THE MILLENNIUM DEVELOPMENT GOALS (MDGS) PROGRESS IN MINDANAO: A GLANCE ON THE LOCAL GOVERNMENTS' EXPENDITURE BEHAVIOR FOR BASIC SOCIAL SERVICES

by

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ABSTRACT

This study investigates the behavior of LGU finances in relation to the MDG progress in Mindanao using the income and expenditures of 27 cities and 393 municipalities from CY2001 to 2011. The random effects (RE) model was employed to derive the final estimates of panel LGUs due to its advantage in conducting panel data analysis.

Major findings revealed that not all LGUs are operating efficiently in terms of allocating resources to basic social services due to the huge expenditure surplus found. Nevertheless, the results disclose some of the vital expenditures needed to improve further the MDG scorecard at the local level.

Findings also convey the important role of good governance (*D1*) and degree of urbanization (*D3*) in attaining sound fiscal policy that includes social services delivery and economic transactions at the LGUs level in Mindanao.

Keywords: *inequality, MDG, random-effects model*

I. Introduction

In September 2000, the Philippines, together with the 189 member countries have vowed to adopt the Millennium Declaration by 2015. The consensus focuses on the eight (8) Millennium Development Goals (MDGs) These include reducing poverty and hunger, and tackling health related diseases, gender inequality, lack of education, inadequate access to clean water and environment degradation.

The Millennium Declaration is a milestone in international cooperation and inspired development efforts to improve the lives of people around the globe. Its goals represent human rights that each individual must enjoy. The Philippine government through the multi-sectoral committee on International Human Development Committee and the Social Development Committee of the NEDA Board, in collaboration with the UN country Team, lead the preparation of the country's progress report on the MDGs.

The MDG implementation of the country is a shared responsibility between the national government and the local government units (LGUs) in the delivery of basic services at the local level. In fact, the Local Government Code (LGC) of 1991 highlighted the major role of LGUs, as frontline institutions in realizing the MDG targets which largely depend on public expenditures on devolved basic social services. Moreover, civil society and business sector are enjoined to participate and do their share in ensuring local institutions to commit and respond appropriately to the basic community requirements at their level.

Past studies of the country's MDG performance looked into the relationship of budget allocation to the MDG outcome indicators. However, only few attempted to investigate the LGUs

expenditure pattern for social services in Mindanao. Cua (2010) examined the budget of LGUs in the northern part of Mindanao and found budget surpluses which could be used to finance more social programs in the region.

Considering that most LGUs in Mindanao continue to lag behind, this study aims to do the following: (1) review the income and expenditure pattern of LGUs and (2) generate empirical evidence that would enhance local spending for basic social services leading to better MDG scorecards across LGUs.

The rest of this paper is organized as follows, Section II discusses the data, specification and methodology. Discussion of result is found in Section III. Conclusion and recommendations are in the final Section.

II. Data and Model Specification

The data on the LGUs Statement of Income and Expenditures from 2001-2011 came from the Bureau of Local Government and Finance (BLGF)while good governance index came from the National Statistical Coordination Board (NSCB) covering cities and municipalities in Mindanao.

Panel data was used in this study because it permits a model specification with rich advantages and allows users to sort economic effects that cannot be distinguish with the use of traditional cross-section and time-series data.

Gujarati (2003) provided some the advantages of using this approach which are as follows:

(1) It can take into account heterogeneity by controlling individual-specific variables;
(2) It can give more informative data, degrees of freedom, and less collinearity among variables;
(3) It can also detect and measure effects that cannot be observed in pure cross-section or time-series data;
(4) Panel data enables to study more complicated behavioral models including dynamics of change; and
(5) It can minimize bias that might result from aggregate individuals/firms into broad aggregates.

The Model

The study employed the random-effects (RE) model. This method assumes the variation across entities to be random and uncorrelated with its predictors. Gujarati (2003) provides a good presentation on this topic. Hence some of the discussions here were taken from his works.

The RE model came as enhancement of the fixed effects (FE), or the least squares dummy variable (LSDV) model which posed statistical threats on its degrees of freedom that makes it prone to multicollinearity and violates the assumption of the standard ordinary least squares (OLS) error terms.

