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MANDATORY CREDIT ALLOCATION AND GOVERNMENT GUARANTEE IN THE PHILIPPINES

ABSTRACT

Mandatory credit allocation is a policy intervention to pressure banks to lend to certain sectors that otherwise unfettered finance would not give access to. While some would argue that mandatory credit allocation results in sub-optimal allocation of resources, it has been shown that such intervention results in socially desirable outcome. However, mandatory credit allocation should not be the responsibility of banks only, it must be supported with government guarantees. In the Philippines, there are three sectors in which mandatory credit allocation is given namely the agriculture sector, the micro, small and medium enterprises or MSME sector, and enterprises involved in innovation. In agriculture, the credit allocation is too big and therefore should be reviewed, in MSME too small and therefore should also be reviewed, and in innovation difficult to identify and impractical to implement. In all of these, the banks are left to shoulder the respective mission with practically no government support. Banks either comply or pay the penalty.

Keywords: bank lending, credit rationing, financing agriculture, financing micro, small and medium enterprises (msme) finance, financing innovation, Philippines

JEL Classification: G210, Q14

INTRODUCTION

Mandatory credit allocation is a policy intervention to pressure banks to lend to certain sectors that otherwise unfettered finance would not give access to. While some would argue that mandatory credit allocation results in sub-optimal allocation of resources, it has been shown that such intervention results in socially desirable outcome (Mankiw, 1986; Stiglitz and Weiss, 1981). However, mandatory credit allocation should not be the responsibility of banks only, it must be a team effort where the banks lend, and the government provides meaningful guarantees.

In the Philippines, there are three sectors in which mandatory credit allocation is given namely the agriculture sector, the micro, small and medium enterprises or MSME sector, and enterprises involved in innovation. In agriculture, the credit allocation is too big and therefore should be reviewed, in MSME too small and therefore should also be reviewed, and in innovation difficult to identify and impractical to implement. In all of these, the government does not have its skin in the game. The concern is the government putting its skin on the game via meaningful government guarantees is necessary for mandatory credit allocation to work. Note that meaningfulness is emphasized because there are actual government guarantees in the agricultural and the MSME sectors except that the amount that has been guaranteed has been practically non-existent.

The next section, which is the Literature Review, has two sub-sections. The first sub-section, which is Credit Allocation in Practice, lays down the facts about credit allocation as it happens in practice. As a matter of fact, the government puts the burden of allocating credit to certain sectors to the banks only; banks either comply or pay the penalty. The second sub-section, which is Rationale for Credit Allocation, reviews the standard rationale for credit allocation and discusses why it must be accompanied by a meaningful government guarantee. The next two sections discuss the Aims and Objectives of the paper, and the Methods in which the aims and objectives can be reached. The next

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section, which is the Results, has three sub-sections. The sub-sections discuss the state of mandatory credit allocation first in agriculture, second in the micro small, and medium enterprises, and third in innovation in the Philippines. The last two sections provide a Discussion and Conclusion.

LITERATURE REVIEW

Credit Allocation in Practice

In the Philippines, government intervention in the credit market is given. Dating back to 1975, Presidential Decree (PD) No. (PD) 717 [35], mandated government and private financial institutions to allocate at least 25% of their loanable funds for agriculture and the agrarian reform sector. In 2022, the law was updated in Republic Act (RA) 11901 [39], from what was known as the Agri-Agra Reform Credit Act. Similarly, the law mandates all banking institutions to "set aside a credit quota, or a minimum mandatory agricultural and fisheries financing requirement of at least 25% of their total loanable funds" (Section 6). "Penalties on noncompliance or undercompliance shall be computed at 0.5% of noncompliance or undercompliance" or at rates prescribed by the central bank (Section 9).

Apart from the mandatory allocation on agriculture, RA 9501, otherwise known as the Magna Carta for Micro, Small, and Medium Enterprises (MSMEs) [36], was passed in 2008, in which all lending institutions, whether public or private, are mandated to set aside at least 8% for micro and small enterprises and at least 2% for medium enterprises of their total loan portfolio. RA 11293, otherwise known as the Philippine Innovation Act [38] was passed in 2019, which as stated "all banking institutions, whether government or private, shall set aside at least 4% of their total loanable funds for innovation development credit." Similar to agriculture, the penalty shall be 0.5% of noncompliance.

While banks are mandated to set aside credit for the said sectors, the government has not placed its skin on the game. All obligations are burdened on banks. Banks either comply or pay the penalty, and no meaningful government resource is devoted to any of the goals.

Rationale for Credit Allocation

Mandatory credit allocation has been criticized in the view that the private sector can better allocate economic resources. However, unfettered banking can be shown to kick out socially desirable investments particularly those with a high probability of payment (Mankiw, 1986). Consider the following model taken from Mankiw (1986).

Let the following notations hold.

1. P = probability of repayment.
2. r = interest rate which is the same for all borrowers because the banks cannot distinguish between.
3. R = return to investment.
4. Π = average probability of repayment.
5. ρ = risk-free rate.

For the prospective borrower, the expected cost of borrowing is Pr ; hence, the condition in which to apply to borrow is if the return to investment is greater than the expected cost of borrowing, or:

$$R > Pr. \tag{1}$$

For the bank, the expected return to lending is Πr ; hence, the minimum condition in which the bank will lend is if the expected return to lending is greater than the minimum acceptable which is the risk-free rate, or:

$$\Pi r > \rho \Rightarrow r > \rho / \Pi. \tag{2}$$

Consider the following illustrations. In Figure 1, the locus of points where $R = Pr_0$ is given. Anywhere below the line, $R > Pr_0$, thus the prospective borrower applies. Anywhere above the line, $R < Pr_0$, thus the prospective borrower does not apply.

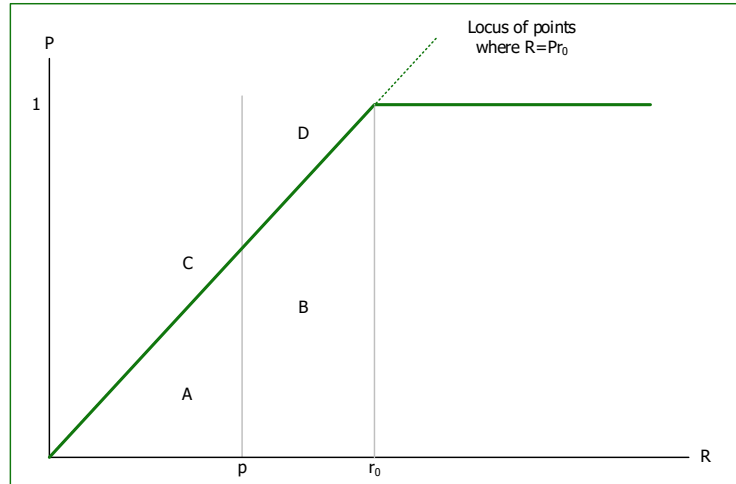


Figure 1. Initial Framework of the Credit Market.

From a social standpoint, an investment loan should be made if a return to investment is greater than the risk-free rate, or:

$$R > \rho. \quad (3)$$

Anywhere on the right of ρ , $R > \rho$, thus it is socially desirable to invest in a prospective activity. Anywhere on the left of ρ , $R < \rho$, thus it is not desirable to invest. Hence, B is the condition that the borrower applies and that the investment should be undertaken. C is the condition that the prospective borrower does not apply and that the investment should not be undertaken. A is the condition that the borrower applies, even if the investment should not be undertaken. D is the condition that the prospective borrower does not apply, even if the investment should be undertaken. While resources are efficiently allocated in areas B and C ; they are not in areas A and D . Hence, the entire loanable portfolio is allocated sub-optimally. Hence, unfettered finance results in socially sub-optimal outcome.

