 2010: 96). In 1988 a major change was introduced in its funding base with the creation of a Workers Assistance Fund (FAT) financed by a payroll levy on all enterprises with the stipulation that at least 40% of the annual revenue would go to BNDES investments in employment and income generating projects. As discussed below this remains an important source of funding today.

The 1990's saw major moves towards economic liberalisation principally under the Presidencies of Collor (1990-92) and Cardoso (1995-2002) with a key emphasis on privatization and export growth and BNDES activity was adjusted to reflect this. Between 1991-2001 the cumulative value of privatisations was as much as $103 billion and the bank played a key role in financing both the restructuring of state enterprises in preparation for their sale and their acquisition by new owners (Hermann 2010: 199). In relation to exports in 1991 the bank began to provide supplier's credits for capital goods sales to countries in the region and this programme was expanded in 1997 and renamed as BNDES-EXIM. Export-import finance rose from around 7% of total disbursements in the mid 1990's to 28% in 2004-2006 (Hermann 2010: 201).

The period post-2003 under the Presidencies of first Lula da Silva (2003-2010) and then Dilma has seen a shift of emphasis with programmes of 'renewed developmentalism' (Hochstetler and Montero, 2013). The renewed emphasis on industrial policy and technological change, as well as a more generally interventionist view of policy, saw an enhanced role for BNDES and a doubling of its disbursements as a share of GDP between 2003 and 2010 (Tavares de Aruajo 2013: 10). Three objectives were central to this expanded role. The first was support for the manufacturing sector as part of the new industrial polices set out in three plans starting with the Industrial, Technological and Foreign Trade Policy (PITCE) 2004-2007. This support included both direct loans to industry, as well as loans for

technological innovation, investment in company equity through the BNDES equity arm, and funding for SMEs through the BNDES card.[10] Over 2006-2010 of the loans to the productive sector roughly one-third went to plan priority sectors (Ferraz et al 2013: 151) and lending to manufacturing industry averaged around 45% of total disbursements over 2004-2010 (Tavares de Aruajo 2013: 12).

The second expanded goal was to support the internationalisation of the economy. This involved a considerable expansion of the existing trade finance programmes, including credit lines to foreign countries linked to purchases from Brazilian firms and support for foreign investment by Brazilian firms. Export financing rose from $3.9 billion in 2002 to $11.3 billion in 2010 (which was over 10% of the value of total exports). The bank's statutes were changed to allow support for foreign investment although its initial impact was limited and only 19 such operations, chiefly for overseas acquisitions, had been approved by 2013 (Tavares de Aruajo 2013: 8).

The third new role was counter-cyclical demand management in the face of the global downturn 2008-2009 and a weakening of domestic investment activity. The key mechanisms were the Investment Maintenance Programme (PSI) and extra-ordinary programmes for BNDES to support working capital needs.[11] The scale of extra funding made available to BNDES to fund these activities was very large as BNDES expanded credit by 70% in real terms from September 2008 to December 2011. The increase in BNDES disbursements between 2008 and the peak in 2010 was as much as 2.7% of GDP (Tavares de Aruajo 2013: 10).

Since the early 1950's BNDES has been an important source of long-term, low cost credit whose magnitude has grown over time. However, its relative importance as a source of credit has fluctuated with changes in macro-economic conditions and policy objectives. For example, as share of grow capital formation disbursements were around 3% in the mid 1960's, rising to nearly 9% by the later 1970's and falling back to 3% again by 1989. The 'renewed developmentalism' of more recent years saw this share rise to 28% in 2004-2006 (Herman 2010: table 2). The long-term nature of this funding has been particularly significant, given the focus of commercial banks on the short term end of the market and in 2011BNDES provided as much as 72% of all loans with a maturity of three years or more (Colby 2012).

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[10] Through BNDES the government launched a new credit line Cartão aimed at supplying credit to small and medium enterprises whilst avoiding bureaucratic delays and at the same time encouraging domestic linkages. The credit line is distributed via VISA cards issued by BNDES and by participating commercial banks acting on its behalf. The credit must be spent on approved products (machinery, vehicles, raw materials and components) supplied by firms registered with BNDES and registration requires a minimum national content of 60%. Loans are for a maximum of 4 years and are at an interest rate based on the rate for government bonds. Eligible borrowers must be below a minimum size of turnover. The main advantage is seen as speed of processing, since borrowers do not need to undergo credit analysis for each operation (ILO 2011).