In the FE model, it takes into account the individuality of each cross-sectional unit to let the intercept vary for each entity but still assumed a slope coefficient that is constant across entities in Eq. (1).

$$y_{it} = \beta_{1\,it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_{ii} \quad (1)$$

where:

$i = 1, 2, 3, \ldots N$
$t = 1, 2, 3, \ldots N$

However, instead of treating β_{1i}as fixed, the RE model assumes a random variable with mean value of β_1 and the intercept value of the individual entity that can be express as:

$$\beta_{1t} = \beta_1 + \varepsilon_i \qquad i = 1, 2, 3, \ldots, N \quad (2)$$

where ε_i is a random error term with mean at zero (0) and variance σ^2_ε. In other words, the RE model assumes that the samples drawn from the representative population have common mean value (=β_1) of intercept and the individual differences in the intercept value of each entity are reflected in the error term ε_i.

Therefore, substituting (2) from (1), we obtain:

$$\begin{aligned} y_{it} &= \beta_1 + \beta_2 X_2 it + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon_i + \mu_{ii} \\ &= \beta_1 + \beta_2 X_2 it + \beta_3 X_{3it} + \beta_4 X_{4it} + w_{ii} \end{aligned} \quad (3)$$

where

$$w_{ii} = \varepsilon_i + \mu_{ii} \quad (4)$$

The composite error term w_{ii} consists of two components, ε_i which is the cross section, or the individual-specific, error component, and μ_{ii} , which is the combined time-series and cross-section error component. The ECM term deriveits name on the composite error term consisting of two (or more) error components. The RE model or ECM usually has the following assumptions:

$\varepsilon_i \sim N(0, \sigma^2_\varepsilon)$
$u_{ii} \sim N(0, \sigma^2_u)$
$E(\varepsilon_i u_{ii}) = 0 \qquad E(\varepsilon_i \varepsilon_j) = 0 \ (i \neq j)$
$E(u_{ii} u_{is}) = E(u_{ii} u_{is}) = E(u_{ii} u_{is}) = 0 \ (i \neq j;\ t \neq s)$

That is, the individual error components are uncorrelated with each other and have no autocorrelation in both cross-section and time-series units. Thus, the assumptions stated in (4), follows that,

$$E(w_{it}) = 0 \quad (5)$$
$$var\ (w_{ii}) = \sigma^2_\varepsilon + \sigma^2_u \quad (6)$$

Now if $\sigma^2_\varepsilon = 0$, this reveals no difference between models (1) and (3), and can pool all the cross-sectional and time series observations and run the pooled regression. As shown in (6), the error term w_{ii} is homoscedastic. However, it can be shown that w_{ii} and w_{is} ($t \neq s$) are correlated; that is, the error terms of a given cross-sectional unit at two different points in time are correlated. The correlation coefficient, corr (w_{ii} ,w_{is}) is as follows:

$$\text{corr}\,(w_{ii}, w_{is}) = \frac{\sigma^2_{\varepsilon}}{\sigma^2_{\varepsilon} + \sigma^2_{u}} \qquad (7)$$

Notice two special features of the correlation coefficient. *First,* for any given cross-sectional unit, the value of the correlation between the error terms of two different times remains the same regardless of distance and time-periods. This is a strong contrast to the first-order [AR(1)] scheme, where the correlation between time-periods decline over time. *Second,* the correlation structure given in (7) remains the same and identical for all cross-sectional units or individuals.

The variables used in this study are presented below. The selection of variables came from the previous studies on the MDG performance coming from various authors.

Variable	Description
	Endogenous variables
LED_{it}	log expenditure for education, culture & sports/ manpower development
LHN_{it}	log expenditure for health, nutrition & population control
LH_{it}	log expenditure for housing and community development
LSW_{it}	log expenditure for social security/ social services & welfare
D_{1t}	dummy variable for LGUs with high good governance index scores in 2005 & 2009
D_{2t}	dummy variable for geographical location, where 1 reflects potential location; 0, otherwise
D_{3t}	dummy variable for urbanization, where 1 reflects urban category; 0, otherwise.
μ_{it}	between entity error
ε_{it}	within entity error
y_{it}	Exogenous variables:
	(a) cohort survival rate; (b) access to safe water and sanitation;
	(c) maternal mortality rate; and (d) poverty incidence;

III. Discussion of Results

A. Income

Table 1 shows the aggregate income of LGUs in Mindanao which displayed 8.65% annualized growth from PhP21.1 billion to PhP54.4 billion, despite the significant reductionsrecorded particularly inFY2006 and 2010.

Table 1: Total income of LGUs in Mindanao, FY2001-2011.

