

## Indonesia Transport Loan Projects: Development Outcome Attributions (DOA) on Unemployment, Growth, and Poverty

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### ABSTRACT

Our goal was to investigate the effects of international development banks' foreign exchange loan-funded transportation projects. We examined the effects and efficacy of Indonesia's transport loan projects, which were supported by the World Bank and the Asian Development Bank (ADB). To achieve this, 67 projects of \$8.85 billion in value between 1972 and 2020, were analyzed. This study is significant because it is the first in the history of development assistance—after 100 years—that is based entirely on banking theories and practices, employing attribution techniques and presuming that all loans will be disbursed into Indonesia's economy. Nevertheless, the effectiveness narratives are untrue because—after being converted into Rupiah—less than 10% of the loan fund made it to Indonesia's economy. Assuming that 100% of the loans were disbursed into Indonesia's economy—which is not the case—according to our analysis, the loans from both banks decreased growth by 200% and increased poverty by 220%, even if they were successful in providing jobs. The disbursement delays of five to seven years result in capital outflows of more than \$26 for every \$1 loan. Fixing this necessitates a 100% payout in Rupiah into Indonesia's national banking systems the same year that the loan agreements are executed.

Keywords: banking, development aid, growth, loans, poverty, transport, unemployment,

### INTRODUCTION

Fundamentally, transport infrastructure plays a critical role in regional development that affects the disparities among them (Baum-Snow et al. 2020; Koster et al. 2021). Mobility of economics agents such as seller and buyer, goods and services, not only opens a range of opportunities such as networks, information flows, and markets for varieties of products including wealth and welfare transfers. Thus, transport not only provides access but also functions as the main artery and nodal point for

any economic development that affects all facets of human lives. Transportation has always been one of the foundations of human civilization and modern society can be measured by how advanced is their transportation systems. For example, the World Economic Forum's 2017 Travel and Tourism Competitiveness Report<sup>1</sup>, ranks countries based on their tourists' attractiveness in 14 categories, including ground and port infrastructure. The report appraises the quality, efficiency, and density of their ports, roads, railroads, paved roads, the total number of roads; and their ground transport.

<sup>1</sup> World Economic Forum's 2017 Travel and Tourism Competitiveness Report.

<https://www.weforum.org/reports/the-travel-tourism-competitiveness-report-2017> (3 Jan 2022)

Adam Smith (1998) in the eighteenth century emphasized the importance of transport. He argued that transport was a production unit that created but not expendable value. In his division of labor theory, he places significance on the mobility of people and goods and a platform for wider access to open markets. Arguably, economic development needs to be based on a national and international transport system that links economic activities and locations with favorable conditions for production.

Transport infrastructure and traffic flows or mobility of any economic agents are critically important not only for military and defense systems, and the stability of a country but also for the well-being and welfare of their people. A well-integrated network of transport systems achieves this and delivers isolated regions to an open economy. For this reason, as the OECD report shows<sup>2</sup>, many countries are building and maintaining their transport infrastructure by investing about one percent of their gross domestic product (GDP) or around 7.5% of their national expenditure. For comparison, the same report highlights that China spent 5.7% of its GDP on inland transport infrastructure investment in 2018. This makes them among the fastest-growing countries in terms of the volume of inland transport infrastructure investment (+252% between 2008 and 2018 in constant 2015 prices).

Indonesia is no exception. In 2015, it invested about 3.5% of GDP compared with 8% in 1997.<sup>3</sup> About 24% of its GDP is derived from transportation and logistics<sup>4</sup>. Bustan (2015) elaborates on the government of Indonesia (GOI) spending on land transport provinces in four provinces (Maluku, North Maluku, Papua, East Nusa Tenggara, and West Papua) is about 8.93%. Central government expenditure for sea

transportation is around 2.49% of GDP. This investment is intended not only for improving and maintaining the current transport infrastructure but also for developing and constructing new and integrated modern multi-modal transport systems. The main objectives, among others, are, promoting sustainable growth, creating jobs, reducing poverty, and increasing mobility. In its efforts to improve its transport infrastructure, Indonesia has borrowed from public and private partners. This includes borrowing from the Multilateral Development Banks (MDBs).

Our study is on Indonesia's borrowing for its transport investment from the Asian Development Bank (ADB) and the World Bank and their impacts on unemployment, growth, and poverty. Additionally, on capital deformation or capital flights as a result of foreign currency loans. Both ADB and the World Bank shared a common mission, which is to fight and reduce poverty. Both banks have provided transport loans since the 1970s with nearly 1% of Indonesia's 2020 current GDP. We applied the attribution technique (expressed as % of GDP) in evaluating the effectiveness of Indonesia's borrowing. We discovered that both ADB and World Bank's loans, despite having some positive and negative impacts on both unemployment and growth, significantly worsen poverty by over 200% and cause capital flights of more than \$26 per \$1 loan. The main problem our paper tackles is the effectiveness of ADB and World Bank transport loans and their disbursement delays—and their impacts—which are generic in all MDBs. In comparison, commercial banking disburses loan funds within one day, whereas the MDBs, including the ADB and World Bank, on average are more than 5-year.

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<sup>2</sup> stable-inland-transport-infrastructure-investment-share-gdp-oecd.pdf. <https://www.itf-oecd.org/sites/default/files/docs/stable-inland-transport-infrastructure-investment-share-gdp-oecd.pdf> (3 Jan 2022)

<sup>3</sup> Diagnosing the Indonesian Economy: Toward Inclusive and Green Growth, edited by Hill, M.E. Khan & J. Zhuang, ADB 2012.

<sup>4</sup> Where to Invest: Transportation & Logistic Industry in Indonesia. <https://www.cekindo.com/sectors/transportation-logistic-indonesia> (3 Jan 2022)

We begin with elaboration on basic theories and our hypothesis, followed by a literature review and our lucubration. We expound on our quantitative non-econometric methodology before presenting our findings and analysis. Our study implications and recommendations are presented before we reach our conclusion.

### **Fundamental Theory and Hypothesis**

In the fourteenth century, Ibnu Khaldun issued a warning that a lack of government expenditure results in a capital deficit, which lowers profitability for business owners and forces them to slash expenses and employment. *“Now, if the ruler keeps it [the expenditure fund] to himself [undisbursed], it is lost to the subjects”* (Khaldun, 1377, p.365).

Similarly, we hypothesize that when Indonesia's loan funds from the ADB and World Bank remain undisbursed or delayed, they cause a shortage of capital, demand reduction, raise unemployment, and consequently loss to Indonesia. Other theories will be revealed as we discuss the literature findings.

### **Literature**

#### ***Development aid attributions***

OECD (2020)<sup>5</sup> categorizes development loans from the MDBs as development aid (or aid). In the aid monitoring and evaluation (M&E) area, the discussions and debates on how best to evaluate their effectiveness are unsettled. The Development Assistance Committee (DAC) Working Group on Aid Evaluation defined attribution as: *“The ascription of a causal link between observed (or expected to be observed) changes and a specific intervention. Note: Attribution refers to that which is to be credited for the observed changes or results achieved. It represents the extent to which observed development effects can be attributed to a specific intervention or performance of one or*

*more partners taking account of other interventions, (anticipated or unanticipated) confounding factors, or external shocks”* (OECD, 2002, p.17).

Attribution in assessing development aid impacts and effectiveness has been a long outstanding difficult issue (Bourguignon and Sundberg, 2007, p.316) that aid agencies have been struggling with. Furthermore, there is no concerted approach to tackling the attribution issue and it is more diverse than the analysis of aid effectiveness and impact (Sasaki, 2012, p.34). Rahman (2017) argues that attribution is a fundamental problem in gauging aid effectiveness apart from donors' motivations. This has long been a subject of contention and remains a herculean task. In financial portfolio management, attribution analysis is a method for evaluating the performance of a portfolio or fund manager considering three factors namely; the investment manager's style, stock picks, and decision timing (Investopedia, 2020)<sup>6</sup>. Despite, its attempts to provide a quantitative analysis, it is largely qualitative and hence invested with bias.

It is apparent that 'cause' and 'effect' relationships with the qualitative approach are always in correlational and 'probabilistic' relationships as do social sciences. Accordingly, this essentially positions attribution results on immediate unstable ground (Iverson, 2003, p.3) and is prone to skeptical inquiries. Iverson explains the 'attribution problem', where establishing causality is difficult and has a long history in the field of evaluation. Therefore, strengthening the foundation of attribution analysis by replacing qualitative with quantitative methods is critical in eradicating bias and providing a stable foundation for building the analysis. Sachs (2005, p.278) emphasizes that much clearer quantitative benchmarks tailored to the national conditions and needs are critical for measuring the impacts

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5 OECD categorizes aid as all assistance in the form of technical assistance (TAs), grants, loans, and in-kind contributions (OECD, 2020).

<https://data.oecd.org/oda/net-oda.htm> (Accessed 17 Dec 2020)

6 <https://www.investopedia.com/terms/a/attribution-analysis.asp> (30 Oct 2020)

of any development projects and/or programs, particularly those of poverty reduction.

Despite Puri et al. (2015) providing stocktaking of methods for the quantification of impacts currently, at the best of our knowledge, there is no accepted quantitative or empirical standard methodology for attributing development outcomes versus the source of funding be it loans, grants, or Technical Assistance (TA).

