Decentralization Support Facility

www.dsfindonesia.org

A Note on the Indonesian Sub-National Government Surplus, 2001-2006

Blane D. Lewis

January 2008

A Note on the Indonesian Sub-National Government Surplus, 2001-2006

Blane D. Lewis*

Summary: Sub-national governments in Indonesia have accumulated significant cash reserves since decentralization. During the period 2001-2006, sub-national reserves grew at an extraordinary rate—45 percent per annum. The current level of sub-national cash balances has reached approximately 3 percent of GDP. The geographic distribution of the stock of reserves is heavily skewed toward regions with abundant natural resources. Estimation of provincial-level panel data suggests that, at the margin, sub-national governments save 74 percent of shared revenues and 52 percent of general allocation funds (DAU). The elasticity of the sub-national surplus with respect to shared revenues and the DAU is 1.18 and 4.36, respectively. In addition, the analysis shows that growth in regional minimum wages and increasing urbanization both exert significant downward pressure on the sub-national government surplus. Further insight into the determinants of sub-national surpluses and reserves would require specifically tailored field research. Such research is now being organized for implementation in early 2008.

1. Introduction

The Indonesian government has devolved significant expenditure authority to sub-national units since 2001. New sub-national government expenditure assignments have been paid for by a substantial increase in intergovernmental transfers to lower levels of government. The center has decided against devolving any significant new tax authority to the regions, at least for the time being.

As is now well known, the specific responsibilities of sub-nationals were not well defined in Law 22/99 and attendant regulations. Prior to the implementation of decentralization, the Ministry of Finance (MoF) did not attempt to rigorously estimate the amount of funds that would be required by sub-nationals in order to implement their intended new functions. Indeed, this was not really possible given the aforementioned lack of precision regarding defined expenditure assignments. MoF simply endeavored to assure that the level of transfers would exceed by some reasonable amount that which obtained under the pre-decentralization regime. New transfer mechanisms were then designed and codified in Law 25/99 in order to distribute the funds. This rather casual approach to expenditure and revenue assignments was not much changed in developments that culminated in the issuance of Laws 32/04 and 33/04.

This raises an obvious question (among many, perhaps): do sub-national governments have enough funds to adequately discharge their assigned duties? Sub-national government officials, as might be expected, often claim that their resources are insufficient to deliver public services for which they have become responsible. The central government questions this claim, indicating that sub-nationals have not even managed to spend the resources that have already been made available to them. As evidence, central officials point to the rather large and growing unspent balances at the sub-national level.

---

* The author is a senior economist with the World Bank in Jakarta, Indonesia. The author would like to thank Bank Indonesia officials for access to data used in the analysis and Andre Oosterman for comments on a previous version of the paper. The research reported on in this paper was funded by a grant from Britain's Department for International Development (DFID TF 070582).

This note examines some fundamental issues related to these unspent funds. The paper has two particular objectives. First, the paper describes the basic features of sub-national government surplus and reserves since decentralization, including their size and spatial distribution. Second, it seeks to explain the observed variation in surplus across sub-national governments, according to some standard hypotheses.

The paper proceeds as follows. First, some basic information regarding the buildup and geographic distribution of sub-national reserves is offered. Second, the methodological approach to the study of sub-national government surpluses is detailed. Third, the results of the econometric examination are presented and discussed. Finally, the note closes with a summary of the main findings and a proposal for some additional research that might be useful in the continuing development of central policy in this area.

