

## Determination of Monetary Transmission through the Types of Credit on Economic Growth

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### Abstract

Banks credit by usage (working capital, investment and consumer credit) and by economic sectors (agricultural, mining, industrial, trade and services) on Indonesian economic growth explained the role of banks credit as a monetary transmission channel. Banks credit for investment, agricultural, industrial, trade and services, have a significant effect on economic growth. Thus, as a growth accelerating factor, investment credit aimed to financing agricultural, industrial, trade and services are able to promote qualified growth of Indonesian economy as well as reducing unemployment rate. This study uses banks credit data by usage, economic sectors, economic growth and unemployment rate in the period of 1991-2014. Model estimation on the relationship between banks credit by usage on economic growth and unemployment using ECM (Error Correction Mechanism) model, while the relationship between banks credit by economic sectors on economic growth using in-difference regression on OLS (Ordinary Least Square) model. Credit depth as the ratio between banks credit and economic growth is only appropriate for the analysis of banks credit relationship usage on economic growth, while by economic sectors, their role depend on the magnitude of credit portfolio to total banks credit.

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## INTRODUCTION

Banks determine their intermediary policy as a direct response to monetary policy and indirect response to fiscal policy. Banks' response are at the same time become a key factor for banks to determine their credit policy stance, either working capital credit, investment credit or consumer credit, and also to set economic sectors considered relevant to both monetary and fiscal policy. In 1990, banks working capital credit dominated the banks credit portfolio. The composition of banks working capital credit, investment credit and consumer credit to total credit are 65.32%, 16.94% and 17.75% respectively, and in 2014, the composition becomes 47.83%, 24.58% and 27.59% respectively. In the period of 1990–2014, the average banks credit allocation by usage are, 58.12% for working capital, 20.93% for investment and 20.95% for consumer (www.bi.go.id).

Furthermore, there was a very sharp disparity on banks credit allocation by economic sectors. Banks credit allocation to both agricultural and mining sectors are low eventhough according to Indonesia's natural resources, that two sectors

occupy higher position than other sector. During the period of 1990–2012, the average composition of banks credit for industrial, trade and services sectors dominating sectorally with the composition of each are 27.62%, 23.82% and 20.19% while banks credit for agricultural and mining sectors only 6.58% and 1.69% (www.bi.go.id).

According to balance sheet channel view, the role of banks for credit allocation to real sectors becomes very important. Banks have a role as financial intermediary that provide liquidity to economic real sectors for expanding their scale of business. Banks credit allocation by both usage and economic sectors are the key factor to economic growth as their impact to increase capital as well as the availability and adequacy of liquidity to achieve higher economic growth (Gilchrist & Zakrajsek, 2012; Hassan, Sanchez & Suk-Yu, 2011; Mishkin & Eakins, 2012; Barro & Sala-i-Martin, 2004; Christopoulos & Tsionas, 2004; Rioja & Valev, 2004a,b; Greenwald & Stiglitz, 2003; Levine, 2001; Levine & Zervos, 1998; Fohlin, 1998). The high economic growth is ultimately able to encourage increased employment in order to reduce both unemployment and poverty.

The remainder of this paper is structured as follows. Section 2 describes research methods. Section 3 presents results and discussion, and my conclusions and policy implications are in Section 4.

## METHOD

This paper used data of Indonesian economy over the period of 1990 to 2014 from Bank of Indonesia (BI), described the banks credit, and from Indonesian Central Bureau of Statistics (BPS), described Indonesian GDP, nominal and real GDP, unemployment rate and poverty rate. This research used econometrics method developed by Beck & Levine (2004); Levine, Loayza & Beck (2000); King & Levine (1993a); King & Levine (1993b), which described relationship between credit depth (ratio of banks credit to nominal GDP) and real GDP growth per capita.

### Banks Credit by Usages on Indonesian Economic Growth

To investigate the effect of banks credit by usages on Indonesian economic growth, I used model estimates that banks credit portfolio by usages (working capital credit, investment credit and consumer credit) play an important role on economic growth. The magnitude of activities in real sectors of economy could be increased when the composition of working capital and investment credit dominated the banks credit portfolio by usages.