#### ***Attribution through triangulation***

Triangulation is a technique commonly used in the geodetic and surveying area. It is the basis of satellite and geo-positioning systems (GPS). It uses at least 2 reference points to pinpoint any other points. The more reference points are used to triangulate a point, the more accurate the result. Aid M&E also uses more than one method or multiple methodological techniques and tools (Denzin, 1978). Triangulation tackles both validity and reliability (Farquhar et al, 2020, p.9 citing Beverland & Lockshin (2003); Yin (2018; Jick (1997); Miles & Huberman (1994)).

A mixed-methods or methodological triangulation was championed by Norman Denzin (1978).

*The rationale for this strategy is that the flaws of one method are often the strength of another; and by combining methods, observers can achieve the best of each while overcoming their unique deficiencies... When a hypothesis can survive the confrontation of a series of complementary methods of testing it contains a degree of validity unattainable by one tested within the more constricted framework of a single method... **methodological triangulation** involves a complex process of playing each method off against the other to maximize the validity of field efforts. Assessment cannot be solely derived from principles given in research manuals - it is an emergent process, contingent on the investigator, the research setting, and the*

*investigator's theoretical perspective* (Denzin, 1978: 308-310).

Denzin (1978) suggested four distinct triangulation components namely;

- ***Theoretical triangulation*** involves multiple theories.
- ***Investigator triangulation*** is when several different researchers collectively contribute to the study to collect, analyze, and interpret data and observations.
- ***Methodological triangulation*** necessitates adopting multiple methods to observe and study a particular phenomenon often by combining qualitative and quantitative approaches.
- ***Data analysis triangulation*** applies several different methods of analyzing and interpreting data to ascertain the validity of the conclusions and the robustness of the results.

Our study applies all four triangulation components in some ways while emphasizing the data analysis through attributions (expressed as % of GDP) and their results triangulation as empirical analysis.

#### ***Capital Flights: Return on \$1 investment in development aid***

References in the last 50 years suggest that for every \$1 aid received by developing countries, between \$0.15 and 24 are generated elsewhere. For example, US Congress's (1968a, p.280) record relating to the 1969 budget appropriation for ADB registers "... we find that many of the members ... put in \$1 and get out \$7." This is consistent with, a \$7.10 increase in export for Australia (Australian National University (ANU), 2017)) for each Australian Dollar aid, \$7 lent out by commercial banks for every \$1 investment by MDBs (Lotti and Presbitero, 2019), more than \$10 (GFI et al, 2015, p.3) and \$24 (Hickel, 2019) capital outflow from developing countries. Andrews and Wilhelm (2008, p.2) citing Kharas (2008) estimates a cost deviation of 22% whilst Jepma

(1991) exhibits 15-30% measured against disbursements.

According to Griffiths (2014), interest payments alone consume 0.8% of GDP, whereas capital flight as a whole accounts for 7.6% of GDP. It is predicted that developing nations must repay their loans in US dollars at a rate of 24 to 25 times the loan value (Hickel, 2017; Powell, 2005). Put another way, the borrowers repay \$25 for every \$1 loan.

Our calculation, which detail is beyond the scope of this paper, using banking theories and practices gives a bigger result of over \$35 per \$1 loan after incorporating the unequal exchange in the form of over 500% collateral including the borrowers' sovereignty. Those countries' growth is reduced or retarded by about four times (400% assuming that Indonesia's expenses are 15% of GDP) and this ends up in the developed countries' GDP. As Hickel (2017) puts it "*[a]id is effectively flowing in reverse. Rich countries aren't developing poor countries; poor countries are developing rich ones.*"

#### **Disbursement delays impacts**

On average, loan transport projects were designed for 5 years. However, almost each of them suffers 2-year delays, thus a total of 7 years (Witular, 2016).

The average GDP growth is reduced by two-thirds (67%) when aid volatility doubles in the form of distribution delays (Aldashev and Verardi, 2012:3-4). Using data from more than 100 nations, World Bank employees (Jarotschkin and Kraay, 2016, p. 235) have discovered patterns of currency depreciation brought on by delays in the distribution of economic funds. They establish that "*there is little evidence that aids inflows lead to significant real exchange rate appreciations*". Their results show that after 5 years of delay, for every 1% of GDP of aid, the national currency depreciates 0.5% (Jarotschkin and Kraay, 2016, p.236). Ingratubun (2021) shares his finding of 33% Indonesian currency, Rupiah depreciation for every one percent of GDP of ADB loan disbursement delay.

#### **Return on Investment in Transport**

The American Public Transportation Association (APTA) report (2020) shares that by the end of the 20-year transport investment period yields a ratio of approximately \$5 increase in GDP for each \$1 annual investment. This includes a \$3 increase in productivity of the overall economy as a result of cost savings. This entails 49,700 jobs for each \$1 billion investment in public transportation.

#### **The role of capital**

Ibnu Khaldun, in the 14th century, explained why some regions are developing backward and others are forward by using water as an analogy for money or capital that is poured into the economy making everything around it green and fertilizing the soils. Remote from this, they are non-existent (Khaldun, 1377, p.465).

Similarly, ADB loans if they are disbursed in Indonesia, are correlative to capital, greens, and fertile soils (Khaldun, 1377) and various economic indicators of GDP growth, wealth, unemployment, poverty, credit, wages, savings, production capital, and consumption goods

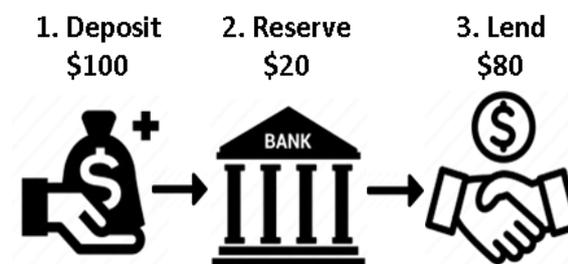


Figure-1. Financial Intermediary Banking (FIB)

(Fisher, 1896, p.534). Lanzalot et al. (2018) show that the Panama Canal expansion project funded by one of the Multilateral Development Banks (MDBs), with a cost of 30% of Panama's GDP has attracted an estimated almost \$10 billion in private investment or 1.8 times the project's cost (almost 60% of GDP). Moore (1983) found statistically significant evidence of the impact of credit on employment (Moore, 1983, p.542).

#### **ADB and World Bank Disbursement Delays**

Like other MDBs, the World Bank and ADB function similarly to conventional banks

(Mazzi, 2013: xxvi). If the borrower signs the Loan Agreement (LA), the credit amount is disbursed in full. This is not the case when borrowing from a commercial bank. The World Bank and ADB do not operate in this manner. The loan fund takes five to ten years to fully distribute.

The borrowers' loan accounts are managed by the World Bank and ADB, and their disbursements are linked to conditions. According to Kanbur (2000), conditionality in its various forms has not succeeded in Africa, and it was intentionally intended to fail as a systematic approach to guarantee aid continued to flow. This criticism comes from a former employee of the World Bank. Conditionality implies the real issue that is "*one of an unhealthy interaction between donor and recipient processes which propagate aid dependence but are not so simple as to be characterized as the strength of the donors and the weakness of the recipients.*" (Kanbur 2000:414).

President Nakao of the ADB confirms that, in contrast to the 5-year typical loan project implementation, 90% of ADB loan projects are experiencing 2-year delays (Witular, 2016). After two years of delays, our empirical investigation covered five years (7 years).

### **Banking Theories and Practices**

To the best of our knowledge, out of thousands of development aid studies and reports (Asatullaeva et al., 2021), Fauci and Ingratubun's (2020) study is the first to combine banking ideas and practices; Werner (2015) laid the groundwork for this analysis. We believe that the first step in evaluating the success of projects backed by loans, especially those using foreign currencies, is to comprehend and apply banking theories and practices to the study. As a result, we quickly discuss the banking procedures that Werner (2014, p. 16) has empirically tested, maybe for the first time in the 5000 years of banking history. For these three banking theories, Werner (2014, 2016) and the IMF (Gross and Siebenbrunner, 2019) offer thorough evaluations of the literature.

### **1. Financial Intermediation Banking (FIB) (or Loanable Funds—LF)**

First, the most widely accepted theory, known as FIB, maintains that banks are nothing more than financial intermediaries. They receive deposits from patient savers (\$100), primarily in cash, and charge interest on the \$80 they lend to clients or hasty spenders (Figure 1). According to the Bank of England, this is a widespread misunderstanding "*...that banks act simply as intermediaries, lending out the deposits that savers place with them.*" (McLeay, et al., 2014: p.15).

As quoted by the IMF (Gross and Siebenbrunner, 2019, p.30) "*Federal Reserve Bank of Chicago 1994: "Of course, [banks] do not pay out loans from the money they receive as deposits. If they did this, no additional money would be created. What they do when they make loans is to accept promissory notes in exchange for credits to the borrowers' transaction accounts. Loans (assets) and deposits (liabilities) both rise by [the amount of the loan]."*" (Emphasized)

### **2. Money Multiplier Or Fractional Reserve Banking (FRB)**

Second, the FRB theory accepts that banks as a group create money through the development of multiple deposits by utilizing a portion of their own funds as the foundation for the creation of credit (Figure 2). According to the 10% reserve rule, a bank that has \$100 in cash on hand can lend out \$1,000 ten times (Nichols, 1992: p. 11). According to the law of the Bank of Indonesia, Indonesia adopts 10% regulations. Here, banking laws already demonstrate the involvement of the state. Nobel chemist and political ecologist Frederick Soddy (1926) has quixotically condemned compounded interests as unsustainable and in violation of the second law of thermodynamics of entropy, in addition to this FRB practice.