Sources of Income (in PhP '000)	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
MUNICIPALITIES						
Total Tax Revenue	622,571	679,511	778,040	842,733	899,728	1,020,789
Total Non-Tax Revenue	576,594	652,332	735,101	781,715	908,445	1,133,086
Internal Revenue Allotment	10,794,507	12,589,454	13,577,209	13,535,654	14,513,658	18,608,821
Share from National Wealth	10,850,204	12,615,646	13,626,767	13,639,123	14,601,870	18,951,881
Extra Ordinary Receipts, Grants (Debt Services)	92,596	65,949	114,815	86,136	118,072	116,359
Domestic Borrowings (Total Debt Service)	145,211	99,010	105,874	206,921	228,759	302,732
Municipal Total	11,029,003	14,130,168	15,372,609	15,564,225	16,767,883	19,226,728

% Change	-	28.12	8.79	1.25	7.73	14.66
CITIES						
Total Tax Revenue	1,881,443	2,069,964	2,204,293	2,281,164	4,799,567	2,971,698
Total Non-Tax Revenue	843,076	914,523	960,730	1,020,760	2,016,432	1,390,532
Internal Revenue Allotment	6,740,227	8,150,478	8,464,373	8,509,849	15,649,770	10,241,895
Share from National Wealth	6,764,161	8,161,141	8,519,944	8,531,690	15,682,797	10,293,886
Extra Ordinary Receipts, Grants (Debt Services)	27,389	3,218	3,742	11,437,060	699,191	44,183
Domestic Borrowings (Total Debt Service)	363,880	198,340	187,409	271,398	341,777	687,034
City Total	10,098,823	11,361,296	11,890,365	12,125,005	23,554,077	15,410,633
% Change	-	12.50	4.66	1.97	94.26	(34.57)
Mindanao Total	21,127,826	25,491,464	27,262,974	27,689,230	40,321,960	34,637,361
Percentage Change	-	20.65	6.95	1.56	45.62	(14.10)

Sources of raw data came from the BLGF

Table 1: Total income of LGUs in Mindanao, FY2001-2011.(*Cont...*)

Sources of Income (In PhP '000)	2007	2008	2009	2010	2011	Annual growth (%)
MUNICIPALITIES						
Total Tax Revenue	967,318	1,083,315	1,301,902	1,592,990	1,771,564	
Total Non-Tax Revenue	1,040,718	1,265,319	1,538,311	1,811,316	2,150,196	
Internal Revenue Allotment	16,539,290	20,478,549	26,058,955	25,070,030	26,728,857	
Share from National Wealth	16,800,364	20,695,571	26,877,777	25,780,551	27,474,660	
Extra Ordinary Receipts, Grants (Debt Services)	79,836	256,518	455,211	382,221	490,795	
Domestic Borrowings (Total Debt Service)	209,651	335,381	605,379	550,382	816,882	
Municipal Total	19,122,866	23,650,698	29,717,991	29,184,857	31,396,421	
% Change	(0.54)	23.68	25.65	(1.79)	7.58	(9.27)
CITIES						
Total Tax Revenue	3,136,026	3,643,187	4,095,467	4,154,635	4,584,379	
Total Non-Tax Revenue	1,458,327	1,703,444	2,060,059	2,019,505	2,112,381	
Internal Revenue Allotment	10,868,556	13,202,334	15,207,783	15,491,266	15,930,078	
Share from National Wealth	10,957,528	13,320,135	16,022,015	15,881,702	16,311,154	
Extra Ordinary Receipts, Grants (Debt Services)	3,136,026	42,419	33,567	54,057	152,428	
Domestic Borrowings (Total Debt Service)	1,186,906	822,955	797,179	1,207,495	1,254,723	
City Total	16,176,798	19,555,435	22,177,542	22,055,843	23,007,915	
% Change	4.97	20.89	13.41	(0.55)	4.32	(12.41)
Mindanao Total	35,299,664	43,206,133	51,895,533	51,240,700	54,404,336	
Percentage Change	1.91	22.40	20.11	(1.26)	6.17	8.65

Sources of raw data came from the BLGF

It also reveals that both municipalities and cities total income dipped by 9.3% and 12.4% based from the annualized growth levels covered.

Table 2 presents the average percentage shares of Internal Revenue Allotment (IRA) and revenue shares of the national government to the LGUs in Mindanao. Based from the figures, the total average revenue generation of cities was recorded at PhP35 billion while the municipalities almost reaches half of that figures at PhP15 billion.