Through that estimation, Indonesia economic growth (*NGR*) at year *t* affected by the ratio of banks working capital credit to nominal GDP (*WCC*) at year *t*, ratio of banks investment credit to nominal GDP (*IC*) at year *t*, and ratio of consumer credit to nominal GDP (*CC*) at year *t*. Regression model estimation is formulated as:

$$NGR_t = \delta_1 + \delta_2 WCC_t + \delta_3 IC_t + \delta_4 CC_t + \mu_t \quad \dots\dots\dots (1)$$

Where  $NGR_t$  is Indonesian real economic growth per capita at year *t*,  $WCC_t$  is the ratio of banks working capital credit to nominal GDP at year *t*,  $IC_t$  is the ratio of banks investment credit to nominal GDP at year *t*, and  $CC_t$  is the ratio of banks consumer credit to nominal GDP at year *t*,  $\delta_1$  is intercept,  $\delta_k$  is the effect of each independent variables to dependent variables for  $k=2,3,4$  and  $\mu_t$  is error term. Model estimation refer to equation 1 is presented in Table 1. There is cointegration or long-run equilibrium relationship between dependent variables and independent

variable. Due to the cointegration founded at the model, the estimation model used ECM (Error Correction Mechanism) model (Table 2).

On the long-run equilibrium relationship that found at the model estimation, I found that banks investment credit and banks consumer credit have significant effect on Indonesian economic growth. Banks investment credit affect positively but banks consumer credit affect negatively on economic growth. Meanwhile, on ECM model, the long-run equilibrium is adjusted 66.7% at the first year and 33.3% at the following year toward equilibrium.

Table 1. Regression model estimation on long-run relationship between banks working capital credit (*WCC*), investment credit (*IC*) and consumer credit (*CC*) on Indonesian real economic growth per capita (*NGR*)

Dependent Variable : <i>NGR</i>				
Method: Least Squares ; Sample: 1991-2014				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>WCC</i>	-0.125067	0.190261	-0.657345	0.5185
<i>CC</i>	-1.749040	0.613880	-2.849158	0.0099
<i>IC</i>	1.506841	0.652205	2.310378	0.0317
<i>C</i>	19.90636	5.354652	3.717583	0.0014

Table 2. ECM model estimation on short-run relationship between change of banks working capital credit (*WCC*), investment credit (*IC*) and consumer credit (*CC*) on Indonesian real economic growth per capita (*NGR*)

Dependent Variable : <i>NGR</i>				
Method: Least Squares ; Sample: 1993-2014				
Included observations: 22 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
<i>C</i>	16.68277	1.677063	9.947607	0.0000
$\Delta IC$	-0.397053	0.675717	-0.587603	0.5645
$\Delta WCC$	-0.586328	0.425802	-1.376998	0.1864
$\Delta CC,2$	-1.030436	0.720414	-1.430338	0.1707
$ET_{-1}$	-0.666873	0.291807	-2.285320	0.0354

**Banks Credit by Economic Sectors on Indonesian Economic Growth**

Besides banks credit portfolio by usages, I used estimation model revealed that banks credit portfolio by economic sectors play an important role on economic growth. Economy sectoral bases on banks credit allocation directly related to economic real sectors (agricultural, mining, industrial, trading and services) which promoting economic growth.

Using estimation model, Indonesian economic growth (*NGR*) at year *t* affected by the ratio of banks credit on agricultural sector to total banks credit (*kAGR*) at year *t*, ratio of banks credit on mining sector to total banks credit (*kMIN*) at year *t*, ratio of banks credit on industrial sector to total banks credit (*kIND*) at year *t*, ratio of banks credit on trade sector to total banks credit (*kTRA*) at year *t*, and ratio of banks credit on services sector to total banks credit (*kSER*) at year *t*. Regression model estimation is formulated as:

$$NGR_t = \theta_1 + \theta_2 kAGR_t + \theta_3 kMIN_t + \theta_4 kIND_t + \theta_5 kTRA_t + \theta_6 kSER_t + \mu_t \dots (2)$$

Where *NGR<sub>t</sub>* is Indonesian real economic growth per capita at year *t*, *kAGR<sub>t</sub>* is ratio of banks credit on agricultural sector to total banks credit at year *t*, *kMIN<sub>t</sub>* is ratio of banks credit on mining sector to total banks credit at year *t*, *kIND<sub>t</sub>* is ratio of banks credit on industrial sector to total banks credit at year *t*, *kTRA<sub>t</sub>* is ratio of

banks credit on trade sector to total banks credit at year  $t$ ,  $kSER_t$  is ratio of banks credit on services sector to total banks credit at year  $t$ ,  $\theta_1$  is intercept,  $\theta_k$  is the effect of each independent variables to dependent variables for  $k=2,3,\dots,6$  and  $\mu_t$  is error term.