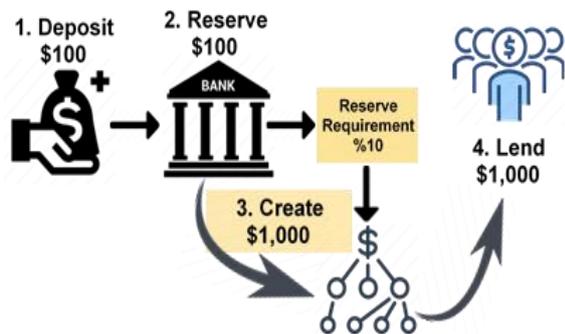


Figure-2. Fractional Reserve Banking (FRB)

On March 26, 2020 (The Fed, 2020), the Fed repealed this condition, allowing any bank to make loans with no reserves (Nichols, 1992: p. 3). Mathematically, empirically, and practically, Werner (2014, 2016), Keen (2014), Moore (1983), and an increasing number of central banks, such as the Fed (Carpenter and Demiralp, 2010) and the Bank of England (McLeay et al., 2014), have demonstrated that both the FIB and FRB theories are untenable, factually incorrect, and not reflective of reality; as such, they are not defensible. According to some literature, FRB and FIB are LF. Despite this, The Fed (2021) later acknowledged in its official book on Modern Money Mechanics since 1961 (Nichols, 1992 (1st ed., 1961) the “fact that reserve requirements have no essential role in an ample-reserves regime. So, mathematically, the money multiplier equation is literally no longer definable.” Although this can seem innocuous, numerous university curricula and textbooks worldwide have mirrored this. This covers national banking acts and laws as well as (almost) all central banks. The Bank of Indonesia, for instance, has Law No. 23 (1999).

### 3. Credit Creation (CC)

Third, the most widely accepted theory that is currently in use worldwide is the CC, sometimes referred to as endogenous money (EM), which states that banks do not need reserves or deposits (Figure 3). According to the Bank of England, the moment a client signs the Loan Agreement (LA), money is created. They

claim that “The bank, therefore, creates its funding deposits, in the act of lending in a

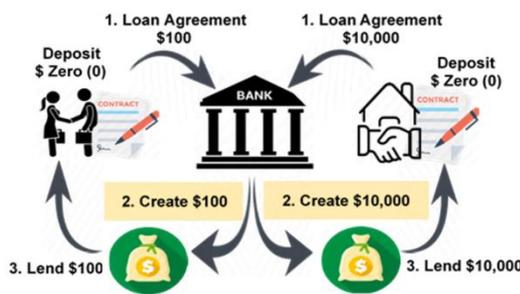


Figure-3. Credit Creation (CC) or Endogenous Money (EM)

transaction that involves no intermediation whatsoever.” (Jakab & Kumhof, 2015: p. ii). A signed promissory note (PN) or letter of agreement (LA) is all that banks need to create credit money. Based on 5000 years of experience, this is the oldest banking theory in modern civilization (Werner, 2016; Hudson, 2018). In the first-ever real-time, in-bank observation of five millennia of contemporary banking, Werner (2014: p. 14) conducted a realistic empirical test. From the time of the LA signing, until the credit money arrived in his bank account, the entire procedure was filmed by a BBC crew. Compared to the fund payout by the MDBs, which takes more than five to ten years, the complete process took thirty-five minutes (Ingratubun et al., 2021).

Following Werner (2014)'s study's release, central bankers collectively acknowledged the long-standing belief that banks produce money “ex nihilo” or out of nothing. This includes the widely known Bank of England paper (McLeay et al., 2014), on which Graeber (2014) offered commentary that “[i]n other words, everything we know is not just wrong—it's backward. When banks make loans, they create money.”

The IMF (Gross and Siebenbrunner, 2019, p.23) substantiates Werner's finding (2014) and concludes that their empirical results “do not negate the fact that **banks create ... money “out of nothing” upon the creation of loans.**” (Emphasized)

- **Foreign Currency Borrowing – Never Enters National Economy**

Today's banking practice (CC) suggests that by borrowing money, irrespective of currency, the borrower is relinquishing its assets to the banks that provide the credit. In other words, the banks need the borrower more than the opposite. This explains the perpetuation of debt since our economy revolves around a debt-based money system. As a result, Werner (2016, pp.375-376) argues that there is no need to borrow in foreign currency as the money never enters the national economy. He contends that:

*“In many, if not most cases, the countries would have been better off by **not borrowing from abroad at all. The foreign money never entered their economies: the accounting reality of international banking shows that US dollars stay in the US banking system, and euros stay in the European banking system. Bank money stays within the respective banking system of the currency of denomination.***

*“In other words, the **dollars that created the ‘Third World Debt’ problem never even entered the borrowing countries.***  
(Emphasized)

Amongst researchers whose works are in agreement with Werner (2016) that “*foreign loans were not necessary for domestic growth*” are Easterly (2013) and (Fauzi and Ingratubun (2020). The IMF also has concluded similarly. If we treated ADB loans as one form of Foreign Direct Investment (FDI), the IMF (Gelos, Sahay, and Sandleris, 2004)<sup>7</sup> resolves that contrary to the theory of sovereign borrowing, FDI does not increase market access (p.23) defined as positive net total flow including a loan to the public

sector (p.10). Therefore, sovereign borrowing does not have a significant impact on the national development of the borrowing countries as shown by Werner (2016).

## METHODOLOGY

Our analysis adopted a quantitative attribution technique. Given the banking theories and practices particularly the CC or endogenous money theory, we applied the ADB and World Bank's “signed” Loan Agreement (LA) amounts and not on actual disbursement because of the money creation.

### Data

We used transport loans time-series datasets from ADB<sup>8</sup> covering 35 projects from 1972 to 2020 totaling about \$3.3 billion. The World Bank<sup>9</sup> transport loan comprises 32 projects, totaling \$3,32 billion (1974-2020). We obtained these development indicators from the World Bank's database;

- Expense (% of GDP) (GC.XPN.TOTL.GD.ZS as of 15/09/2021)
- GDP growth (NY.GDP.MKTP.KD.ZG as of 16/12/2021)
- GDP (current US\$) (NY.GDP.MKTP.CD as of 15/9/2021)
- Unemployment per ILO Estimate (SL.UEM.TOTL.ZS as of 16/12/2021)
- Poverty \$1.9 per day (SI.POV.DDAY) as of 16/12/2021)

<sup>7</sup> Sovereign Borrowing by Developing Countries: What Determines Market Access? -- Prepared by R. Gaston Gelos, Ratna Sahay, and Guido Sandleris -- November 1, 2004 -- IMF Working Paper No. 221. <https://www.imf.org/external/pubs/ft/wp/2004/wp04221.pdf>

<sup>8</sup> Source: <https://data.adb.org/dataset/statement-adbs-sovereign-loans-1968-2017> (11 Dec 2020)

<sup>9</sup> Source: World Bank Open Data <https://data.worldbank.org> or <https://data.worldbank.org/topic/economy-and-growth> (11 Dec 2020)

Poverty data for Indonesia started in 1984 with gaps. We fill these and all other gaps by interpolating or taking them from their neighboring values. All datasets are available online on 5 January 2022.

### The Philosophy of DOA

Attribution in DOA based on Bank Outlays Growth On-development Results (BOGOR) (Ingratubun, 2020) and is defined as taking a slice—from a loaf of bread—or a drop of blood for testing, in the health sector—of economic development indicators (i.e. preferably current GDP or expenses) and examine their compositions most relevant to the project/program, assess and understand their outcome apportionments to the source of funding which in this paper are the ADB and the World Bank loans (expressed as % of GDP) and the slice implies percent of loans disbursement. In the literature, the closest to our definition is provided by Link2007 (2018, p.50) as “(amount of outcome that was caused by the contribution of other organizations or people)”.

Using these equations,

$$x_n = \left(\frac{B}{p}\right)_n \quad \dots (1)$$

$$\bar{x} = \left(\frac{\sum_1^n f(x_n)}{n}\right) / \bar{p} = \left(\frac{\sum_1^n (B/p)}{n}\right) / \bar{p} \quad \dots (2)$$

where:  $x_n$  = Annual poverty attributor;  $n$  = year sequence;  $\bar{x}$  = Overall poverty attributor;  $B$  = Banks loans as % of GDP;  $p$  = poverty;  $\bar{p}$  = mean poverty

We get an average value (1971-2020) on an annual project basis of 0.127 poverty level over the average poverty of 45.371 hence, the ADB loans slice attributes a 0.28% poverty of

Indonesia. This means ADB transport loans—with an average of 0.127% of GDP—contribute to about 0.30% of poverty in Indonesia. We term this as transport poverty attributor. Figure 4

Disbursement S-Curve Profile for 5-year Implementation									
Value (\$)	Year-1	Year-2	Year-3	Year-4	Year-5	Total	Total pa - %GDP	Attributor	
	13.07%	17.51%	21.36%	25.30%	22.76%				
P1	PS	D1	D2	D3	D4	D5	Total	GDP (\$)_Yx	Growth (G)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)*
Year (Y)		(2x3)	(2x4)	(2x5)	(2x6)	(2x7)	Total	(Annual GDP-\$)	(8/9)/10
Y1	PS100%						PS100%	GDP(\$)_Y1	G100%
Y-1	PS	D1 x PS					D1PS	GDP(\$)_Y1	GY1
Y-2	PS		D2 x PS				D2PS	GDP(\$)_Y2	GY2
Y-3	PS			D3 x PS			D3PS	GDP(\$)_Y3	GY3
Y-4	PS				D4 x PS		D4PS	GDP(\$)_Y4	GY4
Y-5	PS					D5 x PS	D5PS	GDP(\$)_Y5	GY5
						Total D5yr			Average
									G5yr

Note:  
 \* Average (1969-2017) Growth at 100% disbursement (G100%) = 1.351%  
 Applicable with 2-year delays (7-year). Please use S-curve profile for 7-year implementation  
 G100% is the benchmark and will be compared with G5yr, G5yrTL2, etc.