[11] Ferraz et al (2013) explain the different programmes.

Real interest rates in Brazil have been high by the standards of other emerging economies principally it appears due to the low domestic savings rate.[12] Commercial banks operate with high interest rate spreads and generate high profits from shorter-term lending. The provision of low cost credit channelled through BNDES and other development institutions has been the main policy response to this. BNDES is funded by a combination of loans from the National Treasury, compulsory transfers from the Workers Assistance Fund (FAT and PIS-Pasep), its retained earnings (principally from its equity holdings in private companies), international loans and its issuance of bonds. Historically the compulsory transfers financed by payroll taxes on enterprises have been the most significant source of funding providing 69% of total funds in 2001. Their relative importance fell after 2008 with the major expansion of government funding for the countercyclical lending, so that their share in funding was 27% in 2012, when more than half of funding came from the National Treasury; see table 2.

Table 2 Sources of funding for BNDES 2001 – 2014 (%)

Funding source	2001	2005	2009	2012	2014
National Treasury	6	13	37	52	54
FAT/PIA-Pasep	69	70	40	27	26
International loans	18	10	4	3	8
Others	7	7	19	17	12

Source: Tavares de Aruajo (2013) graph 8 and BNDES (2014)

There has been a relatively large subsidy in BNDES lending since it receives funds from the Treasury and the compulsory savings schemes FAT and PIS-Pasep at a rate (the TJLP) set by the National Monetary Council and always below the government overnight rate for commercial banks (the SELIC). Historically the gap between the two rates has been high although it has come down in recent years as inflationary pressures have been reduced. In 1995 the gap was around 15 percentage points, although had come down to about 7 percentage points at the end of 2015 this remains a relatively wide margin. The subsidy has been passed directly to borrowers since the bank has operated with a very low margin estimated at only 1.4% on average on its loans 1996-2009. This margin is well below that charged by commercial banks with some operating with an average margin of around 10% and one with a margin of 15% (Lazzarini et al 2011, table X).

In addition to its financing role BNDES has at times been active in the design and implementation of economic policy. For example, BNDES (then BNDE) played a key co-ordinating role in the implementation of the first plan with major targets for

[12] Segura –Ubiergo (2012) examines the causes of high domestic rates of interest in Brazil. He finds these to be 2 percentage points above what would be expected allowing for as many explanatory factors as possible.

industrialisation Plan de Metas (1956-61) (Tavares de Aruajo 2013). Its staff produced studies that anticipated and possibly influenced later policies, for example on the need for technological upgrading and on the potential for foreign investment by domestic firms (Hochstetler and Montero, 2013). Similarly technical inputs from bank staff have assisted the preparation of the privatisation programme in the 1990's and subsequent national plans such as the Plan Brasil Mayor of the Dilma Rouseff administration. BNDES has ex officio seats on various ministerial level committees that provide inputs to the design of economic policy (Crespi et al 2014: 201-202).

BNDES with vary emphases at different times has addressed all three of the idealised roles for a development bank identified above and has done so whilst meeting relatively strict performance targets in terms of its own commercial viability. It had the highest return on equity of the development banks reported in table 1, whilst passing on most of the subsidy component of the cost of its funds to the final borrower.[13] It has been able to achieve this by an efficient lending operation – its cost to income ratio 1996-2009 was shown to the lowest of any major bank in Brazil – and by generating income through investments in company equity and in government bonds (Lazzarini et al 2011).[14] Its staff are recognised for their professionalism and objectivity in dealing with loan applications and there is little evidence of politically connected lending leading to a weakening loan portfolio and undermining the financial position of the bank.