## RESULTS AND DISCUSSION

### Banks Credit by Usages on Indonesian Economic Growth

Based on the model estimation, only banks investment credit ( $IC$ ) has a positive effect on economic growth. A1 basis point increase in banks investment credit will promote economic growth significantly by 1.51 basis points. Meanwhile, although significant, banks consumer credit ( $CC$ ) has a negative effect on economic growth, and the effect of banks working capital credit ( $WCC$ ) is not significant.

The ECM model estimation give an explanation that 67% of the short-run fluctuations in the short-run balance will be corrected in the first year towards long-run equilibrium. The high magnitude of adjustment process indicates that the role of banks investment credit to increase economic growth is really clear in the first year. In accordance with its usage in the economic real sector, the accelerating mechanism of banks investment credit to economic growth starts from an increase in corporate assets due to the availability of new source of capital (Sipahutar, 2016; Sipahutar, Oktaviani, Siregar & Juanda, 2016; Ghosh, 2013; Ayadi, Arbak, Ben-Naceur & Groen, 2013; Heffernan, 2005; Benhabib & Spiegel, 2000). By increasing of capital, the productivity (output per labor) of the corporations in the real sectors of economy will also increase so that the aggregate output will increases as well.

Partial analysis that has been done to determine the effect of banks investment credit on unemployment (Tables 3 and 4) explained that there is a long-run relationship between banks investment credit ( $IC$ ) to unemployment rate ( $NUNE$ ). Banks investment credit is able to significantly reduce unemployment rate. An increase in banks investment credit by 1 basis points will reduce unemployment rate by 0.5 basis points and 32% of adjustment towards long-run balance occurring in the first year. This model estimation explains that the addition of capital that increase productivity will directly increased output in the economic real sector. Furthermore, increasing economic output based on constant return to scale was then obtained through increased of labor demand along with increased on capital (Bassetto, Cagetti & De Nardi, 2015; Chodorow-Reich, 2014; Rioja & Valev, 2004b).

Table 3. Regression model estimation on the relationship of the ratio between banks investment credit ( $IC$ ) to nominal GDP and unemployment ( $NUNE$ )

Dependent Variable : $NUNE$				
Method: Least Squares ; Sample: 1991-2014				
Included observations: 24				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.56243	0.977697	10.80338	0.0000
$IC$	-0.501379	0.125593	-3.992093	0.0006
R-squared	0.420088	Mean dependent var		6.979167
Adjusted R-squared	0.393729	S.D. dependent var		2.438599
S.E. of regression	1.898777	Akaike info criterion		4.199952
Sum squared resid	79.31778	Schwarz criterion		4.298123
Log likelihood	-48.39943	Hannan-Quinn criter.		4.225997
F-statistic	15.93680	Durbin-Watson stat		0.844086
Prob(F-statistic)	0.000615			

Table 4. ECM model estimation on the relationship of the ratio between banks investment credit (*IC*) to nominal GDP and unemployment (*NUNE*)

Dependent Variable : $\Delta NUNE$				
Method: Least Squares ; Sample (adjusted): 1992 2014				
Included observations: 23 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.146156	0.234761	0.622574	0.5406
$\Delta IC$	-0.141563	0.086947	-1.628162	0.1191
$ET_{-1}$	-0.324867	0.132947	-2.443588	0.0239
R-squared	0.254094	Mean dependent var		0.145217
Adjusted R-squared	0.179503	S.D. dependent var		1.242936
S.E. of regression	1.125867	Akaike info criterion		3.196092
Sum squared resid	25.35155	Schwarz criterion		3.344200
Log likelihood	-33.75506	Hannan-Quinn criter.		3.233341
F-statistic	3.406510	Durbin-Watson stat		2.220558
Prob(F-statistic)	0.053314			

The regression estimation model explained that the increase in banks consumer credit (*CC*) by 1 basis point will reduce economic growth by 1.75 basis points. As a credit allocated for housing ownership or housing renovations (mortgage), purchases of vehicles, home furnishings and others that are consumption purposes, banks rely on payments of credit disbursed based on debtor's income or disposable income. The greater the disposable income, the greater the share of income that can be used as collateral for banks consumer credit. The negative effect of banks consumer credit on economic growth occurred because of decreasing of disposable income directly then decrease future consumption due to the composition of income for installment of consumer credit.