Figure-4. Basic Mechanics of the Attribution Method (DOA-BOGOR)

illustrates the basic mechanics of DOA-BOGOR.

### Method

We applied a quantitative attribution method wherein we determined a scenario of 100% loan disbursement upon LA signing<sup>10</sup> in year 1 as the benchmark. As the project progresses based on its S-curve<sup>11</sup> profile, we made a comparison with progressive disbursement and integrated money creation, compounded interests, and their fees from undisbursed amounts. We then triangulated the results from the numerical, graphical, pilot view, and stochastic agent-based modeling (SABM) approaches. We accompanied this with an analysis of capital flight based on the prevalent banking theories and practices.

The exploratory plots include the pilot's point of view. It gives a broad view of Indonesia's more than 40 years of ADB and World Bank transportation loan programs. It makes use of three-dimensional bubble charts as well as basic linear and fractional polynomial regression. Using 100% payout in year 1 as the benchmark and arranging data in a time series, the numerical method computes the impacts of

<sup>10</sup> Keeping in mind that a signed LA is a promissory note and within the same day creates new money and generates gains thereupon.

<sup>11</sup> We adopted the normalized S-curve per ADB APPR 2019\*, Figure 61, pg.41, adjusted with data collected since 2008 and may differ when additional data is

added. \*ADB 2019 Annual Portfolio Performance Report (APPR). Alternatively, Roger's learning S-curve profiles as the basis for constructing disbursement profiles. Adopted from Diffusion of Innovations, fifth edition by Everett M. Rogers (2003)

delays, as shown in Figure 4. Equations 1 and 2 are used in the graphical method to depict and explain the numerical exercise results. visual forecasts using basic regressions or any other prediction tool based on fractional polynomial functions.

This procedure offers a compass or a quasi-GPS for analyzing the information and findings. As a middle ground between polynomial and non-linear regressions, fractional polynomial (FP) regression is chosen (Royston and Sauerbrei, 2007, p. 27). Because the regression findings' Akaike (AIC) and Bayesian Information Criteria (BIC) are less, indicating higher accuracy, we plotted the data using STATA's Twoway graph FP function (fpfit).

We conducted simulations in SABM using a combination of agent-based modeling (ABM) and the stochastic Monte-Carlo approach. The results of these simulations are cross-referenced with numerical and graphical data to enhance the interpretation of the results. Using the Ms-excel *what-if analysis* data table tool, we considered poverty, growth, and unemployment as three distinct agents with payments made on a 5% basis (20 agents total), and we ran them through 1000 iterations.

For statistical analysis, we performed Multivariate time-series analysis with Vector Autoregression (VAR) to complete the Granger-Wald causality test. We analyzed a one- to four-year time lag as in year five, all variables (except current GDP) become significantly (0.00) granger-causing other parameters. We compared these results with FP regression results adopting 5- and 7-year disbursement delays. FP has a smaller AIC and BIC value which signifies more accurate regressions.

In the financial analysis, we assessed a portion of the loans that are disbursed into Indonesia's economy and estimated the capital flights after incorporating money creation based on a signed loan agreement following CC or endogenous money theory. This in-country portion is not yet analyzed following the method we elaborate on in our paper as it is beyond our paper's ambit.

### ***Correlation vs Causation***

One of the generic issues in development aid studies is the conundrum in presenting the correlation and causation of aid impacts. Although the Granger causality Wald test can be used to show causality, the results have not been convincing enough. This is an ongoing struggle due to the nature of the aid intervention cannot be separated from another source of funding and supporting infrastructure. For example, the construction of secondary schools. Even if the funding is 100% from aid funding sources, the donors and recipient governments will struggle to claim any success in fully accrediting their aid fund. This is because, successful construction cannot be separated from good roads, bridges, drainage, water supply, logistics supply chain, availability of skilled labor and building materials, safety, and security to name a few, all of which were funded by other sources. To bridge this issue, we offered our attribution quantitative-comparative triangulation methodology with clear correlation and causation relationships. We adopted the correlation as the benchmark for drawing the causality connection.

In our presentation of the results, on one hand, we attempted to show the correlation of ADB and World Bank loans in general—as if they were disbursed 100% in year 1 into the recipient economy—with Indonesia's development performance. On the other hand, we exhibited the causation because of disbursement delays between 5- and 7 years.

## **RESULTS AND DISCUSSION**

### **Finding and Analysis**

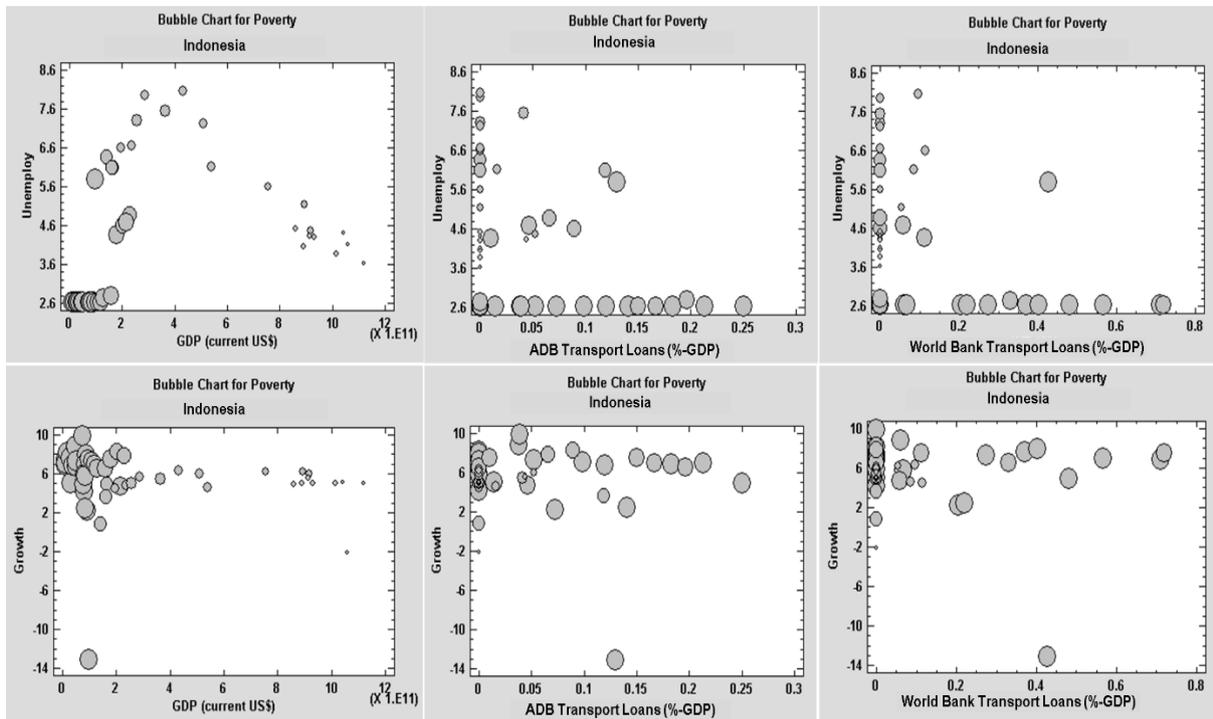
#### ***Caveat***

All the charts were plotted with the assumption that 100% of the loan amounts in their foreign currency (i.e., US Dollar) are disbursed and entering Indonesia's economy in the first year of the loan agreement signing. Despite international banking rules, **no foreign currency** ever enters the economy and banking system of any national economy with different currencies as foreign currency loans (The Fed,

Nichols, 1992). Werner (2014, 2016), Keen (2014), Hudson (2019).

Figures-5 and -6, show the exploratory plots. From them, we could now anticipate the results from the other methods.

**Pilot View**



Note: These charts were plotted with the assumption that 100% disbursement in the same year the loan agreements were signed and into Indonesia's economy. In reality, zero dollar is entering Indonesia economy in Rupiah in accordance with international banking rules.