It has without doubt been a major force in the economy, although it is not without its critics. The most profound objection suggests the existence of a large state-owned bank with access to low cost funds has distorted the financial market in Brazil and blocked the emergence of private financial institutions willing to lend long-term (Cull 2014, World Bank 2014). This is a counterfactual argument which implies there would have been an equivalent flow of credit available from private suppliers. There is no empirical evidence in direct support of this assertion and given the high profits and interest spreads in commercial banking in Brazil the counter argument is that for most of the past 50 years commercial banks would probably have chosen to focus on the highly profitable short-term segment of the market and in relatively high yield safe assets like government bonds, although this may have changed to some extent with the decline in nominal interest rates after 2011.[15] None the less there is recognition in policy circles that such a heavy reliance on BNDES for long-term credit is undesirable and that greater diversification is needed. Some types of BNDES loan now have mandatory co-financing component and one of BNDES' stated goals is the

[13] A positive surplus was made in 2013 and 2014, where the rate of return on assets was 1.1% and 1.0% respectively and the rate of return on equity was 16.5% and 13.1%; see BNDES (2014).

[14] The weighted cost of capital for BNDES was estimated to be between 5 and 10 percentage points below the government base rate the SELIC for the period 2002-2009. This meant parking funds temporarily in government bonds could be relatively profitable.

[15] This implies that whilst BNDES lending was intended to overcome the problem of high interest rates for investment its own activity may have contributed to keeping them high. Segura –Ubiergo (2012) considers this as a possibility but concludes that it is untestable.

further development of the capital market in Brazil. In support of this, for example, infrastructure projects supported by the bank are encouraged to issue debentures, which are partially guaranteed by the bank, as a means of encouraging capital market development. BNDES (2014:23) points out that 14 such schemes went ahead in 2014 and that on average they represented a 10% financial leverage.

As would be expected of a bank with a wide mandate disbursements cover a wide range of activities, although long-run lending to infrastructure and industry dominates (see table 3). Lending for innovation appears relatively low but covers loans only from funds earmarked specifically for this purpose. More general loans could also fund innovative activities and will not be reflected in table 3, although critics have suggested that there might have been an excessive focus on traditional parts of manufacturing like petroleum and food processing, at the expense of newer more technologically dynamic areas (Tavares de Ajauro 2013: 12) .[16]

Establishing whether these proportionate allocations should be different requires a detailed assessment of the returns to different types of activity, which to our knowledge has not been done. However, one widely reported claim is that BNDES loans are skewed excessively towards large firms, which often receive repeat loans and which are highly profitable, with the implication that they could have accessed either domestic or international commercial sources of funds; in effect, the sort of firms which commercial banks should not be targeting.[17]

Table 3.

Disbursements 2014		
	Rs billion	%
Infrastructure	69	36.7
Industry	50.1	26.7
Social Development	25.9	13.8
Green Economy	28.3	15.1
Innovation	5.9	3.1
Export Finance	4.4	2.3
Others	4.2	2.3
	187.8	100

Source: BNDES (2014)

[16] In their analysis of loans to firms Hochstetler and Montero (2013: 1494-5) comment that 'the vast majority of BNDES loans in our database (sic are to) do no more than what they are doing already. Using the short descriptions that accompany each loan we identified about 16% that involved qualitative change, however; the modernisation of equipment, development of new products and the like'

[17] Hochstetler and Montero (2013: 1491) refer to a comment in a news magazine describing this lending pattern as equivalent to a 'Bolsa BNDES'; ie a BNDES stock exchange. The ten largest loans in their dataset made up 35% of disbursements 2009-2011.

Overall in 2014, 31% of disbursements went to what the bank defines as medium small and micro borrowers and 69% to large borrowers although by number the vast majority of loans were small (BNDES 2014).[18] The bank is sensitive to this criticism and BNDES (2014) points that for industrial loans the share going to large firms is slightly below their estimated share in industrial value-added. Similarly it argues that the overall division between large and smaller borrowers is skewed by the fact that roughly one-third of disbursements is in areas – infrastructure, export finance and public sector finance – where smaller borrowers are not present to any significant degree. Where they are active – as in agriculture and services – they received 82% and 56% of disbursements, respectively.

The exact distribution of funds between large and small borrowers is probably less important than the purposes to which the funds are put and the additionality created by the bank. There have been a few studies which examine the characteristics of firms in receipt of BNDES funds and the extent to which their behaviour is changed as a result. The findings are mixed, with several analyses failing to find an impact on productivity growth.[19] One of the most detailed and widely cited analysis is Lazarrini et al (2011) who construct a database on 286 publicly listed companies 2002-2009 and identify those in receipt of BNDES loans or equity. A clear pattern emerges in that BNDES lends to or invest in more profitable and larger firms. However, once specific firm and industry level effects are allowed for BNDES funding appears to have no impact on financial performance. There is some evidence that funding through loans, but not through equity, influences investment positively, although this depends on how the funding variable is specified. The authors argue that the main impact of BNDES lending is through lowering the cost of finance to firms, thus creating a transfer between tax payers, who fund the credit subsidy, and owners of the enterprises.