Note the effect of changing interest. In Figure 2, it is shown that raising interest decreases the number of applicants (smaller $A+B$) and increases the number of non-applicants (bigger $C+D$). Among prospective applicants driven out of the market are mostly high-probability payers (previously from B). As interest increases, the application of undertakings that society should not be investing on decreases (smaller A), and the non-application of undertakings that society should be investing on increases (bigger D); bad and good lenders are driven out. But as interest decreases, the application of undertakings that society should not be investing on increases (bigger A), and the application of undertakings that society should be investing on increases (bigger B , but smaller D); bad and good lenders join the market. If the market is left on its own, there is no change in interest that will reduce both A and D ; it is always one or the other.

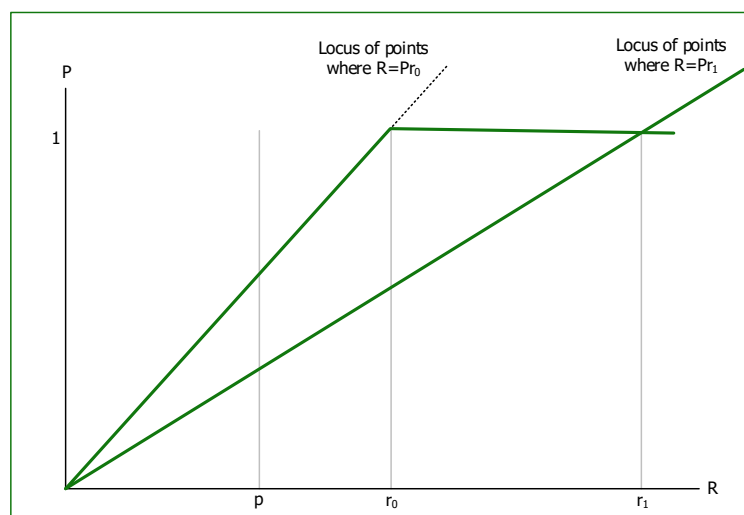


Figure 2. The Effect of Changing Interest.

With information asymmetry, banks end up raising interest rates to cover the risk (Dell'Ariccia and Marquez, 2004) which can kill the industry altogether (Mankiw, 1986). In addition, raising interest affects the risk (Stiglitz and Weiss, 1981); that is higher interest decreases the incentive to invest in safe but low-return investments and increases the incentive to invest in riskier but higher-return investments. To compensate for the risk and to incentivize banks not to raise interest, the required collateral may be raised. However, the nature of the sectors that are intended to be assisted is that they generally lack collateral.

Stiglitz and Weiss (1981) suggest a usury law with an interest rate ceiling as a solution. While mandated lower interest increases the application of credit-worthy agents, it equally increases the application of non-credit-worthy agents, which banks cannot distinguish due to information asymmetry. In addition, a usury law makes the market smaller. Alternatively, rather than risk lending to potentially non-creditworthy borrowers, banks may opt to face the fine treating it as a cost of doing business. Mankiw (1986) proposes two possible interventions to reduce area D of Figure 1. One is through government subsidy which lowers interest. The effect is visibly shown in Figure 2 If interest decreases from r_{-1} to r_0 , area D (worthy economic activities with high probability payment) shrinks which is socially undesirable. However, area A (unworthy economic activities with low probability payment) expands which is also socially undesirable.

Another is through government guarantee. In fact, there are more than 2 thousand types of government guarantees in almost 100 countries (Green, 2003). In the literature, there are several empirical studies that justify the use of government guarantees. Examples include Riding et al (2007) in Canada, Cowling (2010) in the United Kingdom, Zecchini and Ventura (2009) in Italy, Uesugi et al (2010) in Japan, Liu et al (2016) in China and Kang and Heshmati (2008) in South Korea. Still others have provided a more expansive assessment of government guarantee (Ono et al, 2013; Chandler, 2012; Beck et al, 2010; Oh et al, 2009; and Craig et al, 2007).

Consider a government guarantee on principal and risk-free interest, in which interest is set to $r = \rho$. This is the only available solution that can include all of area D, and eliminate all of A.

AIMS AND OBJECTIVES

The primary aim and objective of this article is to raise the level of discourse on mandatory credit allocation in the Philippines and consequently in other jurisdictions. Literature has it that mandatory credit allocation works if accompanied by a government guarantee on principal and risk-free interest. However, government guarantee is practically absent in the present policy discourse in the Philippines. One way to raise the level of discourse is to hardwire the need to accompany mandatory credit allocation with a government guarantee.

The level of policy discourse can also be raised by examining the level and application of mandatory credit allocation in selected sectors. In terms of level, it will be shown in the Results section that mandatory credit allocation in agriculture is too high, and in MSME is proportionately too low. Hence, policy discourse should internalize the right levels, but with the nuance that the mandatory credit allocation is limited to how much the government can guarantee which is limited to the government budget. In terms of application, it will be shown in the Results section that innovation is easier to identify in theory. Hence, policy discourse should internalize the nuances in the implementation of mandatory credit allocation however theoretically socially desirable it may be.

Finally, the level of discourse should take into account that mandatory credit allocation with a government guarantee on principal and risk-free interest is not a panacea to the development of a sector. Other nuances and bigger concerns like corruption in some jurisdictions must be in consideration.

METHODS

To reach the aims and objectives of this article, the following methods and figures are used.

1. *Review of Literature:* This article uses the said section to state that literature has established that mandatory credit allocation works if accompanied by a government guarantee on principal and risk-free interest.
2. *Stylized Graphs:* Graphs are adapted from Mankiw (1986) to distinguish credit applicants with socially desirable investments and otherwise, and non-credit applicants with socially desirable investments and otherwise (Figure 1), and how government guarantee on principal and risk-free interest can increase applicants with socially desirable investments only (Figure 2).

3. *Time Series Graphs:* These graphs are used to exhibit how compliance to the mandatory credit allocation has eroded through time specifically in agriculture (Figure 3), in agrarian reform (Figure 4), micro and small enterprises (Figure 10), and medium enterprises (Figure 11). Time series graphs were employed to show how the share of Agriculture vis-à-vis the GDP has decreased (Figure 5), and that the decrease is due to Agriculture’s slower growth than Service and Industry (Figure 6). A time series graph is also used to show how the share of bank credit to agriculture vis-à-vis the industry’s portfolio has been greater than the share of agriculture vis-à-vis the GDP (Figure 9).
4. *Cross-Section Comparative Graphs:* This article uses cross-section data to compare the share of agriculture vis-à-vis GDP with countries with relatively the same per capita income (Figure 7) and with neighbor countries in ASEAN (Figure 8). The figures show that the Philippine agriculture share vis-à-vis GDP is not abnormally low.
5. *Estimation in Table:* This article uses government data to estimate the actuarial rate of loss of government from loan guarantees in the agriculture sector (Table 1).
6. *Value of Statistical Life (VSL):* The VSL in this article is applied to approximate the government’s revealed value of providing mandatory credit allocation with a government guarantee on principal and risk-free interest.
7. *Theoretical Formulation of Technology:* This article uses the theoretical value of innovation which according to the literature is the Solow Residual and argues how innovation in practice and as written in the present law is difficult to identify.