The transmission mechanism of the negative effects of banks consumer credit on economic growth can be explained by the theory of the goods market (Mankiw, 2016; Sipahutar, 2016; Blanchard & Johnson, 2013; Dornbusch, Fischer & Startz, 2008). The goods market theory explained that economic growth is stimulated by a factor of propensity to consume ( $c_1$ ) whose value is between 0 and 1. Since the value of  $c_1$  lies between 0 and 1 then the multiplier effect is expressed as  $1/(1-c_1)$  is always greater than 1. Economic growth is directly proportional to the multiplier effect explained that if the propensity to consume ( $c_1$ ) increases then economic growth is higher. Nevertheless, the great value of  $c_1$  is not a guarantee the economic growth. This can be explained by the saving theory which states that the savings portion of investment is an important factor for economic growth (Aghion, Angeletos, Banerjee & Manova, 2010; Aghion & Howitt, 2009; Barro & Sala-i-Martin, 2004; Rioja & Valev, 2004a; Levine, 2003; Beck, Levine & Loayza, 2000; Levine, 1997; Pagano, 1993).

Accumulated savings will encourage investments that generate economic growth. The higher the propensity to consume ( $c_1$ ) will result a decrease in the propensity to save ( $1-c_1$ ). A decrease in propensity to save ( $1-c_1$ ) will decrease savings while simultaneously decreasing investment and ultimately reducing economic growth. In term of banks consumer credit, credit repayment using debtor's income will affect decreasing on propensity to save, investment and economic growth. Thus, the negative effect of consumer credit on economic growth is due to the absence of increased in income and disposable income. That is why, banks consumer credit is not a growth accelerator factor on economic growth and there is no multiplier effect on economic growth (Aghion, Angeletos, Banerjee &

Manova, 2010; Rioja & Valev, 2004a; Rioja & Valev, 2004b; Beck, Levine & Loayza, 2000).

### Banks Credit by Economic Sectors on Indonesian Economic Growth

In the model estimation (equation 2), using the banks credit ratio data between agricultural, mining, industrial, trade and services sectors to nominal GDP and Indonesia economic growth per capita, I found cointegration, then the model must be estimated using ECM model. In ECM model estimation, the only significant coefficients are banks credit to mining and trade sectors while other are not. In addition, the adjustment factor shown by the ECM coefficient is not significant, therefore ECM model estimation is *illogical* according to economic theory.

Table 5. Relationship of the ratio of banks credit on agricultural (kAGR), mining (kMIN), industrial (kIND), trade (kTRA) dan services sectors (kSER) to total banks credit on economic growth per capita (NGR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.502097	2.119011	1.180785	0.2561
$\Delta kAGR$	-4.314384	1.953819	-2.208180	0.0432
$\Delta kMIN$	-1.522173	4.960209	-0.306877	0.7632
$\Delta kIND$	4.426672	0.959084	4.615522	0.0003
$\Delta kTRA$	2.915549	0.961082	3.033610	0.0084
$\Delta kSER$	2.728734	0.886951	3.076532	0.0077
R-squared	0.642944	Mean dependent var		-0.231223
Adjusted R-squared	0.523926	S.D. dependent var		12.76142
S.E. of regression	8.805141	Akaike info criterion		7.423505
Sum squared resid	1162.958	Schwarz criterion		7.721940
Log likelihood	-71.94680	Hannan-Quinn criter.		7.488273
F-statistic	5.402048	Durbin-Watson stat		1.602749
Prob(F-statistic)	0.004880			

The model estimation is continued by using the regression in-difference model. The estimation of the regression in-difference model explained that the effect of banks credit to agricultural sector (AGR) and trade sector (TRA) is not significant on economic growth, while effect of banks credit to mining, industry, trade and service sectors are significant. Nevertheless, although banks credit to the mining sector is significant on economic growth, its effect is negative and the variance (standard error coefficient) is higher compared to the diversity of banks credit coefficients to agricultural, industry, trade and services sectors. Since the effect of banks credit to the mining sector (MIN) must be significant to economic growth, while using the regression in-difference model I found that the increase in banks credit to the mining sector has an impact on declining economic growth, of course, the estimation of such that models is also *illogical* according to economic theory.