Table 2.Revenue and Internal Revenue Allotment (IRA) of Mindanao LGUs, FY2001-2011.

Region	Cities		Municipalities		Total average revenue share (%)	Total average IRA share (%)
	Mean		Mean			
	Total revenue (in '000)	IRA (in '000)	Total revenue (in '000)	IRA (in '000)		
Zamboanga Peninsula	3,675,307	23,064,134	1,314,142	27,699,506	11.61	54.87
Northern Mindanao	10,830,871	36,000,590	3,775,370	32,051,391	33.97	73.55
Davao	14,202,290	34,790,342	3,276,692	28,508,788	40.65	68.41
SOCCSKSARGEN	4,751,116	18,762,842	3,397,438	33,963,989	18.95	56.99
CARAGA	2,241,197	13,204,664	2,836,298	28,357,613	**11.81**	44.92
ARMM	121,044	2,634,042	788,602	37,497,694	2.12	43.37
Mindanao-wide	35,821,828	128,456,615	15,388,544	188,078,983	19.85	57.02

Sources of raw data came from the BLGF

With regards to IRA dependency, the municipalities were found highly dependent to IRA at 34% compared to cities which is only at 23%. On the average, the LGUs share in Mindanao reflects almost 20% of the total revenue generation but most are found dependent to the IRA share at 57%.

Consequently, ARMM has the most number of municipalities highly dependent to IRA at almost 66%. These are followed by SOCCKSARGEN, Northern Mindanao, Davao, Caraga and Zamboanga Peninsula with mean IRA shares of almost 60%, 56%, 50% and 49%, respectively.

B. Expenditures

The annualized spending share of basic social services vis-à-vis the expenditure of cities in Mindanao is found at 17%. Across municipalities, it recorded at 12%. It has been observed that among the primary expenditures listed under basic social services, most of it went to health, nutrition and population control of which 58% came from the municipalities while 38.4% from the cities.

Table 3.Total expenditures of Mindanao LGUs, FY2001-2011.

Expenditures (in PhP '000)	2001	2002	2003	2004	2005	2006
MUNICIPALITIES						
Basic Social Services	1,657,508	1,617,438	1,641,768	1,629,307	1,690,644	1,955,847
Education	182,372	188,351	217,333	207,335	224,638	256,014
% Education share	11.0	11.7	13.2	12.7	13.3	13.1
Health, Nutrition, Population Control	888,722	955,138	996,583	968,355	224,638	1,141,269
% Health, Nutrition & Popn	53.6	59.1	60.7	59.4	59.8	58.3
Housing and Community Development	173,355	114,485	75,551	57,210	60,668	52,218
% Housing & Community Dev't	10.5	7.1	4.6	3.5	3.6	2.7
Social Security, Social Services & Welfare	413,060	359,464	352,299	396,407	394,765	506,343

% Social Security share	24.9	22.2	21.5	24.3	23.4	25.9
Total Provincial Expenditures	12,299,535	12,989,332	14,200,024	14,553,899	15,419,896	19,776,144
Percent Change	-	5.61	9.32	2.49	5.95	28.25
Excess/Deficit of Income over Expenditures	27,629	1,140,836	1,172,585	1,010,326	1,347,987	1,784,847
% of Basic Social Services among Municipalities	13.5	12.5	11.7	11.2	11.0	9.9
CITIES						
Basic Social Services	2,067,280	2,070,580	1,823,528	1,661,449	3,585,366	2,058,121
Education	562,695	571,734	539,818	471,171	1,083,141	595,478
% Education share	27.2	27.6	29.6	28.4	30.2	28.9
Health, Nutrition, Pop'n Control	785,561	801,148	803,218	771,674	1,337,208	790,137
% Health, Nutrition & Pop'n	38.0	38.7	44.1	46.5	37.3	38.4
Housing and Community Development	390,588	439,787	198,419	184,645	749,189	400,894
% Housing & Community Dev't	18.89	21.24	10.88	11.11	20.90	19.5
Social Security, Social Services and Welfare	328,434	257,909	282,072	233,959	415,829	271,610
% Social Security share	15.9	12.5	15.5	14.1	11.6	13.2
Total Cities Expenditures	9,607,458	10,018,675	10,294,670	10,214,813	19,923,017	12,578,737
Percent Change	-	4.28	2.75	(0.78)	95.04	(36.86)
Excess/Deficit of Income over Expenditures	332,398	1,342,620	1,595,694	1,910,191	3,631,060	2,831896
Percent of Basic Social Services among Cities	21.5	20.7	17.7	16.3	18.0	16.4