2. Background

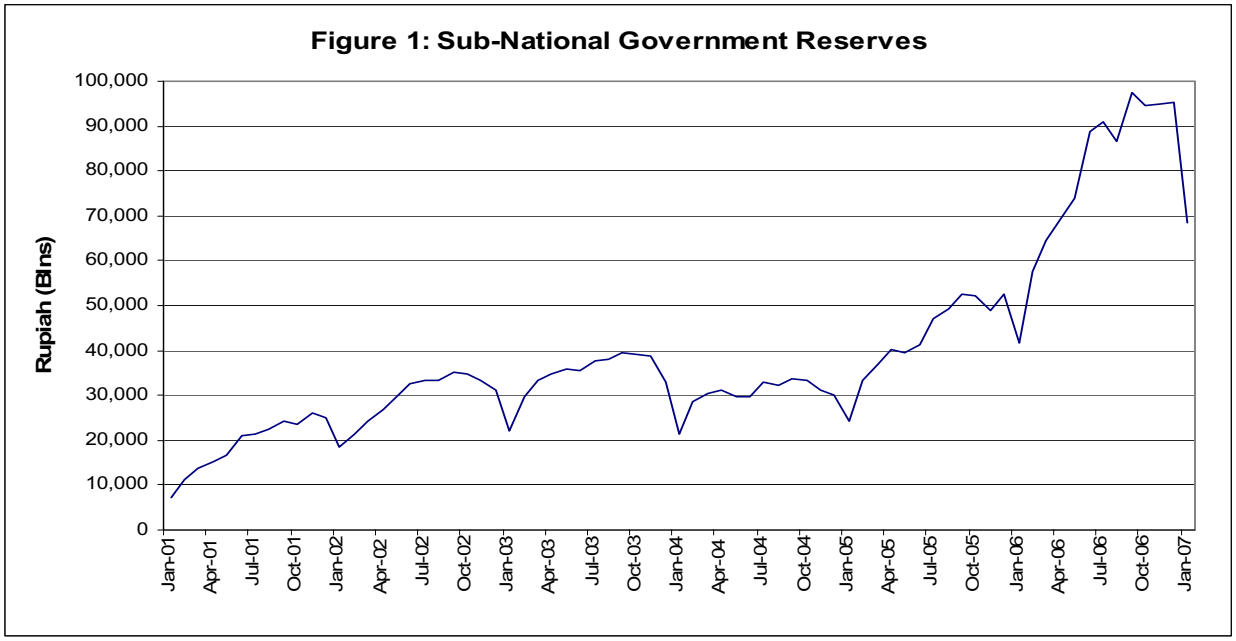
This paper uses sub-national government bank deposits to indicate reserve funds. Sub-national governments are not (yet) known to invest in central government certificates of deposit (SBI), treasuries, or other similar financial instruments to store their funds. The banks in which sub-nationals hold their reserves do, however, invest significantly in such instruments. In any case, the use of deposits as a proxy for sub-national reserves seems reasonable under the present circumstances.

Sub-national government surplus (deficit) is defined as the increase (decrease) in reserve funds from one year to the next. Sub-national governments have not borrowed since decentralization to finance the development of infrastructure. Instead, they use own-source revenues and transfers for public capital expenditure. As a result, the surplus/deficit, as defined here, is net of capital spending.

The data used in this analysis come from Bank Indonesia (BI). BI has information on all sub-national government (demand, savings, and time) deposits in commercial banks in the country. The sub-national government deposit data employed in this investigation have been aggregated at the provincial level. So, for each province in the country, deposit data are those for the provincial government and all kabupaten/kota within the province. The individual government level data have not been made available due to confidentiality concerns.[1]

Prior to the start of decentralization, sub-national governments held just over Rp. 7 trillion in reserve funds. Between the start of 2001 and the end of 2006, sub-national reserve funds expanded by an order of magnitude, reaching just under Rp 70 trillion. Reserves grew at an annual rate of 45 percent during the indicated period. At the time of this writing, sub-national reserves stood at about Rp 110 trillion. This figure represents about 3 percent of estimated GDP for 2006. Figure 1 details the rise of sub-national reserves since decentralization began.

[1] In theory sub-national government budget data could also be used to estimate the surplus/deficit. These data are only available from the Ministry of Finance with a two year lag, however. Moreover, the completeness and reliability of those budget data have become increasingly problematic in recent times.



Presently, districts (i.e. kabupaten/kota) hold about 70 percent of the total stock of reserves. The rest of the funds are in the possession of provincial governments. Sub-national government enterprises (e.g. local water enterprises—PDAM) have negligible reserves. Sub-national reserves are distributed very unevenly geographically. The vast bulk of reserve funds are owned by regional governments that are rich in natural resources. Sub-national governments in four natural resource rich provinces—Kalimantan Timur, Riau, Aceh, and Papua—hold just less that 45 percent of the total stock of reserves. Figure 2 presents the per capita distribution of sub-national government reserves, by province, at the end of 2006.