RESULTS

Mandatory Credit Allocation in Agriculture

Prior to RA 11901 of 2022 [39], the more relevant law was the RA 10000 of 2009 [37] where banks were mandated to allocate 15% of total loanable funds to the agricultural sector and 10% of the same to agrarian reform beneficiaries. As shown in Figure 3, during the first 3 years of the implementation of RA 10000, which began in 2012, banks have been able to comply with the mandatory credit allocation to the agricultural sector. Around 21.7% of the banks' total loanable funds were lent to the agricultural sector. However, the Congressional Policy and Budget Research Department (2021) reported that this continued to decline beginning in 2015 and by June 2022 has fallen to 9.5%. The lack of compliance is worse in the case of the mandatory credit allocation on the agrarian reform beneficiaries.

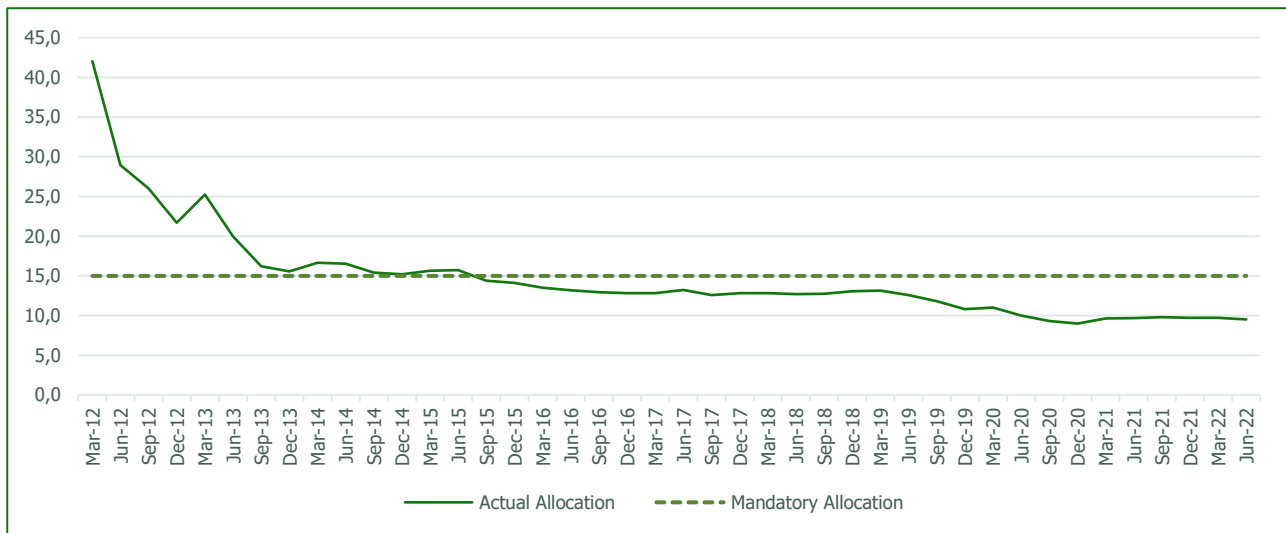


Figure 3. Credit Allocation to the Agricultural Sector. (Source: <https://www.bsp.gov.ph/Statistics/Mandated%20Credit/historical%2071.xls>)

As shown in Figure 4, never in the entire existence of the law was credit allocation complied, the lack of compliance got worse over time, and by June 2022 had fallen to 1%. One reason could be a shortage in demand because prospective borrowers with prospective safe and low-return ventures were weeded out of the market. Another reason could be a shortage in supply because banks opted to pay the fine as a cost of doing business rather than risk lending to potentially non-creditworthy borrowers.

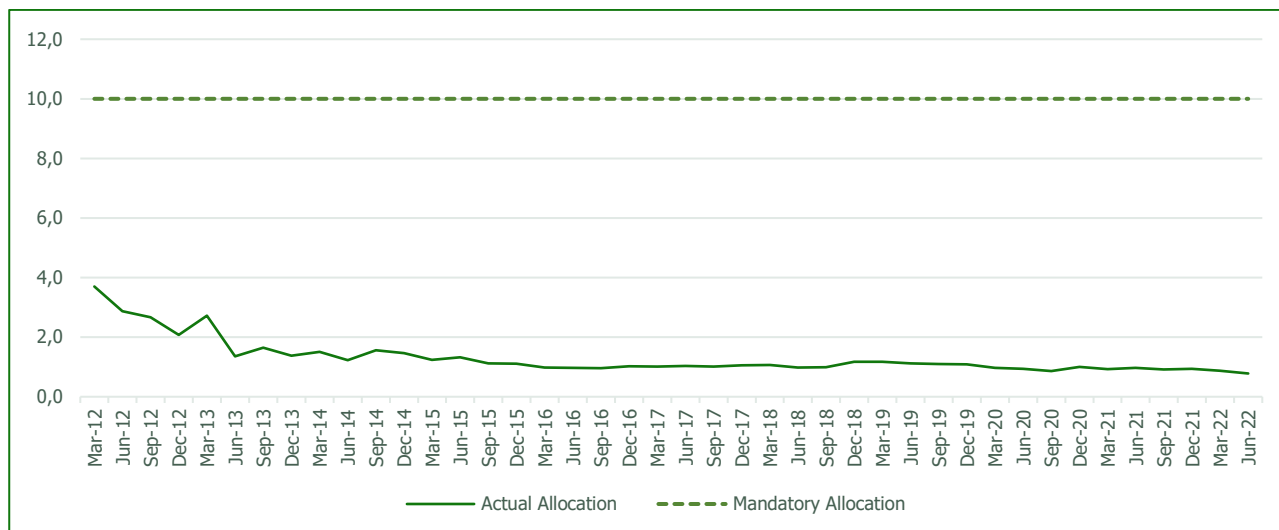


Figure 4. Credit Allocation to the Agrarian Reform Beneficiaries. (Source: <https://www.bsp.gov.ph/Statistics/Mandated%20Credit/historical%2071.xls>)

It is one issue for policy intervention to mandate resources to be allocated to a certain industry. Assuming that mandated allocation is needed, it is another issue of how much resources is to be allocated. Shown in Figure 5, the share of the agricultural sector in the GDP has been noted to have declined and remains the smallest (Philippine Star, 2022). At the beginning of the 21st Century, the share of agriculture is already smallest at 15%. As of the latest data, the share has gotten smaller to 10%. The share of the industry sector which started at 32% declined to 29%, but the share vis-à-vis the agricultural sector started to double and almost triple. Finally, the share of the service sector which started and ended as the biggest increased from 53% to 61%.

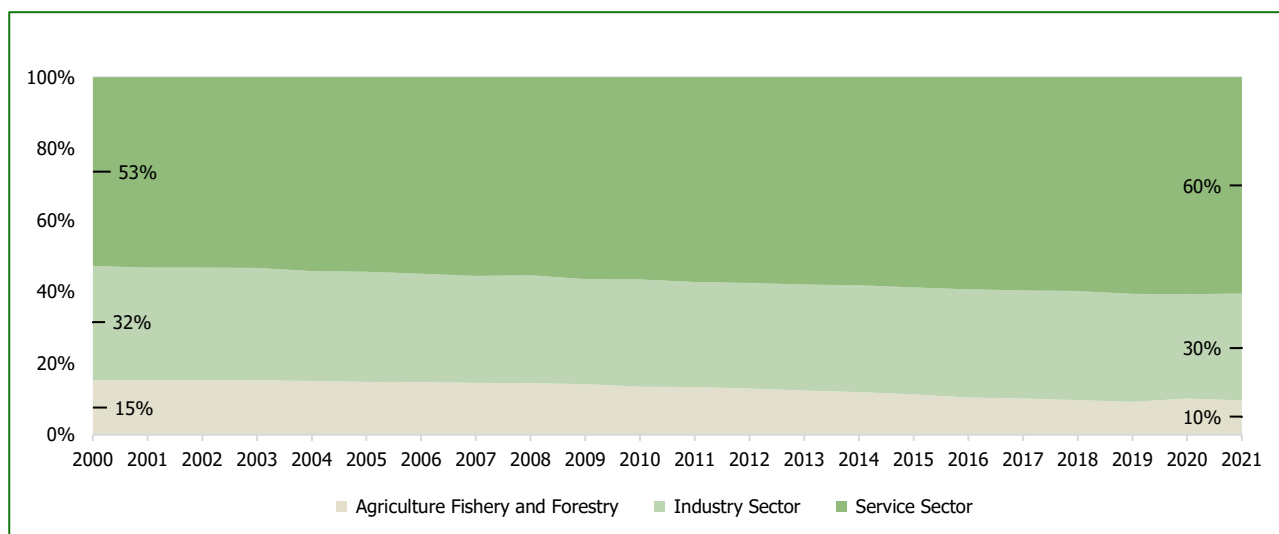


Figure 5. Percentage Share of Major Industries.

