THE ADMINISTRATIVE EFFICIENCY OF CONDITIONAL CASH TRANSFER PROGRAMMES: EVIDENCE FROM THE *PANTAWID PAMILYANG PILIPINO PROGRAM*

*Ma. Cecilia L. Catubig, Renato A. Villano and Brian Dollery**

The present paper examines the administrative efficiency of implementing the Pantawid Pamilyang Pilipino Program (4Ps) in the Philippines. Using data collected at a municipal level for four provinces in the Davao Region, administrative efficiency scores were computed, employing cost transfer ratios (CTR) and data envelopment analysis (DEA) for the individual municipal operations offices (MOOs) implementing the programme. CTR estimates showed that the greatest proportion of total expenditure in cash transfer programmes was direct cash transfers, which implied an efficient use of programme funding. The DEA results showed an average technical efficiency score of 0.905, which implied that there was significant potential to further improve the performance of delivery of 4Ps. The results revealed that relatively high technical efficiency scores of MOOs did not necessarily translate into a more cost-efficient implementation of the programme. Nevertheless, a positive correlation was found between CTR and the high technical efficiency scores of the MOOs implementing the programme.

JEL classification: C14, I31, I38.

Keywords: *Pantawid Pamilyang Pilipino Program* (4Ps), Philippines, data envelopment analysis (DEA), cost transfer ratios, cash transfers.

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I. INTRODUCTION

The use of social cash transfers to assist extremely poor and vulnerable people has become widespread in developing countries, including the Philippines. However, these programmes are often criticized as being expensive and inefficient and for encouraging welfare dependency. For instance, Grosh (1994) and Coady, Perez and Vera-Ilamas (2005) stress that administrative costs consume a high proportion of the overall cost of these programmes, mainly because of the complexity involved in administering cash transfers, especially the targeting of transfers and monitoring beneficiaries. By contrast, advocates of these programmes emphasize their success in practice. For example, Kakwani, Veras Soares and Son (2005) argue that not only have conditional cash transfer (CCT) programmes increased the incomes of poor people in the short run and improved the capabilities of recipients in both the medium and long run, they have also proved to be cost-effective.

O'Brien (2014) argues that the cost of CCT programmes is important as cost-effectiveness matters. Maximizing the impact of scarce funds on CCT objectives is essential. However, minimizing costs is only one factor. Most evaluation studies of CCTs have focused on the effectiveness and the efficiency of the programmes, concepts that are related to the cost of delivering programmes. In principle, the cost of programme delivery includes the cash transfer itself, the salaries and wages of staff, travelling expenses and other administrative costs. These costs vary depending on the country adopting CCTs and on the extent of programme delivery.

In the case of the Philippines, the *Pantawid Pamilyang Pilipino Program* (4Ps) budget in 2014 reached 62.6 billion Philippine pesos (Pts) ($1.29 billion), making it the third largest (about four million households) CCT programme globally after the one in Brazil (8.8 million households) and the one in Mexico (6.5 million households) (Albert, 2014). The continued increase in the budget allocation for this poverty alleviation programme of the Department of Social Welfare and Development (DSWD) has been under scrutiny since its implementation in 2008. This is hardly surprising as the administrative efficiency and effectiveness of public expenditure is a matter of legitimate public concern. Evaluating the efficiency of expenditure requires an assessment of the relationship between inputs and outputs and the cost of delivery of CCT programmes, including operational and administrative costs. In particular, administration costs are a useful indicator of productive (in)efficiency. Assessing efficiency can serve as a first step towards strengthening CCT performance. Given that 4Ps is in its seventh year, it is timely to evaluate the administrative efficiency of the agency implementing the programme, which is the main objective of the present paper. An evaluation exercise of this kind can assist public policymakers by generating a better understanding of the cost of implementing 4Ps and offering

recommendations for improving the efficient use of resources, especially to determine the extension of support to children in high school up to 18 years old and for enhancing the operation of the programme in the future.