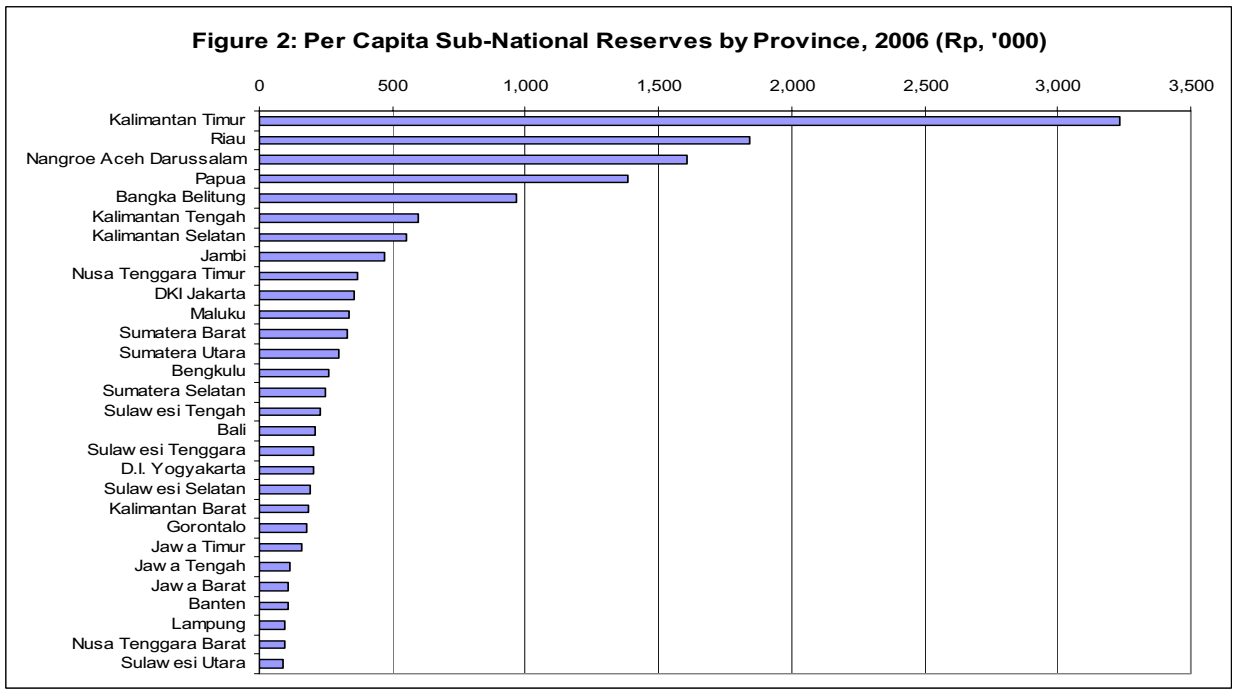


Table 1 provides some basic information on intergovernmental transfers and other important variables for the period 2001-2006. The data are shown for background purposes only and are not discussed in much depth. Two points are worth highlighting, however. First, notice the sizeable increase in shared revenues in 2005 and then again in 2006 (although to a lesser extent). This growth was driven in large measure by the significant rise in the oil price during those two years (which forces an increase in shared oil revenues with sub-nationals).

Second, note the substantial increase in block grants in 2006. This is also a function of the rising price of oil, as well as the fact that government adopted a reasonable estimate of that price in the state budget for the first time in many years. All other things being equal, a higher budgeted price of oil drives up planned domestic revenues, which serve as the basis for determining the pool of finance for block grants; previously, the government purposefully underestimated the price of oil in the national budget in order to reduce its transfer obligations to the regions.[2]

In any case, the considerable increase in revenue sharing and block grants in 2005 and 2006 corresponds closely with the significant rise in sub-national surplus during those two years, as shown in Figure 1. This suggests at least one possible factor that determines the annual sub-national surplus and the accumulation of reserves—increases in intergovernmental transfers. This is considered in more detail below.

Table 1: Sub-National Data, Totals, 2001-2006 (Constant Rupiah)

	2001	2002	2003	2004	2005	2006
Revenue Sharing (Rp Blns)	31,828	33,854	40,313	46,083	57,038	64,900
Block Grants (Rp Blns)	95,999	94,089	98,925	102,313	101,887	145,664
Specific Grants (Rp Blns)	1,115	834	3,499	5,094	5,468	11,566
Minimum Wage (Rp per month)	443,247	490,724	530,788	571,149	580,970	602,257
Poverty (Percent of Population)	18.4	18.2	17.4	16.7	15.7	17.8
Urbanization (Percent of Population)	42.0	43.4	45.3	46.5	48.3	49.8
Population (Mlns)	206	211	214	217	221	224
GDP (Rp Blns)	2,305,719	2,478,549	2,587,795	2,860,534	3,196,647	3,338,196
GDP deflator	62.9	73.5	77.8	80.3	87.1	100.0

3. Methodological Approach

The approach used in this paper to analyze sub-national surpluses and reserves dates back to the pioneering work of Gramlich and Galper (1973) and Gramlich (1991). In broad terms, the method developed by those authors posits that the surplus is a positive function of fiscal transfers to sub-national units and a negative function of sub-national expenditure needs. In this scheme, surplus is but one part of a larger fiscal system comprising sub-national expenditures and taxes, as well, both of which are also a function of transfers and spending needs.