Sources of raw data came from the BLGF

Table 3.Total expenditures of Mindanao LGUs, FY2001-2011. (*Cont…*)

Expenditures(in PhP '000)	2007	2008	2009	2010	2011	Ave. shares (%)
MUNICIPALITIES						
Basic Social Services	1,889,259	2,159,782	3,196,494	3,517,801	3,688,455	
Education	252,187	278,844	275,748	330,672	335,199	
% Education share	13.4	12.9	8.6	9.4	9.1	11.7
Health, Nutrition, Population Control	1,096,151	1,278,778	1,457,289	1,654,951	1,795,729	
% Health, Nutrition &Pop'n	58.0	59.2	45.6	47.1	48.7	55.4
Housing and Community Development	62,170	72,514	125,300	142,423	84,237	
% Housing & Community Dev't	3.3	3.4	3.9	4.1	2.3	4.5
Social Security, Social Services and Welfare	478,750	529,645	1,338,156	1,389,754	1,473,288	
% Social Security share	25.3	24.5	41.9	39.5	39.9	28.4
Total Municipal Expenditures	17,740,534	21,563,039	25,646,355	25,142,305	26,396,654	
Percent Change	(10.29)	21.55	18.94	(1.97)	4.99	
Excess/Deficit of Income over Expenditures	1,382,332	2,087,658	4,071,636	4,042,552	4,999,767	
% spending for Basic Social Services among Municipalities	10.7	10.0	12.5	14.0	14.0	11.9
CITIES						
Basic Social Services	808,041	2,440,084	3,479,555	3,294,861	3,163,392	
Education	283,966	657,188	1,164,204	733,791	726,580	
% Education share	35.1	26.9	33.5	22.3	23.0	28.4
Health, Nutrition, Population Control	285,106	1,023,199	1,110,364	1,174,535	1,139,081	
% Health, Nutrition & Popn	35.3	41.9	31.9	35.7	36.0	38.5
Housing and Community Development	3,219	414,448	478,472	589,122	450,887	
% Housing & Community Dev't	0.4	17.0	13.8	17.9	14.3	15.2
Social Security, Social Services and Welfare	235,748	345,248	726,514	797,189	846,842	
% Social Security share	29.18	14.2	20.9	24.2	26.8	17.9

Total Cities Expenditures	24,831,711	2,440,084	3,209,012	16,118,663	15,820,978	
Percent Change	97.41	(90.17)	31.51	402.3	(1.9)	(13.8)
Excess/Deficit of Income over Expenditures	41,191	2,665,594	2,824,625	5,937,179	7,186,937	
% for Basic Social Services among Cities	3.3	14.5	20.6	20.4	20.0	17.3

Sources of raw data came from the BLGF

Other expenditures for basic services, however, vary in terms of priorities. For instance, the municipalities, on the average, put more emphasis on social services with 28.4% annualized growth while cities give attention to education/manpower development.

Table 4 presents the average regional and actual expenditures for basic social services from FY2001-2011. Based from the figures, average actual regional expenditure surplus on social delivery was found higher among the municipalities of Northern Mindanao which recorded a surplus of PhP530 million or at 24%. These were followed by Zamboanga Peninsula, Davao, SOCCSKSARGEN and Caraga with corresponding percent surplus of 22%, 17%, 16% and 14%. Similar regions were also noted exhibiting large surplus across the cities in Mindanao. However, findings pointed-out that most cities posed huge expenditure surplus of almost 30%, 28%, 19% and 14%, respectively at the regional level compared to the municipalities.

Table 4.Average income &expenditures share of basic social services (BSS),FY2001-2011.