This type of evidence whilst not conclusive is a concern. The role of interest rate subsidies from development banks is justified where it leads to investment that would otherwise not take place or to additional productivity growth and technical change. Where these impacts are not found the justification disappears. However concerns such as this have prompted the recommendation that BNDES focus on its funding for infrastructure, innovation and small and medium enterprises and scale back lending to large firms (OECD 2013).

In general BNDES has been a success by conventional banking standards and has been an active policy and knowledge bank. Its role as supplier of long-term credit to different types of borrower and for different uses will no doubt need to be adjusted as the economy and the strength of the financial sector evolve. It is not an 'ideal' model

[18] The definition of large used here appears to be enterprises with a revenue above R$ 90 million per year.

[19] One paper reports a positive impact on productivity growth for loans, but only for those where BNDES itself participates in the approval process. Another finds a positive effect on productivity for loans pre-2003, when firms are deemed credit constrained, but no such effect post-2003. Others find no impact. Colby (2012) and Lazarrini et al (2011) summarise the results of these studies.

– for example it may not have had major success in the type of innovation, venture capital lending advocated for development banks by Hausmann and Rodrik - but none the less its record shows that a large well-run development bank can meet a mix of economic and social objectives whilst remaining financially viable.

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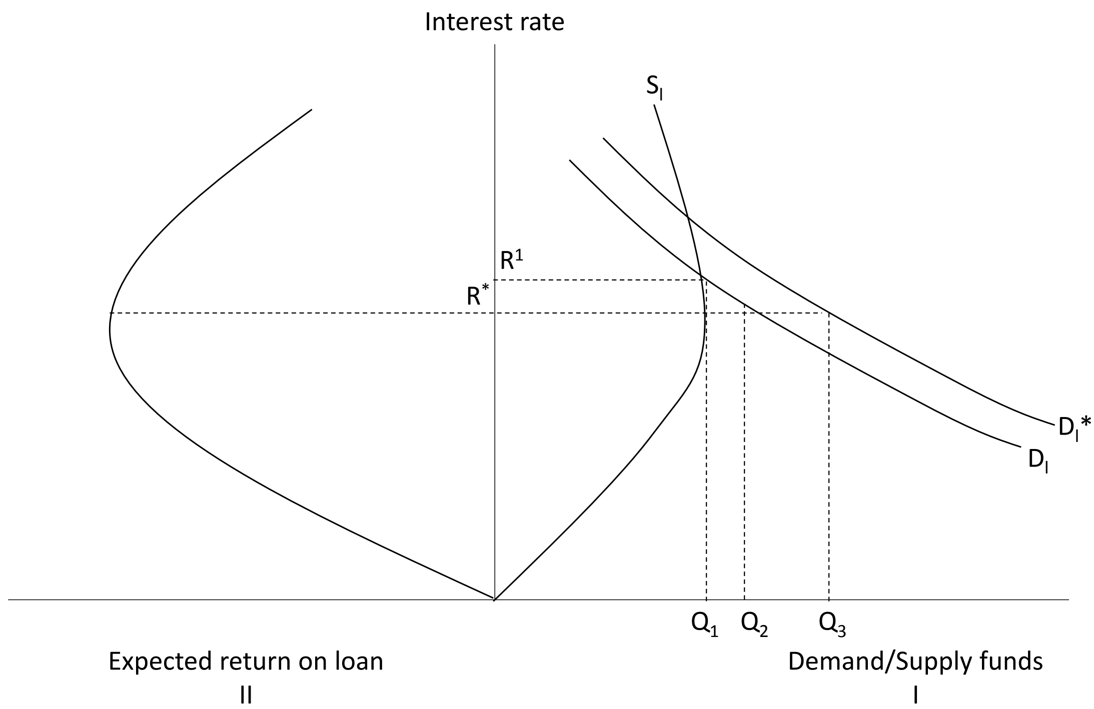

Figure 1 Credit market