Furthermore, by re-specifying the model where banks credit based on economic sectors which formerly is the ratio of banks credit by economic sectors to nominal GDP to become the ratio of banks credit by economic sectors to total banks credit, then I obtained a logical model estimation (Table 5). The variance of regression coefficients of each banks credit by economic sectors to total banks credit are all small, and the value of R<sup>2</sup> is quite high at 64.3%. It revealed that 64.3% of model estimation can be explained by the relationship between banks credit composition by economic sectors to total banks credit and 35.7% was explained by other factors outside the model.

Although  $R^2$  (Table 5) in the regression in-difference model is lower than  $R^2$  of the ECM model which is found 72% but due to the smaller the variance of the regression coefficient, then the estimation of the regression in-difference model on the relationship of banks credit by economic sectors to total banks credit is relatively better and more logical based on economic theory. Therefore, in the case of banks credit by economic sectors, the level of credit deepening which is the ratio of banks credit to nominal GDP is not significant. Banks credit by economic sectors on economic growth determined by how much the composition of each sector to total banks credit. In regression in-difference (Table 5), the effect of the ratio (composition) of banks credit to the agricultural ( $kAGR$ ), industrial ( $kIND$ ), trade ( $kTRA$ ) and services ( $kSER$ ) sectors to total banks credit are all significant, but the composition of banks credit to mining sector ( $kMIN$ ) is not significant.

Based on the average magnitude of the ratio of banks credit by economic sectors to nominal GDP, industrial is 9.50%, trade is 8.23%, services is 7.45%, agricultural is 2.28% and mining sector is 0.51%. Meanwhile, during the same period, the average composition of banks credit to industrial, trade and services sectors to total banks credit dominate sectorally by 27.62%, 23.82% and 20.19% respectively, while the average composition of banks credit on agricultural and mining sectors to total banks credit were only 6.58% and 1.69%. Empirically, banks credit allocated to agricultural sector is merely for on-farm agricultural activities purposes. Banks credit to mining sector is relatively small. In general, banks provide credit only for small and medium-scale enterprises in mining sector. Due to the ownership as foreign companies, mining sector corporations tend to use capital market and off-shore credit to finance their business.

The model estimation in equation 2 illustrates that economic growth depends on the composition of banks credit by economic sectors to total banks credit. The level of banks credit depth, which is the ratio of banks credit to GDP plays a role only in the purpose of credit by usages (investment credit, working capital credit and consumer credit), but does not on banks credit by economic sectors. This has implications for planning policy on Indonesian economic growth. To encourage economic growth, the credit depth must be combined to the credit ratio by economic sectors. Credit depth mainly used for investment activities ( $IC$ ) at industrial ( $kIND$ ), trade ( $kTRA$ ) and services ( $kSER$ ) have strong effect to promote economic growth. The composition of banks credit by economic sectors to total banks credit is a strategic element to promote economic growth. It must always be taken into account in any development planning when using banks credit as a growth accelerator factor to promote economic growth. In such a way, economic growth will contribute to reducing unemployment and poverty (Aghion, Angeletos, Banerjee & Manova, 2010).

Based on the model estimation above, an increase by 1 basis point of banks investment credit will increase economic growth by 1,51 basis points, and reduced unemployment rate by 0,5 basis points. It is then reasonable to conclude the banks investment credit allocated to industrial, trade and services sectors are growth accelerator on economic growth (Aghion & Howitt, 2009; Beck, Demirguc-Kunt, Laeven & Levine, 2008; Townsend & Ueda, 2006; Rioja & Valev, 2014a; Rioja & Valev, 2004b; OECD, 2003; Shan, Morris & Sun, 2001; Beck, Levine & Loayza, 2000; Demetriades & Hussein, 1996). Thus, in banking-based development planning, the composition of banks credit by economic sectors is important to promote economic growth.