Despite earlier work undertaken by Fiszbien and others (2009) and Devereux and Pelham (2005), no agreed approach to assessing cost efficiency exists. Nonetheless, Handa and Davis (2006) have called for more cost-efficiency studies of cash transfer programmes, including comparisons with other types of programmes. The existing empirical literature on CCT cost-efficiency analysis hinges on the methodology advanced by Caldes, Coady and Maluccio (2006), who evaluated the cost efficiency of three similar poverty alleviation programmes in Latin America by considering the cost of making a one-unit transfer to a beneficiary, referred to as cost transfer ratio (CTR). In the present study, cost efficiency and CTR as a composite indicator of administrative efficiency are used.

This paper seeks to contribute to the empirical literature in two main ways. First, following Caldes, Coady and Maluccio (2006), estimates of cost transfer ratios are obtained for each set (Set 1 to Set 6) of programme implementation as a baseline on programmatic efficiency. Second, a non-parametric approach is employed to examine the cost efficiency of the municipal operations offices (MOOs) implementing the programme. These two measures are used to examine the administrative efficiency of the office. Specifically, the paper intends to (a) evaluate the components of the total spending per beneficiary and decompose this based on administration costs direct cash transfer, capacity development, and monitoring and evaluation cost by estimating cost transfer ratios, (b) examine the average annual implementation cost per beneficiary, (c) obtain technical and cost-efficiency scores of MOOs implementing the programme and (d) compare the actual implementation costs of 4Ps with the costs from similar programmes in other countries.

The paper is divided into four main parts. Section II contains a synoptic review of the conceptual, empirical and institutional perspectives on cash transfer programmes and the methodologies used in cost-efficiency analysis. In section III, the methods of analysis are discussed while in section IV, the empirical results and findings of the study are presented. The paper ends in section V with some brief conclusions.

II. CONCEPTUAL, EMPIRICAL AND INSTITUTIONAL PERSPECTIVES ON CASH TRANSFER PROGRAMMES

Brief overview of the *Pantawid Pamilyang Pilipino Program*

The *Pantawid Pamilyang Pilipino Program* is closely patterned on successful CCTs in Latin American programmes, sharing the objectives of social assistance and social development, both of which are central to the poverty reduction and social protection strategy of the Government of the Philippines. To help build human capital, the prime focus of the programme, short-term income support is extended to extremely poor eligible households contingent on their compliance with the programme's conditions, such as enrolment in school (children 6-14 years old) and regular visits to health centres (pregnant women and children 0-5 years old). A household can be a recipient of 4Ps provided the following criteria are met: (a) it is a resident in programme areas of 4Ps; (b) it is identified as poor based on proxy means test (PMT); and (c) at least one member of the household is below 15 years old at the time of the enrolment into the programme or a pregnant woman.

The *Pantawid Pamilyang Pilipino Program* began as a pilot programme of the Department of Social Welfare and Development (DSWD) in 2007 (Fernandez and Olfindo, 2011). It was launched as a full-scale cash transfer programme in February 2008, covering 330,000 beneficiaries in Set 1 and then scaled up in 2009 to cover another 320,000 households in Set 2. In less than three years, the programme's household beneficiaries grew to about 1.9 million (Velarde and Fernandez, 2011) and by 2014, it had covered around four million households.

Design features of the *Pantawid Pamilyang Pilipino Program*

The design features of 4Ps include targeting methods and monitoring conditionalities, which are similar to the design characteristics employed in other countries that have adopted CCTs. The 4Ps targeting system is centrally managed by DSWD through the National Household Targeting Systems for Poverty Reduction (NHTS-PR). It follows a multi-step process in the selection of beneficiaries wherein the poorest provinces are selected first, based on official poverty incidence taken from a survey conducted by the National Statistics Office (Fernandez and Olfindo, 2011). The poorest municipalities from the poorest provinces are identified based on the poverty incidence of small area estimates (SAE). From the poorest municipalities, total household enumeration or a household targeting system is used to identify poor households within the selected *barangay.*[1] The poorest household is finally selected

[1] *Barangay* is the smallest administrative division in the Philippines. It is a native Filipino term for a village, district or ward.

using a proxy means testing that assesses household socioeconomic characteristics. Household names are then published at a *barangay* hall for community validation before they are finally enrolled in the programme. From this step onward, the implementation of 4Ps is decentralized and it is the various regions and provinces that are responsible for the final enrolment of qualified beneficiaries, release cash transfers and monitor their compliance to conditionalities.