Figure 6 shows the peso value of the respective sectors. From the beginning of the 21st century to the present, all sectors have grown except that they have grown in different factors. That is, the service sector almost tripled from PHP 3.7 trillion to PHP 11.2 trillion, the industry sector more than doubled from PHP 2.2 trillion to PHP 5.6 trillion, and the agricultural sector less than doubled from PHP 1 trillion to PHP 1.8 trillion. This means that the agricultural sector's share became smaller not because its output contracted, but rather because its expansion had been outpaced by the two other industries. By the evidence presented in Figure 5 and Figure 6 and with RA 10000 [37], first, the banks have been forced to lend 25% of their loanable funds to a clientele that is worth 15% to 10% of the market; and second, the banks' participation in growing sectors particularly the service sector has been effectively disincentivized.

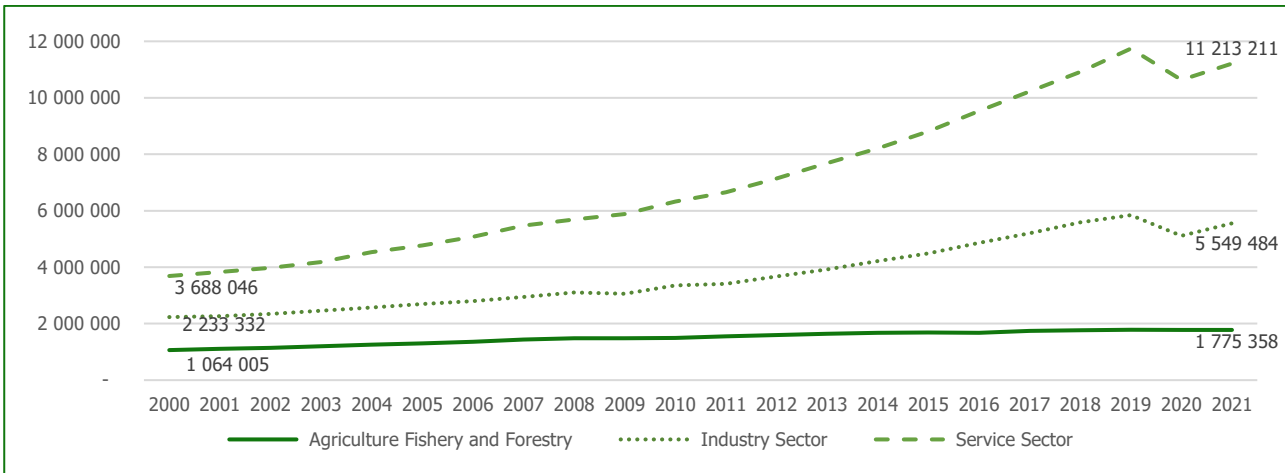


Figure 6. Peso Share of Major Industries (in Million PHP, Base 2018). (Source: Philippine Statistics Authority)

On the opposite side of the debate, the country needs mandatory credit allocation to adhere to structural transformation. Presented by Rostow (1960), the agricultural sector has five stages from poorest to the most developed namely (1) traditional society, (2) pre-conditions for take-off, (3) the take-off, (4) drive to maturity, and (5) mass consumption. Regardless, as one progresses from one stage to another, the share of agriculture in the GDP declines despite the growth in agriculture and because of the bigger growths in the other sectors. Whether the share of agriculture in the GDP is within the “norms” or worryingly low as to merit more aggressive policy intervention to allocate resources to the said sector is worth reviewing.

The World Bank has data on the per capita income of 180 economies. Figure 7 is a cross-section graph that shows the five territories whose per capita income is just above the Philippines, and the other five whose per capita income is just below. Based on 2019 data, from highest to lowest, Georgia is ranked 101st with USD 3.977 per year, the Philippines 106th with USD 3.472 per year, Equatorial Guinea USD 3.302 per year, and so on. The share of agriculture in the GDP is also shown. Among those included in the chart, Micronesia has the biggest share at 22.5%, and Equatorial Guinea has the smallest share at 2.4%. Among those included, the average is 8.7% which is practically the same as the Philippines’ 8.8%.

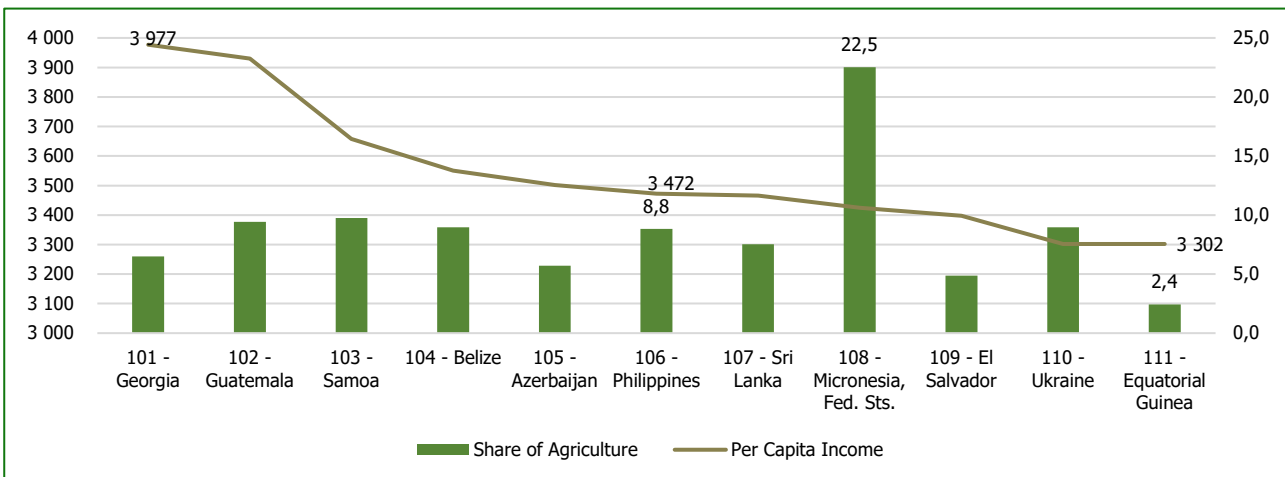


Figure 7. Per Capita Income and Agriculture Share of GDP among “Equals.” (Source: World Bank, <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>)

One can make a case that the selected territories are incomparable due to differences such as in geography and in culture among others. In another cross-section graph in Figure 8, four other Southeast Asian countries are juxtaposed with the Philippines. Albeit with a limited number of territories, the share of agriculture in GDP decreases with higher per capita income. With Malaysia having the highest per capita income at USD 8.224 per year, it has the lowest agriculture share at 7.3%. With Vietnam having the lowest per capita income at USD 2.163 per year, it has the highest share at 14%. In the middle is the Philippines. Among the selected ASEAN territories, the average share is 10.2%, and the Philippines is just

below at 8.8%. According to these observations, the Philippines' share of agriculture in the GDP is by no means excessively deviant from the "normal".