Figure-5. Poverty Bubble Chart – Indonesia Transport Loans Project

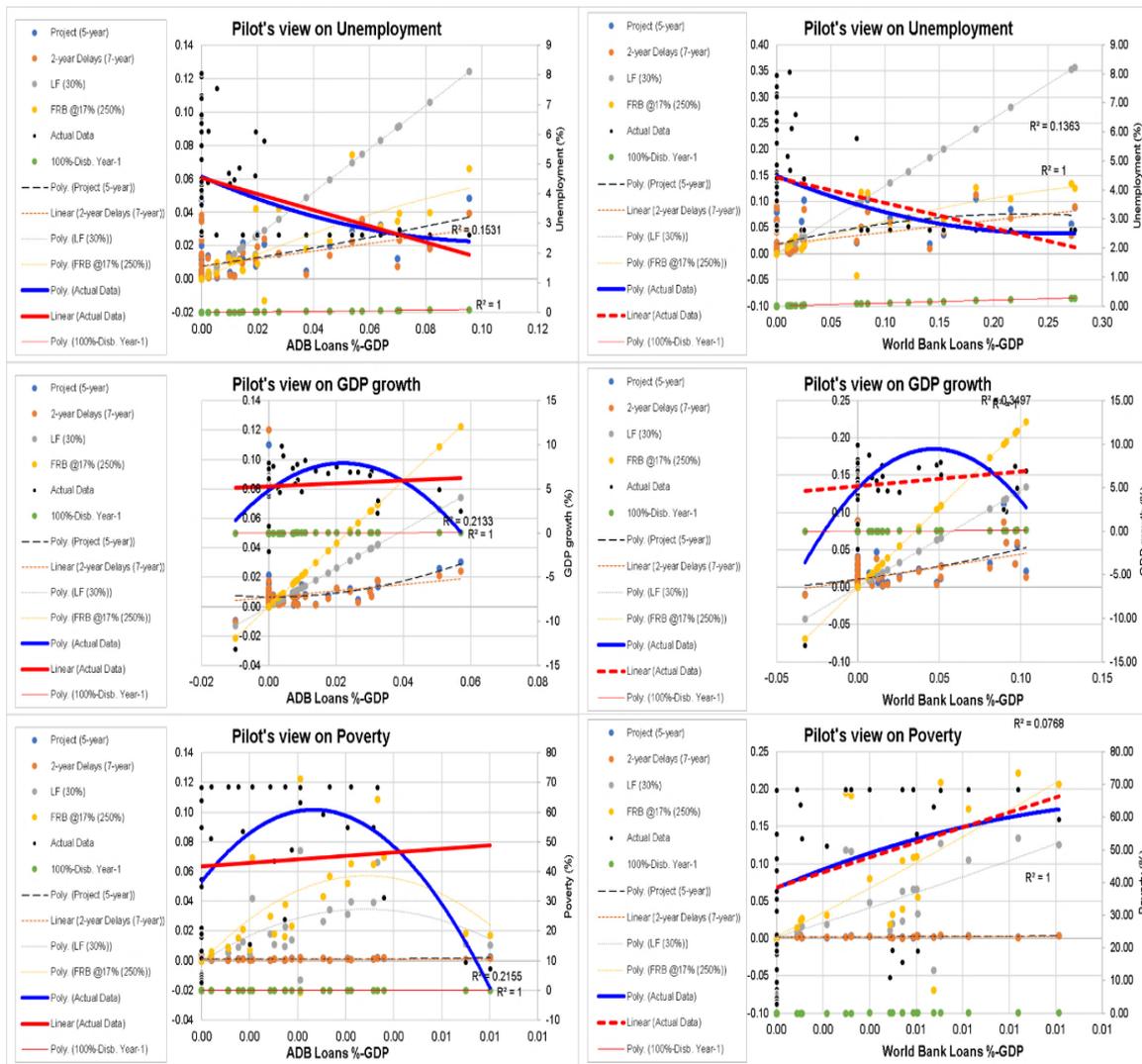
In Figure 5, the bubble size represents the level of poverty correlating with unemployment and growth. The figures display an early warning that both ADB and World Bank transport loan projects are not effective in reducing poverty irrespective of the increase in growth and reduction in unemployment.

Figure 6, on growth and poverty, tells us that we need to be careful when selecting the regression method as two conflicting possibilities exist namely uptrend in linear regression versus up-and-downtrend following second-order polynomial regression. For unemployment, we can be sure that the ADB and World Bank transport loans project has positive impacts in creating jobs, assuming that they are 100% disbursed into Indonesia's economy which is not the case. In reality, only less than 10% after being converted into Rupiah reached Indonesia's economy. Let us now see the FP

regression results based on 100% loan fund disbursement into Indonesia's economy in the same year the loan agreement was signed.

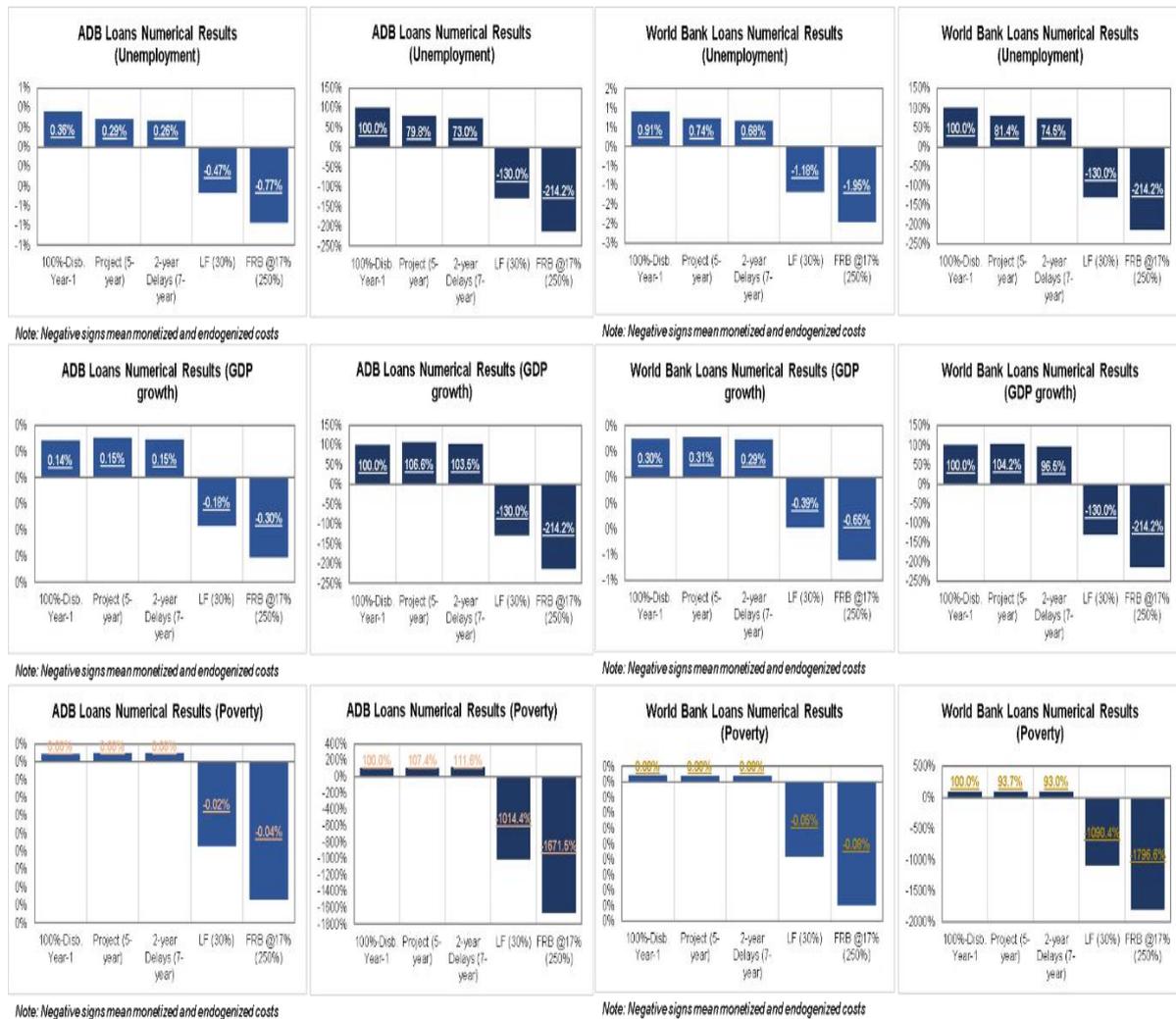
**Numerical**

The values exhibited in Figure-7, tell us that ADB and Word Bank's transport loan disbursement behave differently in affecting Indonesia's development indicators. For example, despite both loans' reduced effectiveness in job creation from 100% to over 70% as a result of 5 & 7-year disbursement delays, their effectiveness in promoting growth, notwithstanding delays, is increased by about 3%. The same with poverty is elevated by 1.4%. After cross-checking this with the graphical results, we assumed that the positive values correlated with the early dips and peaks represented 5- & 7-year.



Note: These charts were plotted with the assumption that 100% disbursement in the same year the loan agreements were signed and into Indonesia's economy. These figures were charted using the STATA Fractional Polynomial Chart function.

Figure-6. Pilot View - Indonesia Transport Loans Project



Note: These charts were plotted with the assumption that 100% disbursement in the same year the loan agreements were signed and into Indonesia's economy. Negative values shows the impact of capital flights.