Region/Location	Ave. regional expenditures (in PhP '000)		Ave. actual regional surplus/deficit of expenditures (in PhP '000)		Regional expenditure surplus on BSS (in %)	
	Municipalities	Cities	Municipalities	Cities	Municipalities	Cities
Zamboanga Peninsula	2,342,756	2,099,544	485,239	844,225	22.1	28.3
Northern Mindanao	3,008,522	4,237,670	530,662	886,976	24.2	29.7
Davao Region	2,587,049	4,645,277	371,013	568,074	16.9	19.0
SOCCSKSARGEN	2,943,651	2,094,463	358,853	417,177	16.4	14.0
CARAGA	2,588,201	1,534,941	300,299	248,736	13.7	8.3
ARMM	3,271,000	221,525	146,223	18,458	6.7	0.6

Sources of raw data came from the BLGF

In contrast, ARMM recorded the lowest surplus both at the municipal and city levels. The meager share corresponds to the low financing allocation of the region to its social services which is only at almost 5% across the municipalities and only 8% from the two (2) cities. The low absorptive capacities of LGUs to implement projects could be one of the major reasons that made MDG targets elusive in Mindanao.

After analyzing the LGUs IRA and spending on basic social services, the expenditures were used as explanatory variables to explain its effect in the following three (3) MDG key result areas at the city level, particularly on: (2) achieving universal primary education, (5) improving maternal health and (7) increasing the proportion of households with access to safe water and sanitation. On the other hand, due to the difficulty of generating municipal data, the small area estimates (SAE) on poverty was used as dependent variable to explain the MDG scorecard performance at the municipality level.

The expenditures were transformed into log forms to get the elasticity, which measure the changes in the demand for social services with respect to the changes of budgetary expenditure across cities and municipalities. Dummy variables were introduced into the model as proxy variable for LGUs good governance (*D1*), geographical location (*D2*) and degree of urbanization (*D3*). These proxy variables were assumed to promote mechanisms and responsibility of the government, civil society and private sector towards improving the lives of the poor Filipinos (Virola, et al., 2004 and Manasan et. al., 1996).

A. Cities

Table 5: Random-effects GLS result on access to safe water &sanitation, City-wide, 2004-2009.

Variables	Estimated coefficients	Z-scores
Log expenditure for education, culture & sports/ manpower development	5.197**	2.55
Log expenditure for health, nutrition & population control	6.583**	2.93
Log expenditure for housing and community development	0.270 ^{ns}	0.45
Log expenditure for social security/ social services & welfare	1.573 ^{ns}	1.52
D1(good governance)	12.544**	2.61
D2(geographical location)	1.077 ^{ns}	1.02
D3(degree of urbanization)	1.520 ^{ns}	0.43
Constant	76.392	8.61
R^2: within= 0.2787 between=0.0635 overall=0.2696		Wald χ^2 = 9233.45 Prob>χ^2=0.000

Note: ** significant at 5-percent level; *significant at 10-percent level; ^{ns}- non-significant

Table 5, presents the random effects GLS result of cities access to safe water. Based from the above figures, the expenditures for health, nutrition & population control together with education posted positive significant at 5-percent. This means that the cities access to safe water and sanitation will have an average improvement of 0.07% for every percentage increase in the expenditures for health, holding other things constant. Similarly, there would be a 0.05% average improvement on access to safe water and sanitation when local education spending will rise by 1% level.

Moreover, the proxy variable on good governance (*D1*) revealed positive significant which means that cities who continue to exercise transparency and accountability in terms of budgeting will have great chances of achieving targets in terms of providing public safe water and sanitation compared to the others.

The overall model could only explain 27% variation to the total access to safe water and sanitation. There might be other important factors that could further augment the cities access to safe water and sanitation such as those expenditures from the national government, development partners and the private groups.

Table 6: Random-effects GLS result on the cohort survival rate of public elementary education, City-wide, 2006-2010.

Variables	Estimated coefficients	Z-scores
Log expenditure for education, culture & sports/ manpower development	6.790**	2.11
Log expenditure for health, nutrition & population control	5.917**	1.38
Log expenditure for housing and community development	0.763 ^{ns}	1.47

Log expenditure for social security/ social services & welfare	5.092*	1.60
D1(good governance)	4.032*	1.15
D2(geographical location)	0.746 ^{ns}	0.75
D3(degree of urbanization)	5.936**	2.32
Constant	67.386	10.98
R^2: within= 0.0748 between=0.1317 overall=0.3296		Wald χ^2 = 35.21 Prob>χ^2=0.007

Note: ** significant at 5-percent level; *significant at 10-percent level; ^{ns}- non-significant

On the other hand, Table 6 shows that the expenditures for health, social welfare services and education were found statistically significant to the cohort survival rate of public elementary education across the cities in Mindanao. The above result further emphasize that there will be an average positive effect of 0.06% in the cohort survival performance per increase in the local budget for health, ceteris paribus. In like terms, there will be an average gain of 0.05% cohort improvement among the cities for every percent additional rise in the budget for social welfare services, holding other things constant. Moreover, result reveals that an average progress of 0.07% in the cohort survival rate for every percent budget hike for education development.