In Figure 9, the share of the agricultural sector in the GDP vis-à-vis the share of credit allocation in loanable funds is shown. As credit allocation declines through the years, it remains above the share of the agricultural sector in the GDP. In addition, the credit allocation seems to have corrected with the overall clientele of borrowers. In 2012, the credit allocation was almost triple the share of the agricultural sector in the GDP, that is 33% versus 13%. By March 2021, the credit allocation is just above the share, which is 11% versus 9%.

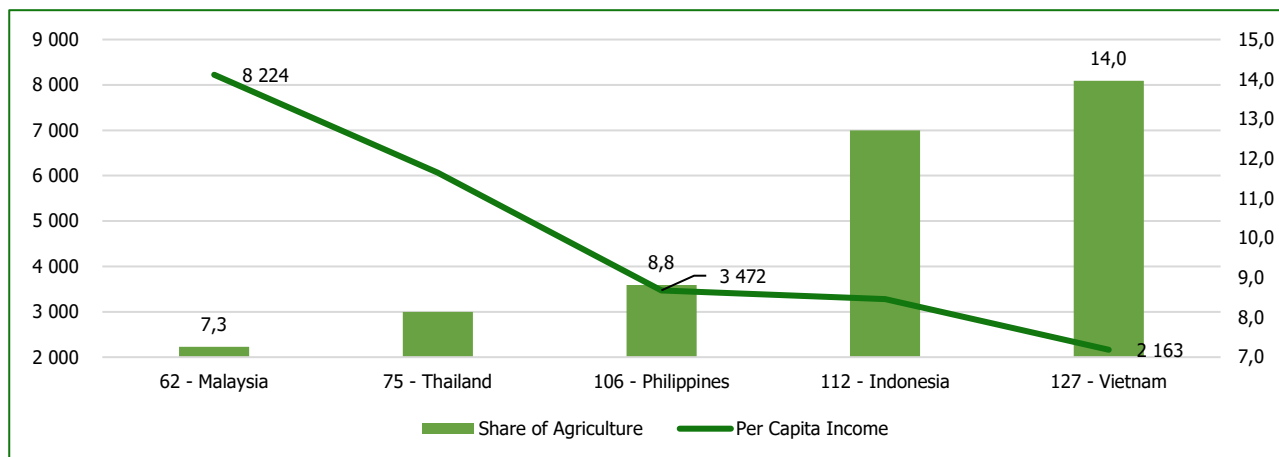


Figure 8. Per Capita Income and Agriculture Share among Neighbors. (Source: World Bank, <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>)

Another example of an argument for mandating resources to be allocated in the agricultural sector is the big push theory first brought out in literature by Rosenstein-Rodan (1943). The premise of the argument is that the agricultural sector is in an underdeveloped state of equilibrium, and that equilibrium is stable. If left on its own, the sector being in stable equilibrium stays there. Hence, the solution is for some external aid to push the sector out of that equilibrium. With enough push, the sector reaches a threshold where the "invisible hand" will move it to a more developed state of equilibrium that is stable. Another example is in terms of international trade via the infant industry argument. Still, one may argue in terms of political economy in the interest of national defense and self-sufficiency. If one assumes that at least one of such arguments holds, then there is a basis to help the sector. However, none of such arguments justify that the banking sector should be left on its own to champion the cause.

Note that there is an actual government guarantee except that the amount that has been guaranteed has been practically non-existent. Such a guarantee is facilitated by the Philippine Guarantee Corporation and is funded through the Agricultural Guarantee Fund Pool (AGFP). Accordingly, "the guarantee cover shall be up to 85% of the principal balance of the loan at the time of claim but not to exceed the amount of credit ceiling per commodity." Hence, 85% is far from the minimum guarantee needed which is 100% plus the risk-free interest.

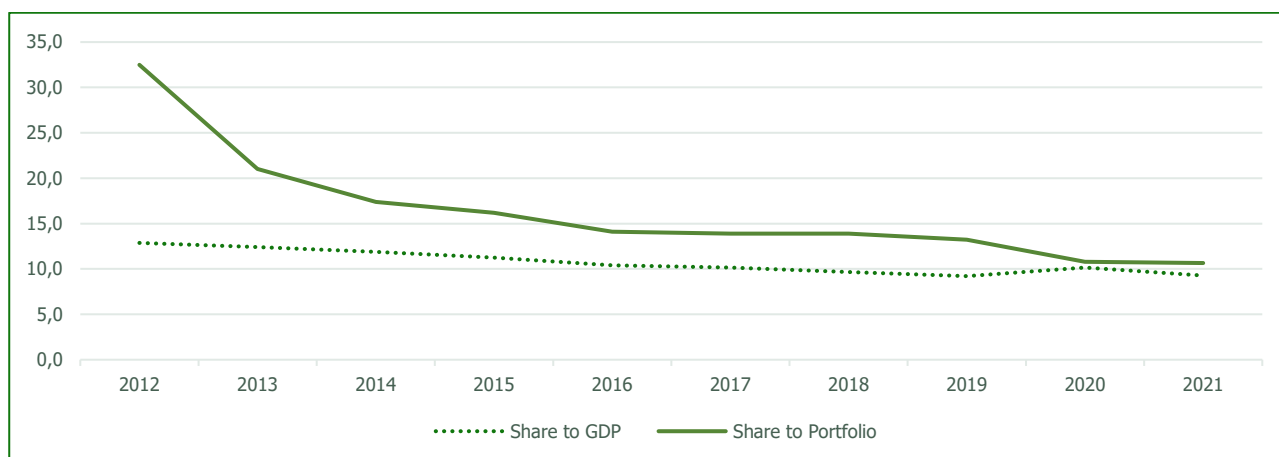


Figure 9. Share of Agriculture to GDP and Share of Credit Allocation.

According to Section 15.2 of RA 10000 (37), "Ninety percent (90%) of the total penalties collected on non-compliance/under-compliance with the mandatory agar-agar credit ... shall be remitted by the BSP to the Agricultural Fund Guarantee Pool (AGFP) and the Philippine Crop Insurance Corporation" with 50%-50% allocation. "The percentage allocation may be amended by the Secretary of Agriculture ... according to the needs of the agri agra sector. The remaining ten percent (10%) ... shall be retained by the BSP to cover its administrative expenses".

Consider the numbers provided in Table 1. In rows A and B, I show the non-compliance and compliance figures. In row C, I estimate the AGFP revenue from penalties as one-half of 1% of non-compliance with 45% of it going to AGFP (45% goes to Phil Crop Insurance Corporation while the BSP keeps the remaining 10%). In rows D and E, I show the amount guaranteed and guaranteed claims paid in billions of PHP (Tables 14 and 15 of the source). In row F, I show the estimated percentage profit given the "revenue" from penalties from row C and the cost paid from claims in row E, which are 61 and 1,457% respectively. In row G, I estimate the percent of compliance that is guaranteed given the figures from the amount that is guaranteed in row D and the amount that the bank lent in row B which are 0.23% and 0.07% respectively suggesting that the amount that is guaranteed is practically non-existent. In row H, I estimate the actuarial rate of loss of government given the claims paid in row E and the amount that is guaranteed in row D which are 29% and 23% suggesting that a big percentage of borrowers are not creditworthy.