Banks credit to agricultural sector has a significantly negative effect and the composition of banks credit to the mining sector has a insignificantly negative effect on economic growth. This can be explained due to the low composition of each

sector to total banks credit for more than last two decades. With the average composition of banks credit on agricultural and mining sector to total banks credit are only 6.58% and 1.69% respectively during 23 years (period of 1990-2012), it is enough to explain that banks did not still let that two sectors as a source for their growth on business performance (bank view).

In addition, because of both agricultural sector which tends to only on-farm agricultural and mining sector which tend to only on small scale mining, we can make an adjustment that banks are not interested in financing that two economic sectors. We may also say that banks has a consideration that could be either unprofitable, or quite high risk sectors to be financed. Therefore, the linkages between small scale businesses operating in the agricultural and mining sectors with medium and large enterprises need to get a serious attention to form a strong value chain in the supply-purchase-chain (Porter, 1998). Thus, the plasma-core business interaction will minimize risks in agricultural and mining sectors, which in turn making both sectors attractive for banks.

In economic growth, bank credits by usage (investment, working capital) and economic sectors (agricultural, mining, industrial, trade and services) are sources of integrated economic growth. To achieve higher economic growth, banks investment credit to industrial, trade and services sectors must also be integrated to promote economic growth.

Banks investment credit for industrial, trade and services sectors are source of economic growth through its role to increase capital in the real sectors of economy. The addition of capital to the real sector will encourage productivity and then increase output. Furthermore, increasing in output will increase labor demanded in such a way as to reduce unemployment and poverty. However, although banks working capital credit has no effect on economic growth, the allocation of banks working capital credit to industrial, trade and services sectors remains an integral part of the aggregate credit portfolio in order to maintain real sector liquidity. A capital expansion supported by adequate liquidity will induce stronger ability to promote economic growth.

In Indonesia's current economy, GDP is divided into 9 economic sectors (Table 6), which are, (i) agricultural, livestock, forestry and fisheries, (ii) mining and quarrying, (iii) processing industrial, (iv) gas and water supply, (v) building, (vi) trade, hotels and restaurants, (vii) transportation and communication, (viii) finance, leasing and corporate services, and (ix) services. These nine economic sectors are components of Indonesian GDP and are derived from the main components of GDP consisting of consumption, investment, government spending and net exports.

Table 6. The Composition of Economic by Sectors to Indonesia GDP (2002-2014)

Year	Agricultural	Mining	Industrial	Energy	Building	Trading	Transportation	Finance	Service
2000	15.60	12.07	27.75	0.60	5.51	16.15	4.68	8.31	9.34
2001	15.29	11.05	29.05	0.66	5.70	16.10	4.69	8.22	9.25
2002	15.46	8.83	28.72	0.84	6.07	17.14	5.38	8.48	9.09
2003	15.19	8.32	28.25	0.95	6.22	16.64	5.91	8.64	9.87
2004	14.34	8.94	28.07	1.03	6.59	16.05	6.20	8.47	10.32
2005	13.13	11.14	27.41	0.96	7.03	15.56	6.51	8.31	9.96
2006	12.97	10.98	27.54	0.91	7.52	15.02	6.93	8.06	10.07
2007	13.72	11.15	27.05	0.88	7.72	14.99	6.69	7.73	10.08
2008	14.48	10.94	27.81	0.83	8.48	13.97	6.31	7.44	9.74
2009	15.29	10.56	26.36	0.83	9.90	13.28	6.31	7.23	10.24
2010	15.29	11.16	24.80	0.76	10.25	13.69	6.56	7.24	10.24
2011	14.71	11.82	24.34	0.75	10.16	13.80	6.62	7.21	10.58
2012	14.50	11.81	23.96	0.76	10.26	13.96	6.67	7.27	10.81
2013	14.42	11.29	23.69	0.77	9.98	14.32	6.99	7.52	11.01
2014	14.33	10.49	23.71	0.80	10.05	14.60	7.39	7.65	10.98



Refer to model estimation (Table 5), it is found that the effect of the composition of banks credit to the agricultural (*kAGR*), industrial (*kIND*), trade (*kTRA*) and services sectors (*kSER*) to total banks credit is significant on economic growth, while the composition of banks credit to the mining sector (*kMIN*) is not significant. Although credit to the agricultural sector (*kAGR*) is significant, but the effect is negative.