The proxy variables on good governance (*D1*) and degree of urbanization (*D3*) also posted significant consequence to the cities cohort survival which means that transparency and accountability coupled by economic growth usually translates to better cohort survival scorecards.

The model, however, could only explain 33% variation to the overall cohort survival rate across cities. There might have been other variables, outside the model, which could further improve the cohort survival of public elementary education, such as interventions from the national government and other partners.

Table 7: Random-effects GLS result on the maternal health, City-wide, 2006-2010.

Variables	Estimated coefficients	Z-scores
Log expenditure for education, culture & sports/ manpower development	-0.068 ^{ns}	-0.94
Log expenditure for health, nutrition & population control	-0.542**	1.56
Log expenditure for housing and community development	0.189E-3^{ns}	0.61
Log expenditure for social security/ social services & welfare	-0.029 ^{ns}	-0.39
D1(good governance index)	-0.137**	2.23
D2(geographical location)	-0.441	-0.88
D3(degree of urbanization)	-0.102	-0.79
Constant	1.617	3.17
R^2: within= 0.0442 between=0.154 overall=0.2161		Wald χ^2 = 340.39 Prob>χ^2=0.000

Note: ** significant at 5-percent level; *significant at 10-percent level; ^{ns}- non-significant

In Table7, the expenditures for health, nutrition and population control came out as the only significant variable which displayed a negative relationship to maternal mortality. It means that for every percent additional spending on health will correspond to an average reduction of 0.05% on the maternal mortality problem. Meanwhile, the proxy variable on good governance (*D1*) also exhibited significant factor to the maternal mortality condition across the cities in Mindanao.

The above model could only explain 22% variation to the maternal health condition. There might have been other major factors, outside the model, which can attribute to the maternal mortality problem, such as national government expenditures and other key stakeholders.

B. Municipalities

The estimation procedure of getting the municipal-wide result went through series of data gathering until the final decision to use the results of the 2003 and 2009 small area estimates from the National Statistical Coordination Board (NSCB) as dependent variable to capture the effect of the LGUs spending behavior on basic social services.

Table 8 presents the result of the random effects estimation. Findings reveal that all LGUs expenditure yielded significant contribution to the reduction of poverty at the local level. Among the expenditure items, except for the proxy variables, the economic enterprises had the most dominant average effect on the local poverty which was recorded at -0.03% across the municipalities in Mindanao.

On the other hand, when accounting only for the basic social services expenditures, it appears that the local poverty incidence will exhibit an average reduction of-0.005% for every percentage increase on health spending. It also reveals that for every increase spending on education, poverty incidence at the municipalities will reflect an average decline of -0.004%, holding other things constant. This implies that local budget support for both education and health have favorable effect of reducing the poverty level across the municipalities in Mindanao.

The good governance (*D1*) and degree of urbanization (*D3*) as proxy variables also came out as potential variables that lower the poverty incidence level. This means that LGUs transparency and accountability in all its transactions could likely yield positive gains relative to the others. The paces of growth provide various opportunities that could lower the poverty incidence at the municipal level.

Table 8: Random-effects GLS result on poverty level, Municipal-wide.2003 and 2009.

Variables	Estimated coefficients	Z-score
Log expenditure for education, culture & sports/ manpower development	-0.436**	-3.28
Log expenditure for health, nutrition & population control	-0.597**	-4.19
Log expenditure for labor	-0.738**	-2.70
Log expenditure for housing and community development	-0.189*	-1.56

Log expenditure for social security/ social services & welfare	-0.123**	-1.73
Log expenditure for economic enterprises & welfare	-2.804**	-6.46
D1(ggi)	-0.554**	-1.52
D2(geographical location)	-0.841 ^{ns}	-0.72
D3(degreeof urbanization)	-2.748**	-2.19
Constant	1.452	1.96
R^2: within= 0.1124 between=0.9100 overall=0.1393		Wald χ^2 = 122.36 Prob>χ^2=0.000

Note: ** significant at 5-percent level; *significant at 10-percent level; ^{ns} - non-significant

However, the overall model accounts14% variation level. Hence, religious public spending coming from the national government, donor partners and private sectors are essentially needed to ensure translate improvements at the local level.