Table 1. State of Government Guarantee in Agri-Agra (in PHP billions, PHP 56.20 = USD 1). Note: i - Derived from BSP; ii- $C = (1 \div 2) \times 0.01 \times A \times 0.45$; iii -Department of Agriculture: [file:///C:/Users/63927/Downloads/Agri-Credit-Guarantee-and-Insurance-Program-Performance-for-2019%20\(1\).pdf](file:///C:/Users/63927/Downloads/Agri-Credit-Guarantee-and-Insurance-Program-Performance-for-2019%20(1).pdf); iv - $F = C \div E - 1$; v - $G = D \div B$; vi - $H = E \div D$.

	2018	2019
A. Non-compliance (i)	533.429	809.4798
B. Compliance (i)	707.395	733.920
C. Agricultural Guarantee Fund Pool (AGFP) "Revenue" (ii)	1.200	1.821
D. Guaranteed (iii)	1.615	0.519
E. Guaranteed Claims Paid (iii)	0.461	0.117
F. Percentage "Profit" of AGFP (iv)	161%	1,457%
G. Percent of Compliance Guaranteed (v)	0.23%	0.07%
H. Actuarial Rate of Loss of Government (vi)	29%	23%

Finally, the amount that the government allocates from its budget to credit may reveal the social value of mandatory credit allocation with a government guarantee on principal and risk-free return. According to the Department of Management (2023), the amount that was allotted for credit to the agricultural sector was PHP 2.75 billion or USD 49 million. Estimated from Table 1, the latest data on default risk is 23%. According to the BSP (2023), the latest treasury bill data which is the fourth quarter of 2023 has a yield of 5.9%. From these numbers, the government may guarantee PHP 11.29 billion or USD 20 million which is less than 1% of the total loanable funds of about PHP 8 trillion [$PHP\ 2.75\ billion \div [0.23 \times (1+0.059)]$]. This means that the government is mandating banks to allocate 25% of loanable funds to the said sector when its revealed "value of statistical of life" or VSL is equivalent to less than 1%.

Mandatory Credit Allocation in Micro Small and Medium Enterprises

According to Section 18 of Republic Act 9501 [36] "for the period of ten years from the date of the effectivity of this amendatory Act, all lending institutions as defined under Bangko Sentral ng Pilipinas rules, whether public or private, shall set aside at least 8% for micro and small enterprises and at least 2% for medium enterprises of their total loan portfolio based on their balance sheet." Signed by President Arroyo on 23 May 2008, the law lapsed in 2019. But on 20 September 2021, Senator Leila de Lima filed a bill renewing the said law (Senate of the Philippines, 2021). Acknowledging that the law has lapsed and that the pending bill has not moved, the constituent beneficiary's base is significantly big and politically convenient to support. Hence, the mandatory credit allocation in the MSME sector is as relevant as the two others mentioned in this paper.

The law defines Micro Enterprises as a business activity or an enterprise with an asset of up to PHP 3 million or USD 53 thousand, Small Enterprises with an asset over PHP 3 million up to PHP 15 million or USD 270 thousand, and Medium Enterprises with asset over PHP 15 million and up to PHP 100 million or USD 1.78 million. According to the Department of Trade and Industry or DTI (2023), "The 2020 List of Establishments of the Philippine Statistics Authority (PSA) recorded a total of 957,620 business enterprises operating in the country. Of these, 952,969 (99.51%) are MSMEs and 4,651 (0.49%)

are large enterprises. Micro enterprises constitute 88.77% (850,127) of total MSME establishments, followed by small enterprises at 10.25% (98,126) and medium enterprises at 0.49% (4,716)".

In terms of employment, "these MSMEs generated a total of 5,380,815 jobs or 62.66% of the country's total employment. The micro-enterprises produced the biggest share (29.38%) closely followed by small enterprises (25.78%) while medium enterprises were far behind at 7.50%." In terms of value-added, the MSME sector contributed 35.7% of the GDP, with small enterprises accounting for 20.5%, medium enterprises for 10.3%, and micro enterprises for 4.9%. In terms of export, "MSMEs account for 25% of the country's total export revenue. It is also estimated that 60% of all exporters in the country belong to the MSME category".

For SMEs (without micro-enterprises) to grow and develop, Francisco et al (2018) identified the obstacles and enablers of the sector in terms of accessing the global value chain. They cited the works of Beck and Demircug-Kunt (2006), Berger and Udell (1998), and Chittitaworn et al (2011) identifying credit access as one of the constraints of SMEs for higher productivity, growth, and development. "Many SMEs are reluctant to invest and take out a loan because of risk aversion brought by absence of fallback and safety nets in case the investment produces negative returns." Their policy recommendation is to encourage SMEs' access to credit via improved terms such as longer repayments. However, the premise is that the banks have not reached their maximum concession. That if improved further, the banks will inevitably pass the cost to SMEs in other forms or elsewhere in other sectors. In the case of extending longer repayments, the interest rate risk increases including the risk of getting underwater which forces banks to increase interest as a premium for additional risk which weed out low-return-low-risk SMEs.

In Figure 10, the actual versus the mandatory credit allocation for micro and small enterprises is shown. First, the actual allocation has declined through the years. Second, the actual allocation started in compliance in March 2009 but has been under compliance since June 2011. Third, under-compliance is at biggest at present at 2% versus the mandatory 8%. And fourth, by the trajectory of actual allocation, the under-compliance may get even bigger. In Figure 11, the actual versus the mandatory credit allocation for medium enterprises is shown. First, the actual allocation has also declined through the years. Second, banks have complied with the entire existence of the law. And third, banks are trajected to reach minimum compliance. Why have not the banks been able to comply in the case of micro and small enterprises, but have done so in the case of medium enterprises? The common elements are that micro and small enterprises have smaller or no collateral and are disadvantaged in terms of economies of scale.

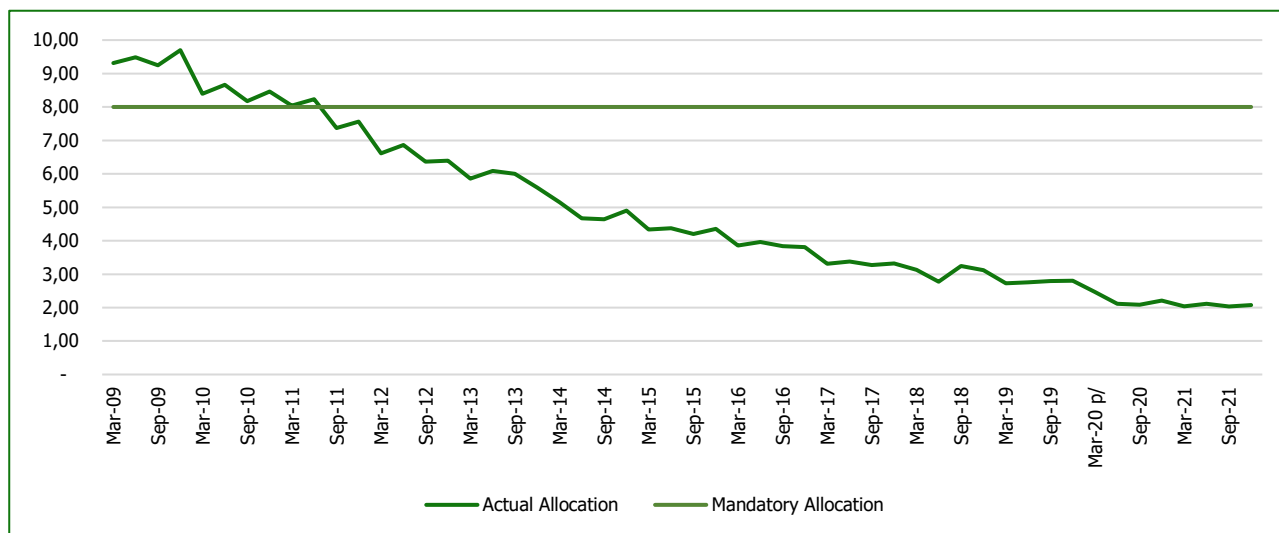


Figure 10. Actual versus Mandatory Credit Allocation in Micro and Small Enterprises. (Source: <https://www.bsp.gov.ph/Statistics/Mandatory%20Credit/historical%2071.xls>)