Lewis (2005) employed the general Gramlich-Galper framework to study Indonesian local government spending, taxing, and savings just before and after decentralization. The present paper focuses on explaining the Indonesian sub-national surplus since the implementation of

[2] The pool of finance for revenues shared with sub-national governments is determined as a function of actual (i.e. not planned) national revenues.

decentralization began in 2001 through 2006. Simple (one-way) fixed effects models are used to operationalize the methods described above.[3] More particularly, to start it is assumed that:

$$y_{it} = \alpha_i + \beta' x_{it} + \varepsilon_{it} \quad (1)$$

where y is sub-national government surplus, x is a vector of explanatory variables, α and β are parameters to be estimated, ε is the usual error term (with mean and variance equal to zero and σ^2, respectively), and subscripts i and t refer to the province in which sub-national governments are located and the year, respectively.

Explanatory variables comprise tax and non-tax shared revenues, general allocation funds (DAU), the minimum wage, and the percent of the population that is urban.[4] All variables are province-specific. The surplus, shared revenues, and general allocation funds are summed across the provincial government and all local governments within the province. It is expected that sub-national surplus varies positively with transfers and negatively with the minimum wage and urbanization, all other things remaining equal.

One possible problem with the specification above concerns the assumed exogenous nature of general allocation funds. This (equalization) grant is determined by the Ministry of Finance as a function the difference between sub-national government fiscal needs and (expected) revenues from other sources. The distribution formula uses population, area, poverty, and a cost index as proxies for fiscal needs; other revenues include those from shared tax and non-tax revenues and own-source revenues, where the latter is estimated as a function of gross regional domestic product (GRDP). As such, it might be more reasonable to assume that the general allocation fund is endogenous. It is therefore posited that:

$$y_{it} = \alpha_i + \beta_1' x_{1,it} + \beta'_2 x_{2,it} + \varepsilon_{it} \quad (2)$$

where x_1 comprises variables representing shared tax and non-tax revenues, minimum wage, and urbanization; and x_2 denotes general allocation funds, which are now assumed to be endogenous (and therefore possibly correlated with ε). All other variables are as previously defined.

Estimation of equation (2) requires a set of instruments to represent the general allocation fund, x_2. Instruments employed in the estimation include population, poverty head count, the provincial consumer price index (CPI)[5], GRDP, and all variables in x_1.[6] The variables used in the empirical analysis are named and defined in Table 2.

---

[3] Estimation of a two-way fixed effects model (with time as the second effect) did not result in any statistically significant improvement over the one-way model. This paper uses the latter therefore.

[4] Tax and non-tax shared revenues are combined in the empirical analysis here. Estimation of the models with the two types of transfers treated separately resulted in severe problems of multicollinearity. Specific-purpose grants (DAK) are not considered as a possible explanatory factor of surpluses. Such grants are very small in comparison with others and are of less interest in the current context. Poverty, another possible expenditure need variable, did not prove to be a significant determinant of surplus and so was not used; poverty is, however, employed as an instrument in the two-stage least squares version of the model.

[5] The DAU allocation formula uses a construction cost index instead of the CPI but the former is not available in a consistent form for all years of the study.

[6] The instruments, together with fixed group effects, explain about 88 percent of the variation in per capita DAU.

Table 2: Variable Names and Definitions

Name	Definition
Dependent Variables	
SPLSPC	Total sub-national government surplus, within province, per capita.
Explanatory Variables	
SHRVPC	Total revenue sharing transfers to sub-national governments, within province, per capita.
BLKTRPC	Total block grants to sub-national governments, within province, per capita.
WAGE	Provincial minimum wage.
URBAN	Percent of the provincial population that lives in urban areas.
Other Instruments for BLKTRPC	
POP	Natural logarithm of provincial population.
POVERTY	Percent of provincial population that is poor.
CPI	Provincial consumer price index.
GRDPPC	Natural logarithm of gross regional (provincial) domestic product, per capita.

4. Empirical Results

Equation (1) is consistently and efficiently estimated using least squares with one-way fixed effects. Equation (2) is estimated via two stage least squares procedures. The latter provides consistent and efficient estimates of the parameters in the one-way fixed effects model. Greene (2007) discusses the methodological details.