Furthermore, the effects of the GDP sectors are mainly for productive purposes, such as agricultural, livestock, forestry and fisheries (*AGR*), mining and quarrying (*MIN*), manufacturing industry (*IND*), gas and water (*ENG*), building (*BLD*), trade, hotel and restaurant (*TRA*), transportation and communications (*TRS*) to economic growth per capita (*NGR*) is shown in Table 7.

Tabel 7. Relationship of the composition of GDP by economic sectors, agricultural (*AGR*), mining (*MIN*), industrial (*IND*), building (*BLD*), power, gas and water (*ENG*), trade (*TRA*), transportation (*TRS*) dan services (*SER*) on real economic growth per capita (*NGR*)

Dependent Variable: <i>NGR</i>				
Method: Least Squares ; Sample (adjusted): 2001 2014				
Included observations: 14 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.87251	0.680073	21.86900	0.0000
$\Delta AGR$	8.619490	2.626740	3.281439	0.0168
$\Delta MIN$	7.338789	2.021929	3.629597	0.0110
$\Delta IND$	8.029586	1.437216	5.586904	0.0014
$\Delta BLD$	4.774793	1.739428	2.745036	0.0335
$\Delta ENG$	-5.620572	12.92608	-0.434824	0.6789
$\Delta TRA$	3.299791	1.591056	2.073963	0.0834
$\Delta TRS$	9.828023	3.484400	2.820579	0.0303
R-squared	0.941707	Mean dependent var		13.95485
Adjusted R-squared	0.873698	S.D. dependent var		4.322201
S.E. of regression	1.536069	Akaike info criterion		3.991889
Sum squared resid	14.15704	Schwarz criterion		4.357065
Log likelihood	-19.94322	Hannan-Quinn criter.		3.958085
F-statistic	13.84681	Durbin-Watson stat		2.662447
Prob(F-statistic)	0.002558			

The model estimation (Table 7) explained that the effects of agricultural, livestock, forestry and fishery (*AGR*), mining and quarrying (*MIN*), manufacturing (*IND*), building (*BLD*), trade, hotel and restaurant (*TRA*), transportation and communications (*TRS*) on economic growth per capita (*NGR*) is positive and significant, but gas utilities and water supply (*ENG*) is not significant. Furthermore, the model estimation provides an explanation that despite the significant negatively effect of the composition of banks credit to agricultural sector (*kAGR*) and the insignificant negatively effect of the composition of banks credit to mining sector (*kMIN*) on real economic growth per capita (*NGR*), it can be interpreted that the composition of banks credit on agricultural sector (*kAGR*) and the composition of banks credit on mining sector (*kMIN*) to total banks credit was not strong enough to promote real economic growth per capita (*NGR*). It needs such a larger composition of banks credit on agricultural (*kAGR*) and mining sector (*kMIN*) to promote significantly on economic growth.

Furhermore, as based on the banks credit by usage, where banks investment credit is positively affects economic growth, banks investment credit aimed on agricultural, livestock, forestry and fishery (AGR), mining and quarrying (MIN), manufacturing industry (IND), building (BLD) trade, hotel and restaurant (TRA), transportation and communication (TRS) are also sources of economic growth through their role to increase capital in these sectors.

## CONCLUSION

Based on the model estimation described above, banks investment credit positively affects economic growth, banks consumer credit despite significant effect, but negatively affects economic growth, while the effect of banks working capital credit is not significant. Besides having a positively effect on economic growth, investment credit is able to significantly reduce unemployment rate. Furthermore, the model estimation explained that economic growth depends on the composition of banks credit by economic sectors to total banks credit. The credit depth plays a significant role in banks credit by usage (investment, working capital and consumer), but does not play any role in the economic sectors. This has implications for economic growth planning policy to encourage economic growth, the credit depth must be in line with the banks credit composition by economic sectors.

There is a positive effect of GDP by economic sector based, especially on productive purposes such as agricultural, livestock, forestry and fisheries, mining and quarrying, processing industry, gas and water supply, building, trade, hotel and restaurant, transportation and communication on per capita economic growth. Therefore, due to the banks credit by usages, banks investment credit aimed to agricultural, livestock, forestry and fishery, mining and quarrying, processing industry, building, trade, hotel and restaurant, transportation and communication are sources of economic growth through its role in increasing capital in these sectors.

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