Figure-7. Numerical Results – Indonesia Transport Loans Project

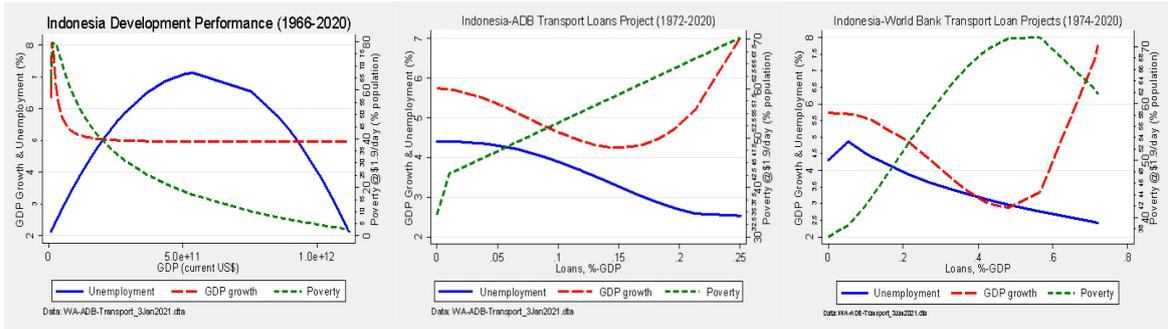
These values, together with the Pilot View's chart, serve as an early warning to be careful when analyzing disbursement delays.

### Graphical

In Figure 8, we observe that both ADB and World Bank (middle and right figures) transport loan projects have little to no impact on reducing poverty. As the loan size increases so does poverty despite at the national level (left figure) is constantly declining. In other words,

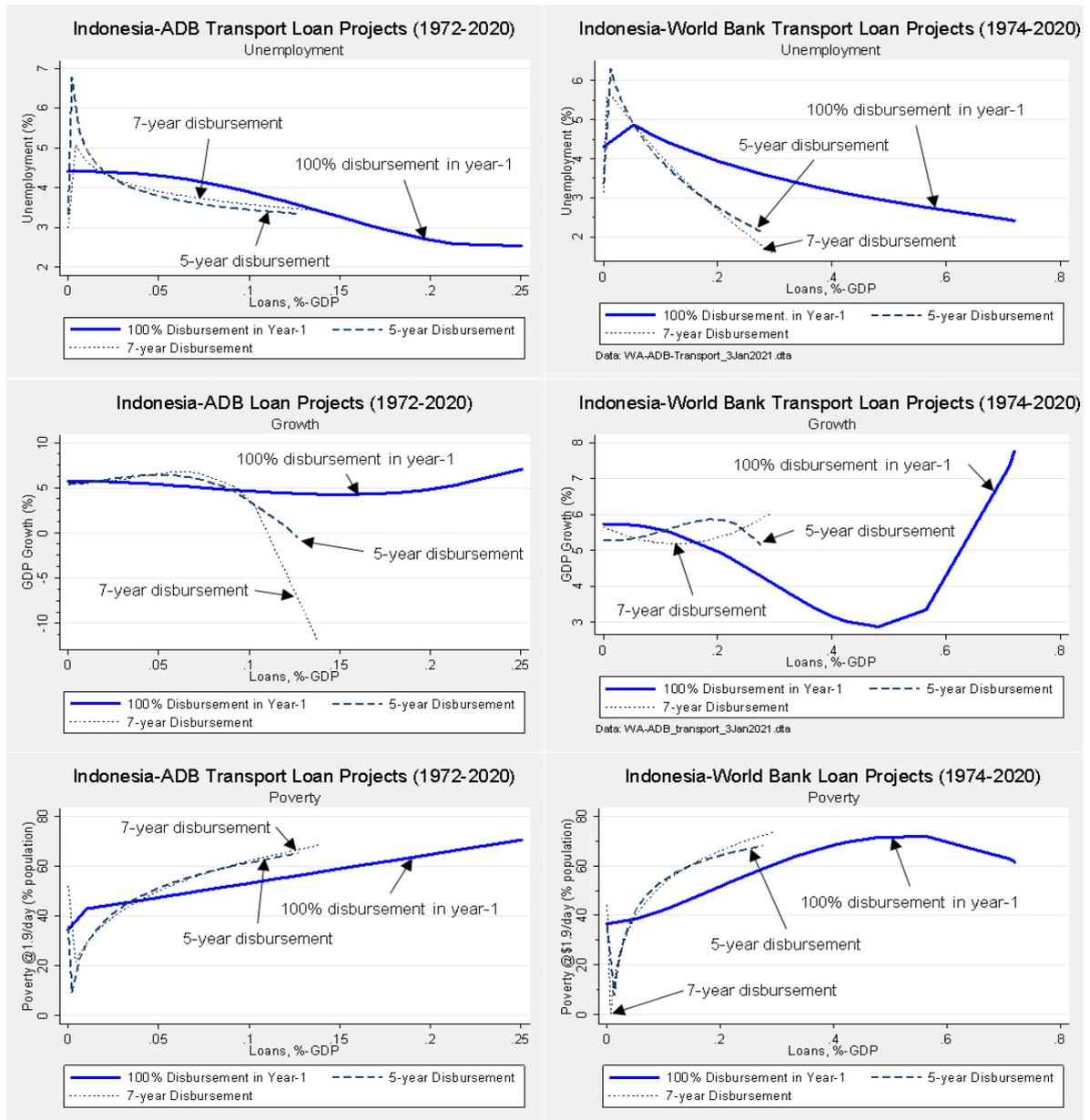
Indonesia is better off without ADB and World Bank transport loans if poverty reduction is the target. This evidence raises a question about the ADB and World Bank's genuine mission for poverty reduction.

For job creation thus reducing unemployment, both ADB and World Bank projects demonstrate positive results. Meaning, that more loans correlate with job creation.



Note: These charts were plotted with the assumption that 100% disbursement in the same year the loan agreements were signed and into Indonesia's economy

Figure-8. Fractional Polynomial Regression Indonesia Transport Loans Project



Note: These charts were plotted with the assumption that 100% disbursement in the same year the loan agreements were signed and into Indonesia's economy. These figures were charted using the STATA Fractional Polynomial Chart function.

Figure-9. Graphical Results – Indonesia Transport Loans Project

From the same Figure-8, we discover that both ADB and World Bank transport loan projects have the potential to promote growth starting at 0.15% of GDP and 0.5% of GDP respectively. However, before reaching these points, both pull growth from around 6% down to 4.5% and 4% correspondingly. Keeping the caveat in mind, the question is, at which point (% of GDP) these loans are maintained on an annual level? The answer to this might open another dimension that is beyond the scope of our paper.

On a positive note, keeping the caveat in mind, both ADB and WB transport loan projects exhibit constant positive results in creating jobs thus reducing unemployment.

Figure-9, tells a holistic story about the effectiveness of ADB and World Bank transport loan projects and their disbursement delays impacts. Both banks' loans appear effective in creating jobs, thus reducing unemployment. The growth is significantly affected by disbursement delays. The ADB loans pulled growth into negative while the World Bank's loans juggled growth up and down. Combined, they show a reduction in growth by about 200% which is more than 67% (Aldashev and Verardi, 2012:3-4).

### ***Stochastic Agent-Based Modeling and Monte Carlo Simulation (SABM)***

#### ***Spearman Correlation***

Spearman's correlation test result (Table-1) suggests that unemployment is negatively significantly correlated with Growth, Poverty, WTr\_5yr, WTr\_7yr, and positively significant with GDP (cur.US\$). Meaning, that unemployment is reduced by 42% as growth progresses, by 73% as poverty increases, and by about 35% as World Bank's transport loan

disbursement is being five and seven-year delayed. Strangely, as GDP increases, so does unemployment by 72%. Growth is negatively significantly correlated with unemployment, and positively with poverty and GDP. This signifies, that as growth advances, both unemployment and GDP (cur.US\$) decline by about 42% however, poverty elevates by 45%. Poverty is over 70% negatively significantly correlated with unemployment and GDP (cur.US\$) and about 30% positively with both ADB and World Bank 100% disbursement in year-1, 5-year delays, and World Bank's 7-year delays. So, Spearman's correlation shows that both ADB and World Bank's loan disbursement have a significantly positive correlation in Indonesia's fight for poverty reduction.

Meaning, more loans correlate with heightened poverty. As the loan fund is being delayed by ADB and World Bank, poverty increases by 30%. The longer the delays, the more poverty increases.

#### ***Granger Causality Test***

The test result is presented in Table 2 from which we learned that starting at a time lag (TL) of 1 year, both unemployment and poverty are significantly Granger caused by other parameters, most importantly disbursement delays of both ADB at 100% disbursement in year-1 and Word Bank's 5-year disbursement. The pattern continues as TL progresses from 2- to 4 years with more parameters that are granger causing unemployment, growth, poverty, and current GDP. When TL reaches 5 years, all parameters, except for current GDP, are granger causing the three development indicators. This evidences that the longer the disbursement delays, the more they affect unemployment, growth, and poverty.