Table 3 shows the estimation results for both models. The table provides the estimated coefficients, t statistics, and an indication of significance of the estimated coefficients. The number of observations, the values of the log likelihood and restricted log likelihood functions, and the adjusted R^2 appear at the bottom of the table. The least squares estimation results for equation (1) are provided for comparison purposes only. Discussion focuses on the output from the two-stage least squares estimation of equation (2).

Table 3: Surplus Regression Output†

	LS Fixed Group Effects		2SLS Fixed Group Effects	
Variable	Coefficient	t stat	Coefficient	t stat
Constant				
SHRVPC	0.641	5.957 *	0.740	3.023 *
BLKTRPC	0.236	7.109 *	0.527	4.543 *
WAGE	-1.167	-3.614 *	-2.899	-4.332 *
URBAN	-8,931.378	-1.209	-47,075.599	-1.976 *
No. Observations	176		176	
Log likelihood	-2,313.387		-2,311.721	
Restr log likelihood	-2,393.810		-2,393.810	
Adjusted R^2	0.506		--	

† Dependent variable is SPLSPC. * Coefficient is statistically significant at the 0.05 level.

As the table demonstrates, all estimated coefficients have the expected signs and all are statistically significant at the 0.05 level. At the margin, a one rupiah increase in per capita revenue sharing leads to 0.74 rupiah increase in per capita surplus while a one rupiah increase in per capita general allocation funds leads to a rise in per capita savings of 0.52 rupiah. In addition, a rise in the provincial monthly minimum wage of one rupiah results in a decrease in sub-

national government savings of nearly three rupiah per capita; and an increase in the urbanization rate of one percent leads to a decline in per capita savings of nearly fifty thousand rupiah. The information in the table can be used to estimate the elasticity of per capita surplus with respect to per capita revenue sharing, per capita general allocation funds, the minimum wage, and the urbanization rate. The relevant calculations (made at the point of means) result in estimated elasticities of 1.18, 4.36, -12.89, and -19.92, respectively.

Thus, more of each additional rupiah transferred through shared revenues is saved than is the case for the DAU. But because the DAU is larger relative to savings than shared revenues are, a percentage increase in the former leads to larger surpluses than an equivalent percentage increase in the latter. A rise in the minimum wage drives up the costs of sub-national governments (because of resultant upward pressure on the government wage bill and because of higher costs associated with contracting out the development of infrastructure projects and/or or service delivery) and leads to diminished surpluses. Urbanization results in increased expenditure needs (i.e. a larger package of public services for urban residents), which, all other things begin equal, similarly reduces the sub-national surplus.[7]

5. Summary and Future Research Needs

Sub-national governments in Indonesia have accumulated significant cash reserves since decentralization began in 2001. During the period 2001-2006, sub-national reserves grew at about 45 percent per annum and increased by an order of magnitude in nominal terms. The current level of sub-national cash balances has reached approximately 3 percent of GDP.

Presently, districts (i.e. kabupaten/kota) hold about 70 percent of the total stock of reserves. The rest of the funds are in the possession of provincial governments. The geographic distribution of the stock of reserves is heavily skewed toward regions with abundant natural resources. Sub-national governments in Kalimantan Timur, Riau, Aceh, and Papua provinces hold just less than 45 percent of the total stock of reserves.

Two stage least squares estimation of provincial-level panel data suggests that an increase of one rupiah of per capita revenue sharing leads to 0.74 rupiah increase in per capita surplus while a one rupiah increase in per capita general allocation funds (DAU) leads to a rise in per capita savings of 0.52 rupiah. The elasticity of the sub-national surplus with respect to shared revenues and the DAU is 1.18 and 4.36, respectively. In addition, the analysis shows that growth in regional minimum wages and increasing urbanization both exert significant downward pressure on sub-national government surplus and, therefore, reserves.

In the context of the policy discussion on these issues, many other reasons have been offered to explain the large increase in sub-national government reserves. Other possible explanations include those concerning the late approval of sub-national budgets by higher level authorities, which delays development spending well into the fiscal year; significant and increasing central government expenditure on decentralized tasks, which crowds out sub-national public spending;

[7] An alternative possible explanation for this outcome is that urban governments tend to be more capable than their rural counterparts and are therefore able to spend their resources to a fuller extent. This would require further research to verify.

sub-national government officials' fear of corruption, which constraints spending; and lack of regional capacity to organize and implement development projects in a timely manner.