Given the contribution of MSMEs employment at 63%, national output at 36% and export at 25%, 10% mandatory credit allocation in this sector is clearly socially desirable. Factually, the mandatory credit allocation is proportionately less than MSMEs' contribution to the economy. Hence, it is ideal to increase the credit allocation in this sector. Whether the credit allocation is kept still or increased, it must be accompanied by a government guarantee on the principal and risk-free interest rate, especially since most enterprises in this sector do not have enough assets to offer as collateral. Still, this implies that the ideal level of mandatory credit allocation even if socially desirable may not necessarily be met because it will be limited by the level of government guarantee which is limited to the government budget.

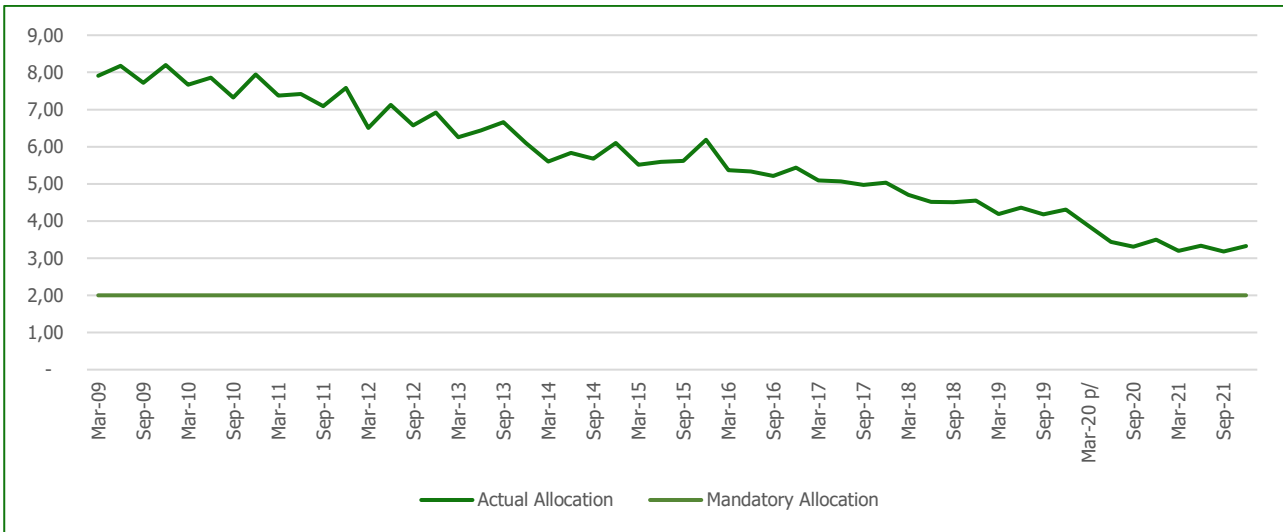


Figure 11. Actual versus Mandatory Credit Allocation in Medium Enterprises. (Source: <https://www.bsp.gov.ph/Statistics/Mandated%20Credit/historical%2071.xls>)

Note that just as in agriculture-agrarian reform programs, there is an actual government guarantee in the MSME sector that is facilitated by the Philippine Guarantee Corporation except that the amount that has been guaranteed has been practically non-existent. For example, the Philippine Guarantee Corp. (2021) "has increased the number of loans it guaranteed for micro, small and medium enterprises (MSMEs) as of end-February this year by 360% to PHP 952.5 million, from just PHP 207 million as of December 2020" (USD 16.95 million from USD 3.68 million). Had the law not lapsed, as of December 2021 and using BSP (2022) data, the guarantee amounts to 0.1% of the mandatory credit allocation for the micro and small enterprises only [*The total loan portfolio net of exclusions as of December 2021 was PHP 8.571 trillion. $0.952 / (0.08 \times 8,571) = 0.0014$*].

Mandatory Credit Allocation in Innovation

Expenditure on innovation is growing. In fact, the government has shown this measured in terms of the expenditure on "intellectual property production." This subset of expenditure on innovation is growing by about 20% per year or doubling every four years. However, this needs further clarification. The expenditure or the "input of resources" on innovation is growing. However, the income or the "output" of the exercise is ambiguous. More so, while there is symmetric information on the amount of money to borrow to be spent on innovation, there is asymmetric information on the contribution of the amount of additional income that can be brought about from the innovation.

From the theoretical point of view, in the Neoclassical Solow Growth models (see Solow, 1956, and Swan, 1956), where Y is output, A is technology, K is capital, L is labor and α is capital elasticity of output, the production can be expressed as:

$$Y = AK^\alpha L^{1-\alpha}, \quad 0 < \alpha < 1. \quad (4)$$

Where y is per capita income and k is capital-labor ratio, it can be shown that the growth rate of technology is:

$$\frac{\Delta A}{A} = \frac{\Delta y}{y} - \alpha \frac{\Delta k}{k}. \quad (5)$$

The above equation is referred to in the literature as the Solow residual. The growth rate of technology which is synonymous with innovation is the difference between the growth of per capita income and a fraction of the growth of capital labor ratio. Hence, the growth of innovation is additional growth that cannot be measured by measurable variables specifically the GDP, population, and capital. That is, the growth of innovation is the unexplained residual of those that can be explained.

In the Endogenous Growth models (see Romer, 1990; Grossman and Helpman, 1991; and Aghion and Howitt, 1992), where a_K and a_L are the proportions of capital and labor devoted on research and development, and where θ , β , and γ are technology, capital and labor elasticities of output, the production function can be expressed as:

$$Y = A^\theta [(1 - a_K)K]^\beta [(1 - a_L)L]^\gamma, \quad \theta > 0, \quad \& \quad 0 < \beta, \gamma < 1. \quad (6)$$

From that, the equilibrium growth rate of technology can be determined within the model thus "endogenous". Where n is the population growth rate, the equilibrium growth rate of technology is:

$$\frac{\Delta A}{A} = \frac{\gamma n}{1 - \beta - \theta} \quad (7)$$

The equilibrium growth rate of innovation is a function of n , γ , β , and θ . Labor and capital can be measured. Labor and capital elasticities, or β and γ can be estimated. However, technology elasticity of output or the percentage change in output per percentage change in technology or θ is still practically ambiguous.

This might explain how innovation is immeasurable as defined in the law. For example, the law [61] states that "Innovation refers to the creation of new ideas that result in the development of new or improved policies, products, processes, or services which are then spread or transferred across the market." The intent is noble, and the theory is sound, but they are practically immeasurable. The notion of improvement is anything that cannot be accounted for by labor and capital. Similar ambiguity is present in other definitions within the law. Similar arguments can be seen in the rest of the definitions.