Table-1. Spearman Correlation Test Result

**Spearman's Correlations with P-values below 0.05 (95% confidence level)**

Indicator	Correlators									
	Unemploy	Growth	Poverty	WTr100%	WTr_5yr	WTr_7yr	ATr100%	ATr_5yr	ATr_7yr	GDP (cur.US\$)
Unemploy		-0.4244	-0.734	-0.2268	-0.3856	-0.3469	-0.2507	-0.2226	-0.1095	0.717
		0.0024	0	0.1053	0.0059	0.0132	0.0734	0.1119	0.4343	0
Growth	-0.4244		0.4465	0.0643	0.0763	0.0464	0.0964	-0.0019	-0.096	-0.4165
	0.0024		0.0014	0.646	0.5858	0.7401	0.4911	0.989	0.4929	0.0029
Poverty	-0.734	0.4465		0.3411	0.4668	0.415	0.3377	0.3133	0.2076	-0.9624
	0	0.0014		0.0149	0.0009	0.003	0.0159	0.0253	0.1382	0

**Note:**

wtr100 = World Bank total transport loans at 100% disbursement  
 wtr\_5yr = World Bank total transport loans with 5-year disbursement  
 wtr\_7yr = World Bank total transport loans with 7-year disbursement  
 atr100 = ADB total transport loans at 100% disbursement  
 atr\_5yr = ADB total transport loans with 5-year disbursement  
 GDP (current US\$) = Indonesia GDP (current) in US Dollar

Table-2. Granger Causality Test Results

**Granger Causality Wald Tests (@5% significant level)**

Development Indicator	Time Lag														
	1-year			2-year						3-year					
unemploy	poverty	wtr_5yr	atr100	growth	poverty	wtr_5yr	wtr_7yr	atr_5yr	atr_7yr	growth	poverty	atr100	atr_5yr	atr_7yr	atr_7yr
growth				unemploy	poverty	wtr_5yr	wtr_7yr	atr_5yr	atr_7yr	unemploy	poverty	wtr_5yr	wtr_7yr	atr_5yr	atr_7yr
poverty	growth			atr_7yr						growth	wtr_5yr	wtr_7yr	atr_7yr		
gdpcurrentus				poverty	atr_7yr					unemploy	poverty	atr_7yr			

**Time Lag**

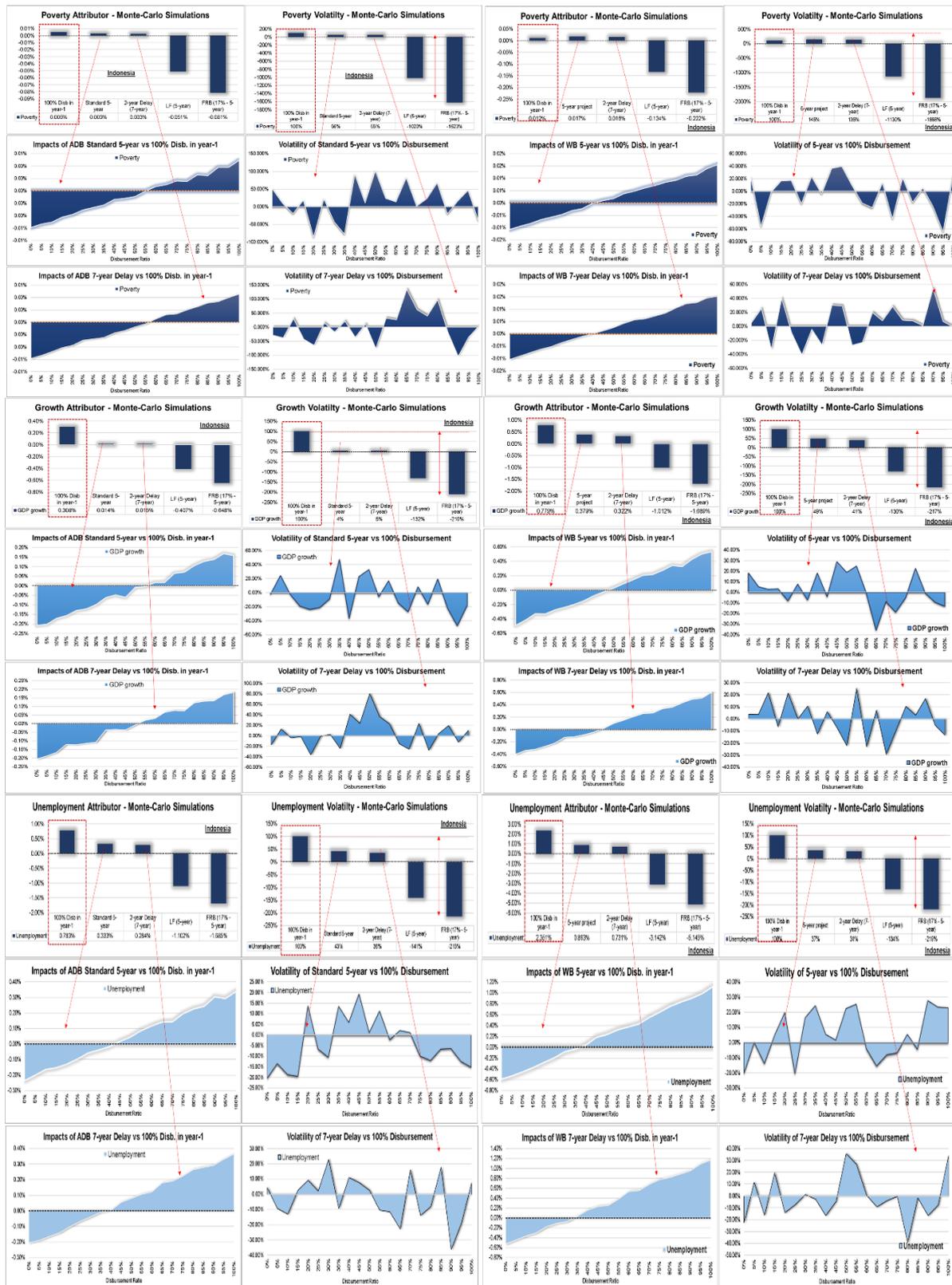
Development Indicator	4-year							
	unemploy	growth	poverty	atr100	atr_5yr	atr_7yr		
growth	unemploy	poverty	wtr_5yr	wtr_7yr	atr100	atr_5yr	atr_7yr	
poverty	unemploy	growth	wtr100	wtr_5yr	wtr_7yr	atr100	atr_5yr	atr_7yr
gdpcurrentus	unemploy	poverty	atr_5yr					

**Note:**

wtr100 = World Bank total transport loans at 100% disbursement  
 wtr\_5yr = World Bank total transport loans with 5-year disbursement  
 wtr\_7yr = World Bank total transport loans with 7-year disbursement  
 atr100 = ADB total transport loans at 100% disbursement  
 atr\_5yr = ADB total transport loans with 5-year disbursement  
 atr\_7yr = ADB total transport loans with 7-year disbursement

From Figure-10, we decipher three important messages namely;

1. Both ADB and World Bank transport loan projects because of disbursement delays are only approximately 50% effective in creating jobs, promoting growth, and reducing poverty. Again, assuming that 100% of these loans are disbursed into Indonesia's economy.
2. Because of the nature of Indonesia's economic engine, disbursement delays have fluctuating effects per their disbursement amount. For example. At close to 100% disbursement, unemployment under 5- and 7-year delays exhibit a negative impact for ADB loans whereas positive for the World Bank. Likewise, for poverty, both banks at 5-year disbursement delays present negative effects whilst negative for ADB and positive for the World Bank at 7-year



Note: These charts were plotted with the assumption that 100% disbursement in the same year the loan agreements were signed and into Indonesia's economy.

Figure-10. Stochastic Agent-Based Modeling (SABM) Result

3. Because of the fluctuating nature of Indonesia's economic engine, it is critical to have 100% disbursement in year 1. This

prevents Indonesia from experiencing a roller coaster ride due to disbursement delays.

Table-3. Capital Flights Estimate

Indonesia In-country Disbursement vs Capital Flight (Estimated using \$1 hypothetical loan)												
Endogenized Capitals per Dollar*	In-country Disbursement - Loanable Fund (LF) (FIB)											
	% of Loan	40%	50%	60%	70%	75%	80%	85%	90%	95%	100%	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
See Note	1/(1)	A = (2)x(3 ... 12)										
Plan (5-year Disbursement)	1.28	78.12%	31.25%	39.06%	46.87%	54.68%	58.59%	62.50%	66.40%	70.31%	74.21%	78.12%
1-3-year Delays (6 to 8-year)	1.48	67.36%	<b>26.94%</b>	<b>33.68%</b>	<b>40.42%</b>	<b>47.15%</b>	50.52%	53.89%	57.26%	60.63%	63.99%	67.36%
5-year Delays (10-year)	1.64	61.03%	24.41%	30.51%	36.62%	42.72%	45.77%	48.82%	51.87%	54.92%	57.98%	61.03%
In-country Disbursement - Fractional Reserve Banking (FRB)												
5 years	12.80	7.81%	<b>3.12%</b>	<b>3.91%</b>	<b>4.69%</b>	<b>5.47%</b>	5.86%	6.25%	6.64%	7.03%	7.42%	7.81%
Percent (%) Capital Flight Per \$1 Indonesia - Loans (LF)												
Endogenized Capitals per Dollar*	Actual Loan	40%	50%	60%	70%	75%	80%	85%	90%	95%	100%	
B = 1 - A												
Plan (5-year Disbursement)	1.28	\$ 1.00	68.75%	60.94%	53.13%	45.32%	41.41%	37.50%	33.60%	29.69%	25.79%	21.88%
1-3-year Delays (6 to 8-year)	1.48	\$ 1.00	<b>73.06%</b>	<b>66.32%</b>	<b>59.58%</b>	<b>52.85%</b>	49.48%	46.11%	42.74%	39.37%	36.01%	32.64%
5-year Delays (10-year)	1.64	\$ 1.00	75.59%	69.49%	63.38%	57.28%	54.23%	51.18%	48.13%	45.08%	42.02%	38.97%
Percent (%) Capital Flight Per \$1 Indonesia - Loans (FRB)												
5 years	12.80	\$ 1.00	<b>96.88%</b>	<b>96.09%</b>	<b>95.31%</b>	<b>94.53%</b>	94.14%	93.75%	93.36%	92.97%	92.58%	92.19%
Capital Flight Per \$1 Indonesia - Loans (LF) (FIB)												
C = (1) x B												
Plan (5-year Disbursement)	1.28	\$ 1.00	\$ 0.88	\$ 0.78	\$ 0.68	\$ 0.58	\$ 0.53	\$ 0.48	\$ 0.43	\$ 0.38	\$ 0.33	\$ 0.28
1-3-year Delays (6 to 8-year)	1.48	\$ 1.00	<b>\$ 1.08</b>	<b>\$ 0.98</b>	<b>\$ 0.88</b>	<b>\$ 0.78</b>	\$ 0.73	\$ 0.68	\$ 0.63	\$ 0.58	\$ 0.53	\$ 0.48
5-year Delays (10-year)	1.64	\$ 1.00	\$ 1.24	\$ 1.14	\$ 1.04	\$ 0.94	\$ 0.89	\$ 0.84	\$ 0.79	\$ 0.74	\$ 0.69	\$ 0.64
Capital Flight Per \$1 Indonesia - Loans (FRB)												
5 years	12.80	\$ 1.00	<b>\$ 12.40</b>	<b>\$ 12.30</b>	<b>\$ 12.20</b>	<b>\$ 12.10</b>	\$ 12.05	\$ 12.00	\$ 11.95	\$ 11.90	\$ 11.85	\$ 11.80