The investigation of these possible causes of the buildup of sub-national reserves is not amenable to the kind of formal empirical analysis conducted in this paper. Further insight into other possible determinants of sub-national surpluses would require some specifically tailored field research. Such research is now being organized and will begin implementation starting in early 2008.

References

Gramlich, E. and H. Galper, 1973, State and local fiscal behavior and federal grant policy. *Brookings Papers on Economic Activity*, 1, pp. 15–65.

Gramlich, E., 1991, The 1991 state and local fiscal crisis. *Brookings Papers on Economic Activity*, 2, pp. 249–287.

Lewis, B., 2005. Indonesian local government spending, taxing, and saving: An explanation of pre- and post-decentralization fiscal outcomes. *Asian Economic Journal,* 19, no. 3, pp. 291-317.

END OF YEAR OUTSTANDING REGIONAL GOVERNMENT DEPOSITS IN COMMERCIAL AND RURAL BANKS,
(MILLIONS OF RUPIAH)

No.	PROVINCE	2000	2001	2002	2003	2004	2005	2006
	TOTAL	**7,487,686**	**18,558,231**	**22,235,204**	**21,555,146**	**24,577,466**	**41,916,022**	**68,784,647**
1	Banten	54,639	315,735	422,250	348,197	589,018	935,203	978,976
2	Jawa Barat	714,353	1,514,373	1,708,665	1,780,967	2,342,202	3,075,503	4,253,938
3	DKI Jakarta	2,023,097	2,840,907	2,920,293	2,538,709	2,497,867	4,158,754	3,162,192
4	D.I. Yogyakarta	128,781	276,397	368,378	388,173	402,013	427,903	660,233
5	Jawa Tengah	557,664	1,617,208	1,795,554	1,505,015	1,754,640	2,492,643	3,766,998
6	Jawa Timur	844,108	2,571,659	2,829,990	2,263,346	3,001,986	4,353,260	5,867,949
7	Bengkulu	35,248	96,727	140,696	139,314	142,606	188,116	419,437
8	Jambi	83,323	215,689	289,615	373,195	513,967	689,500	1,252,730
9	Nangroe Aceh Darussalam	195,255	564,017	1,306,990	1,128,086	1,266,262	2,549,196	6,493,007
10	Sumatera Utara	427,372	892,798	891,597	1,118,794	1,009,170	1,647,472	3,644,693
11	Sumatera Barat	123,628	376,654	539,448	590,432	538,531	633,033	1,512,637
12	Riau	265,237	1,125,037	2,077,555	1,942,530	3,140,785	5,387,075	8,848,152
13	Kepulauan Riau						844,197	2,003,102
14	Bangka Belitung	23,876	80,895	160,116	249,956	367,309	603,961	1,027,402
15	Sumatera Selatan	212,301	585,057	460,637	549,159	516,898	1,407,448	1,691,430
16	Lampung	64,353	309,679	248,897	268,847	277,058	536,591	699,603
17	Kalimantan Selatan	139,533	294,898	354,083	387,523	486,798	1,071,170	1,789,718
18	Kalimantan Barat	90,675	384,576	315,450	254,154	282,057	340,790	743,127
19	Kalimantan Timur	275,878	1,292,983	1,926,602	2,064,966	1,630,939	5,344,946	9,088,296
20	Kalimantan Tengah	147,023	269,229	423,812	596,994	587,386	690,220	1,140,277
21	Sulawesi Tengah	32,675	149,989	142,583	310,422	244,948	349,662	520,000
22	Sulawesi Selatan	227,798	613,781	752,283	671,148	642,853	820,754	1,460,184
23	Sulawesi Barat						72,806	145,778
24	Gorontalo	11,107	63,199	76,136	56,674	87,801	86,297	162,567
25	Sulawesi Utara	14,200	89,637	106,353	128,567	62,499	139,257	193,848
26	Sulawesi Tenggara	46,450	165,039	142,811	127,182	106,766	113,549	403,481
27	Nusa Tenggara Barat	62,895	130,102	170,048	88,048	137,938	226,022	387,685
28	Bali	381,208	626,589	526,473	354,714	390,825	618,183	708,885
29	Nusa Tenggara Timur	94,249	376,940	564,327	775,393	764,489	857,723	1,556,027
30	Maluku	106,053	139,671	161,278	192,098	141,211	209,757	434,835
31	Maluku Utara	11,702	73,058	99,211	22,960	91,771	122,903	287,405
32	Papua	93,005	505,709	313,073	339,583	558,873	922,128	3,480,055
33	Irian Jaya Barat							

Source : Bank Indonesia - SEKDA