Even if innovation can be successfully measured and turns out to be profitable, the notion of forcing banks to lend becomes unnecessary. From a historical standpoint, innovation is almost never created by the government, but rather by creative destruction. Originally coined by Joseph Schumpeter (1942) "creative destruction" occurs during competition when private agents out of profit motive innovate new creations to replace and therefore "destroy" outdated ones. The concept of creative destruction renders mandatory credit allocation nugatory. If the private sector successfully creates a certain thing or say, an industry, and thereby destroys the older one, then there is no need to force banks to lend because the banks themselves will see the profitability of that new industry. Banks need not be forced as they will be the ones who will participate in the industry.

Going back to theory. In Endogenous Human and Physical capital models (see Mankiw, D. Romer and Weil, 1992), where H is human capital, K is physical capital, investment savings are divided between those for human capital such as training, s_H , and those for physical capital such as better equipment, s_K . The growth of physical capital and human capital are:

$$\Delta K = s_K Y \quad \& \quad \Delta H = s_H Y. \quad (8)$$

In other words, the investment is on human capital and physical capital, not on innovation per se. That is, one invests in human capital in the likes of training, education or health, and physical capital, and not on the additional productivity that theoretically results from being trained, more educated, or healthier. Alternatively, one invests in additional equipment or souping up the equipment, or in the upgrade of capital, and not on the additional output that theoretically resulted from more equipment, souped-up equipment, or upgraded equipment. If one goes by this notion of investment, this is already part of RAs 11901 [39] and 9501 [36], when banks lend to farmers and MSMEs for training, and purchasing fertilizer, equipment, and the like.

DISCUSSION

Assume that mandatory credit allocation is warranted and that a government guarantee on principal and risk-free interest is provided, the drawback is that a government guarantee costs taxpayers money. How much taxpayers the government should expose depends on the social value of lending to specific borrowers. Conveniently, the government is in a position to measure the social value in terms of the opportunity cost or by applying the "statistical value of life" of exposure. For example, it can determine the social value by how much it is willing to lose political capital by raising taxes, or by how much resources it is willing to reallocate from other responsibilities such as public education, defense, health, and so on.

If the government is to guarantee payment on principal and on risk-free interest, why not have the government lend the money itself? Alternatively, why can't it be the lender of last resort? The purpose of private banks' lending rather than government ones directly lending is the risk that the latter's operation might be affected by political considerations (Thakor, 2021). Dinc (2005) shows evidence that government-owned banks increase their lending in election years relative to private banks. In Europe, Ianotta et al (2013) find that government-owned banks' operating risk and governmental protection tend to increase in election years. Both lend to the idea that government-owned banks pursue political goals. In 27 developing and 14 developed countries, Boubakri et al (2008) find that politically connected firms that are not necessarily banks exhibit poorer accounting performance than their non-connected counterparts.

Worse, banks may be subjected to crony capitalism. For example, in the 1970s, a known crony Roberto Benedicto was appointed to run the government-owned Philippine National Bank, and the bank's resources were used to bail out government-owned financial institutions run by more cronies (Crewdson, 1986, and Library of Congress). Note that crony capitalism is not unique to the Philippines. Some variations include the case of Turkey (Önder and Özyıldırım, 2013) and Pakistan (Khwaja and Mian, 2005).

How much will the government guarantee on principal and risk-free interest cost taxpayers depending on the expected loss from default? For example, according to the Bangko Sentral ng Pilipinas (BSP), as of June 2022, the total loanable fund of all banks is PHP 8.223 trillion or USD 150 billion. With the 15% mandatory credit allocation in the agricultural sector, the minimum allotment is PHP 1.233 trillion or USD 22 billion. If the probability of default estimated in the succeeding section is 23% and the risk-free interest rate also discussed in the succeeding section is 5.9%, then the expected cost to taxpayers is just over PHP 300 billion ($1.234 \text{ trillion} \times 0.23 \times (1+0.059) = 301 \text{ billion}$) or USD 5.34 billion. This amount is far from the amount the government actually invests in financing agriculture which as stated above is PHP 2.75 billion or USD 49 million Department of Management (2023).

Because of the government guarantee, banks may commit to adverse selection by lending to risky borrowers that without guarantee they would not have lent. However, the evidence for this is limited. To the best of this author's knowledge, the only paper that has explored and confirmed this is Saito and Tsuruta's (2014) in the case of Japan. More so, the said authors admit that the cost of adverse selection does not necessarily mean it outweighs the social benefit of government guarantee. Still, there is an inherent incentive for banks not to engage in adverse selection because the return to lending to credit-worthy borrowers which is the market rate of return is greater than the risk-free return the government would guarantee.

CONCLUSIONS

Government intervention via mandatory credit allocation is given in the agricultural sector, the MSME sectors, and in innovation. For mandatory credit allocation to work, it must be accompanied by a government guarantee on principal and risk-free interest. Matter of fact, all mandated credit allocations are not backed by a "meaningful" government guarantee. Banks are left to fight the cause – they either comply or they pay the fines.

Banks have not been able to comply with the mandatory credit allocation for the agricultural sector because practically the allotment of 25% is prohibitively high to achieve. Agnostic whether 25% is too big or too small, the present credit allocation will predictably increase with a government guarantee. Banks had not been able to comply in micro and small enterprises also but had been able to do so in medium enterprises. It could be because those smaller enterprises have smaller or no collateral and are disadvantaged in terms of economies of scale. Given its share in employment, output, and export vis-à-vis the mandated credit allocation, it is timely to review whether to increase the present mandated credit allocation. Increase or status quo, the government must commit via government guarantee. Mandatory credit allocation on innovation is tricky. Enterprises and not banks should be investing and risking in research and development of new products, technologies, and so on. But once new products or new technologies are developed and proven to be innovative, banks will lend to enterprises to invest on the new products and new technologies for more usage.

Ending with a disclaimer. While access to credit accompanied by government guarantee is necessary and sufficient for mandatory credit allocation to work, these interventions are not sufficient for socially preferential sectors to develop and grow. For example, in the case of small and medium enterprises trying to penetrate the global value chain, access to credit is only tied at seventh among the major concerns behind corruption, high tariffs in export markets, infrastructure, meeting international standards, foreign currency exchange, internet connection, and tied with access to inputs and technology (Francisco et al, 2018). Hence, apart from guaranteed credit allocation with a government guarantee to work, other hindrances must also be addressed to realize development and growth.

ADDITIONAL INFORMATION

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CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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Думлао Л.

ОБОВ'ЯЗКОВИЙ РОЗПОДІЛ КРЕДИТІВ ТА ДЕРЖАВНІ ГАРАНТІЇ НА ФІЛІППІНАХ

Обов'язковий розподіл кредитів – це політичне втручання, спрямоване на те, щоб змусити банки надавати кредити певним секторам, до яких інакше необмежене фінансування не дало б доступу. Хоча дехто стверджує, що обов'язковий розподіл кредитів призводить до неоптимального розподілу ресурсів, показано, що такі результати втручання є соціально бажаним результатом. Однак обов'язковий розподіл кредитів не повинен бути обов'язком лише банків, він має бути підкріплений державними гарантіями. На Філіппінах є три сектори, у яких надають обов'язковий розподіл кредитів, а саме: сільськогосподарський сектор, мікро-, малі та середні підприємства або сектор ММСП, а також підприємства, що займаються інноваціями. У сільському господарстві кредитні асигнування є занадто великими й тому повинні бути переглянуті, в ММСП занадто малі й, отже, також повинні бути переглянуті, а в інноваціях їх важко ідентифікувати й визначити, які недоцільно впроваджувати. У всіх цих випадках банки покладаються на відповідну місію практично без державної підтримки. Банки або виконують, або сплачують штраф.

Ключові слова: банківське кредитування, кредитне нормування, фінансування сільського господарства; фінансування мікро-, малих та середніх підприємств (ММСП); фінансування інновацій, Філіппіни

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