Source: Processed. \*These values derived from \$1 investment with 5% interest per annum for 5-8 year. The FRB was calculated with 10% bank reserve requirement. for 5-year. The values will be bigger when longer investment than 5-year is calculated.

Note:

1. Estimated between 40%-70% of the loan amounts are disbursed in-country.
2. The estimate is rudimentary nonetheless serves its purpose. A more detailed estimation incorporating banking theories and practices and foreign currency transactions, is beyond the scope of this paper.
3. The estimate was based on commercial banking practices with loan-to-value (LTV) of 70% of the collateral. This gives 1.43 times of the loan value. Assuming ADB and World Bank's require more than 1.43 times collateral (in-cash, in-kind, quasi-cash, legal provisions and sovereignty pledging), say 3 times, this yields a 3/1.43 multiplier. Thus, capital flight of \$12.40 (FRB) from commercial banking, is equivalent to 2.1 x \$12.40 = \$26.02.

### Capital Flights

Assuming a loan-to-value (LTV) for collateral is 70%, this yields 1.43x of the loans. We estimate a capital flight, defined as those generated from the signed loan agreement including all profits thereof, of over \$12 (FRB) per \$1 loan. This comes from 60% in-country disbursement thus 40% is disbursed internationally. Assuming both ADB and the World Bank required more than 1.43x collateral, say 3x, this yields 3/1.34x\$12 = \$26 per \$1 loan. In other words 2600% leakage for each \$1 loan. This corresponds with \$24 (Hickel, 2017) and \$25 (Powell, 2009). The problem does not stop here as shown by Sogge (2017, citing Ndikumana and Boyce (2011) and van Bergeijk (2010)) that approximately 60 percent of the funds disbursed in the national economy quickly go out of the recipient country through a revolving door. The total is comparable with a

minimum of 50%-300%. The money creation under FRB and CC has not been incorporated. This value could be well over 3000%. A vestigial capital flight estimate is presented in Table 3.

Since it is beyond the reach of our paper, we have not endogenized and attributed the capital flights to Indonesia following the DOA exercises elaborated above. In the numerical results (also in SABM bar charts) we briefly exhibited the endogenized capital flights under LF and FRB with negative values as a reminder. To analyze this requires a separate study. At large, with ADB's average transport loans to Indonesia (1972-2020) of 0.05% of GDP, and the World Bank (1974-2020) of 0.11% of GDP, if these were endogenized, with Indonesia's average expenses (1966-2020) of 13.07% of GDP, we estimated an increase in the government expenses (GC.XPN.TOTL.GD.ZS) of 1.22% (13.07+(0.05+0.11)). This correlates

with an average of 9.37% increase in GDP. This is about \$100 billion more than Indonesia's 2020 current GDP. Referencing this with Table 1 (Spearman correlation), we can anticipate positive and negative changes in Indonesia's unemployment, growth, and poverty. Our findings from four different exercises, show the positive and negative impacts of ADB and World Bank transport loans in foreign currency (US\$) on Indonesia's economy. We may recall that not a penny of any foreign currency loans is

entering Indonesia's economy (Werner, 2016; The Fed, Nichols, 1992 (1st ed., 1961)) except those converted into Rupiah. Assuming 100% of the loans are entering Indonesia's economy either in the first year or with 5 and 7-year delays, the positive and negative impacts are promotions, but then demotion of growth, even into negative growth by ADB loans. Additionally, poverty in all cases has significantly increased despite more jobs being created.

Table-4: Graphical Results Summary

	ADB					World Bank				
	From	To	Gap	Share	Remark	From	To	Gap	Share	Remark
Unemployment	4.50	2.50	2.00	55.56%	Reduction	4.50	2.50	2.00	55.56%	Reduction
5-year	4.00	3.30	0.70	82.50%	Reduction	2.50	2.20	0.30	88.00%	Reduction
7-year	4.00	3.50	0.50	87.50%	Reduction	3.00	1.50	1.50	50.00%	Reduction
Growth	5.50	7.50	-2.00	136.36%	Increase	5.70	8.00	-2.30	140.35%	Increase
5-year	5.50	-1.00	6.50	-18.18%	Reduction	5.30	5.10	0.20	96.23%	Reduction
7-year	5.50	-11.00	16.50	-200.00%	Reduction	5.70	6.00	-0.30	105.26%	Increase
Poverty	35.00	70.00	-35.00	200.00%	Increase	37.00	60.00	-23.00	162.16%	Increase
5-year	20.00	65.00	-45.00	325.00%	Increase	30.00	65.00	-35.00	216.67%	Increase
7-year	30.00	70.00	-40.00	233.33%	Increase	35.00	75.00	-40.00	214.29%	Increase

Table-5: Triangulated Effectiveness and Impacts of ADB & World Bank Transport Loans in Indonesia

Note: This is a combined triangulation of ADB and World Bank's loans with the assumption that 100% disbursement in the same year the loan agreements were signed, including the 5- and 7-year disbursement delays, and into Indonesia's economy.

	Pilot View	Numerical	Graphical	SABM	Financial—Capital Flights (Leakages)
Unemployment	Decrease	Decrease	Increase - Decrease	Increase - Decrease	A minimum of \$12 per \$1 loan is fleeing Indonesia's economy. Our estimate suggests more than \$35 per \$1 loan.
GDP Growth	Increase - Decrease	Increase - Decrease	Increase - Decrease	Increase - Decrease	
Poverty	Increase	Increase	Increase	Increase - Decrease	
<b>Triangulation</b>					To mitigate this, 100% disbursement in year-1 upon loan agreement signing into Indonesia's economy and in Rupiah currency is unavoidable.
Unemployment	Decrease	Decrease, 70% effective	70% decrease	Decrease, 60% effective	
GDP Growth	Decrease	Decrease, 90% effective	200% Decrease	Decrease, 40% effective	
Poverty	Increase	Increase, 100% effective	220% Increase	Increase, 190% effective	

Table 4 presents the graphical results from which we can see the gaps and their magnitude. We provide the summary of the results in a triangulated version combining both ADB and World Bank's transport loans in Table 5.

## CONCLUSIONS AND RECOMMENDATIONS

### Implication

We understand that our study has two implications namely; the theory and policy on

the need for external borrowing in foreign currency for national development financing require to be revisited given ample contradictory evidence not only exhibited by our study but also by others, such as Werner (2014, 2015, 2016) and Hudson (2019).

Given the first empirical test on how banking in practice functions in terms of money creation, Indonesia development planners and policymakers are required to grasp the self-sufficient concept as expressed by Keynes (1933, p.756) expressed “*above all, let finance be primarily national*” to minimize exchange risks and capital flights. This suggests that domestic finance capacity is sufficient without depending on foreign currency loans for funding development agenda.

### **Conclusion**

Foreign currency loans are detrimental not only to Indonesia’s growth and poverty reduction efforts but also to national wealth formations because of leakages in the form of capital flights.

For Indonesia’s transport development, upgrading, and maintenance program, which in our view required over 90% locally available materials and resources, given the negative impacts established, it is in Indonesia’s best interest not to borrow externally. To fully comprehend this, an understanding of how banking in practice works, particularly the endogenous money theory, is critical.

### **Recommendation**

Given the importance of transport development financing, development outcome attribution (DOA) is recommended to be incorporated in any development initiatives assessment and evaluation.

To mitigate further capital flights from Indonesia’s transport loans from the ADB and World Bank, we recommend the GOI request the full disbursement of its ongoing loans.

## **ACKNOWLEDGEMENT**

Gratitude is extended to the Regional and Rural Development Planning of the IPB University which opens the door wider to understanding the breadth and extent of regional wealth leakages also known as the backwash effect (Myrdal 1957) and the tools and methods in measuring them. Most importantly for critically challenges the researchers to think without boxes.

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