According to Fernandez and Olfindo (2011), the numerous conditions imposed by 4Ps make this CCT unique among other CCT models. In addition to enrolment and school attendance of children aged 6 to 14 years old plus regular check-ups for children aged 0 to 5 years old and pregnant women, DSWD has added the conditions of pre-school or day care centre attendance for children aged 3 to 5 years old, taking of de-worming pills for 6- to 14-year-old children and parental attendance at family development sessions. Whereas these conditions are meant to enhance the programme's impact, they also inevitably add to administrative costs and the burden of monitoring participants' compliance.

Empirical approaches to cash transfer programmes

While considerable literature has evaluated the impact of cash transfer programmes, there is little empirical evidence on their cost structures and limited assessment of the cost efficiency and cost effectiveness of cash transfer programmes. Comparability between empirical studies cannot be carried out because the work undertaken on cost structure evaluation is scant. Even on the same kind of programmes, wide variations in what costs are included in the calculations abound, with some limited to administrative costs only, while other studies have focused on losses and leakages associated with particular programme. There are also variations in the cost of delivering the cash transfer programme in terms of the proportion of total spending absorbed by administration and implementation costs. Table 1 contains a summary of the various cost-efficiency studies on cash transfer programmes.

These cost-efficiency studies determined CTR of the cash transfer programme and the cost expended for every unit of cash transferred to household beneficiaries. The results were varied. A plausible reason for this cost variation could be that each CCT programme is different in design and implementation. Moreover, the reported cost for different studies may not include the costs of planning and evaluation.

In addition, most studies emphasize the difficulties in obtaining reliable information on cost effectiveness. This can be attributed to the fact that cost effectiveness of social protection programmes is hard to determine, partly because full costs are difficult to obtain and partly because effectiveness is difficult to attribute

Table 1. Cost-efficiency studies

Cost-efficiency studies	CCT programmes	Cost structures in programme implementation	Cost transfer ratios (average, in US$)
Caldes and Maluccio (2005)	Red de Proteccion Social (RPS), Nicaragua (pilot)	**Programme administration costs** – consultant and staff salaries, operating costs, equipment, training and technical assistance, incorporation assemblies, targeting, external evaluation, food security transfer delivery fees, education transfer delivery fees and financial costs **Programme transfers** – total demand side transfers and total supply side transfers	RPS – 0.629
Caldes, Coady and Maluccio (2006)	RPS, Nicaragua; PROGRESA, Mexico and PRAF II, Honduras	**Programme administration costs** – programme design and planning, identification of beneficiaries, incorporation of beneficiaries, delivery of demand transfers, delivery of supply transfers, conditionality, monitoring and evaluation and external evaluation **Programme transfers** – demand side transfers and supply side transfers	RPS – 0.629 PROGRESA – 0.106 PRAF II – 0.499
Ellis, Devereux and White (2009)	Malawi Dowa Emergency Cash Transfers; Zambia Social Cash Transfers	**Administration costs** – management, targeting, registration, delivery of transfers, monitoring and evaluation and conditionality **Programme transfers** – demand side transfers and supply side transfers	Malawi – 1.52 Zambia (Kazungula) – 1.30 Zambia (Chipata) – 1.11
Coady, Perez and Vera-Ilamas (2005)	PROGRESA	**Programme administration costs** – programme design and planning, identification of beneficiaries, incorporation of beneficiaries, delivery of demand transfers, delivery of supply	PROGRESA – 0.111