Table 9 presents the bottom ten (10) ranking of municipalities' efficiency using poverty as dependent variable and the basic expenditure items for social services as explanatory variables. The Frontier 4.1 program of Coelli (1996) was used to compute the rankings. Accordingly, these LGUs need to catch-up their MDG targets through improve local budgeting.

Table 9: Efficiency result of municipalities in Mindanao

	Municipality	Efficiency scores
1	Balinguin	0.6801757
2	Asuncion	0.6919099
3	Godod	0.6987720
4	Bansalan	0.7205821
5	Rizal	0.7230862
6	Alicia	0.7246464
7	BuandiposoBunton	0.7282672
8	Poon-a-Bayabao	0.7288851
9	Kolambugan	0.7308288
10	Pantao-Ragat	0.7321548
11	Nabunturan	0.7322464
12	Cortes	0.7337155
13	Jose Dalman (Ponot)	0.7344824
14	Gutalac	0.7431454
15	Guindulungan	0.7456653
16	Datu Unsay	0.7487453
17	Esperanza	0.7493665
18	Piñan (New Piñan)	0.7509438
19	New Corella	0.7493665
20	Kalamansig	0.7535598

Source: Author's own computation based from the Frontier 4.1 result

IV. Conclusion

The study investigated the behavior of LGU finances in relation to the MDG progress using their income and expenditure from CY2001-2011. Across LGUs, the ARMM were found highly dependent to IRA at 66%. These were followed by SOCCKSARGEN, Northern Mindanao, Davao, Caraga and Zamboanga Peninsula with mean IRA of almost 60%, 56%, 50% and 49%, respectively. On the average, the LGUs share in Mindanao reflects almost 20% to the total revenue. However, most of them were still found highly dependent to IRA.

The expenditures for health, nutrition, and population control registered the biggest share at 55% and 38.5% of the total municipal and city-wide budget for basic social services.

The city-wide expenditures for education and social services came in as significant factor to improve the scorecards on access to safe water and sanitation. Similarly, the expenditures for education, health, and social security were found significant in enhancing the cohort survival rate of public elementary education across the cities. Also, the expenditures for health and nutrition were identified as the most critical variables in improving the maternal situation across the cities. On the other hand, all the municipal expenditures particularly for economic services were significantly related to reduce the local poverty incidence in the island.

The result further reveals that proxy variables on good governance (*D1*), and degree of urbanization (*D3*) across LGUs play an important role in improving further the local MDG scorecards.

In general, not all LGUs are operating efficiently due to the huge excess funds still available with them. The low absorptive capacity among LGUs in Mindanao could be one of the major reasons that made the MDG targets elusive at the local level. However, there exists a room for improvement in order for them to catch-up and contribute to the overall development with the help and guidance of the national government and other stakeholders.

Recommendation

Based from the overall result, there is a need to strengthen the existing collaborative effort between the national government and LGUs in Mindanao to be able to attain some of its MDG targets by 2015. This could be done by encouraging local officials to support the MDG financial requirements at their level by: (a) increasing tax collection efficiency to finance the basic social services; (b) streamline LGU transactions to enhance efficiency operations and promote a friendly climate business; (c) install mechanism that would encourage LGUs to increase social spending; (d) encourage transparency and accountability transactions across LGUs.

For the national government, the following recommendations are sought: (a) on the geographic focus, assistance should be directed towards underserved and lagging municipalities included in the 609 poorest municipalities. Concerned agencies should address the issue on poor targeting method which usually leads to confusion and duplication in the identification of the poor; (b) a moreintegrated implementation of interventions and assistance (i.e. MDGPAPs) should be implemented instead of the piece-meal method happening in some areas. Bringing this concerns to agencies concerned will help ensure that all support measures are in place such as infra/ access roads, promoting broad-based growth, livelihood opportunities in order to maximize the existing facilities and social services; (c) planning, M&E, coordination

among MDG duty bearers and stakeholders at the local, regional & Mindanao-wide levels should be regularly exercise via convergence meetings; (d) tapping of mechanisms should be in-placed (i.e. Mindanao Peace and Development Security Committee led by MinDA) or agencies (i.e. OPAPP) to coordinate peace and security aspect for development; Lastly, (e) documentation and sharing of best practices and lessons learned from MDG experience should be made and disseminated to the public.

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