Table 1. ***(continued)***

Cost-efficiency studies	CCT programmes	Cost structures in programme implementation	Cost transfer ratios (average, in US$)
		transfers, conditionality, monitoring and evaluation and external evaluation **Programme transfers** – demand side transfers and supply side transfers	

Sources: Caldes and Maluccio (2005); Caldes, Coady and Maluccio (2006); Ellis, Devereux and White (2009); and Coady, Perez and Vera-Ilamas (2005).

and quantify (Devereux and Pelham, 2005; Davies, 2009; Caldes, Coady and Maluccio, 2006). Hence, most of these studies focused on cost efficiency rather than cost effectiveness.

The method used in cost-efficiency analysis of CCT programmes is the cost transfer ratio (CTR), which is the ratio of non-transfer programme costs to total programme transfers. Most Latin American CCT programmes have been evaluated using this mode of analysis developed by Caldes, Coady and Maluccio (2006). The focus of the analysis is on the level and structure of costs, which are mainly based on existing accounting data. However, this empirical literature contains various evaluations emphasizing the details of the programme cost structures. The relationship between programme costs and activities needs further consideration to ensure a correct evaluation.

The methodologies in evaluating cost efficiency are limited to cash transfer programmes, but there are a number of cost-efficiency studies in the broader empirical literature dealing with the banking sector, the health sector, electricity distribution and local government (Karimzadeh, 2012; Giokas, 2002; Cheng, Bjorndal and Bjorndal, 2014; Fiorentino, Karmann and Koetter, 2006; De Borger and Kerstens, 1996; Worthington, 2000; Al-Jarrah, 2007). Most of these studies employed a non-parametric approach, commonly using the data envelopment analysis (DEA) framework. DEA measures indicators of efficiency of a given organization relative to the performance of other organizations that produce the same good or service rather than against an idealized standard of performance. The most common efficiency indicator — technical efficiency — is measured by building up the productive frontier and, if the prices of input are attainable, cost efficiency can be measured as the dual of the technical efficiency.

III. METHODS OF ANALYSIS

Analytical framework

A two-step process is used to examine the administrative efficiency. First, the indicator proposed by Caldes, Coady and Maluccio (2006) is employed whereby CTR is used. In calculating CTRs, identification of the costs and transfers to include in the estimation and how to measure them are critical. In the analysis, different programme activities were described. These activities were classified according to the nature of their costs in order to provide a picture of the cost structures of a newly implemented or mature programme. Cost analysis commenced on the implementation phase and the costs of activities prior to implementation, such as targeting of beneficiaries, are not considered. While it would have been useful to include the cost of targeting in the cost analysis, the targeting activity was done at the national level. As a result, there are no cost data at the regional level. This made it impossible to analyse the detailed cost structures from design and planning of the programme up to monitoring and evaluation (M&E). The scope of the regional programme activities commenced on the implementation of the programme, such as identification and registration of beneficiaries.

After the identification of programme activities, accounting costs were then associated with these activities, followed by the estimation of CTR, activity cost shares and activity cost transfer ratios. The costs of the different programme activities, including the total costs of direct cash transfers, were summarized over the period 2008-2013. CTR was computed as the total non-transfer programme costs divided by the total programme cash transfers, while the activity cost shares were calculated as the fraction of costs devoted to each programme activity (excluding the cash transfers). By contrast, the activity cost transfer ratio was obtained by multiplying the cost share for each activity with the aggregate CTR for all activities. The total annual cost per beneficiary was obtained by taking the ratio of the total annual programme cost and the total beneficiary per set of implementation.

Second, a DEA approach is used to obtain administrative efficiency scores of local government units (LGUs) implementing 4Ps. DEA is a non-parametric linear programming procedure whereby each decision-making unit (DMU), namely LGU in this study, is benchmarked against the best performing LGUs. The best performing LGU is identified based on the information on the specified output and the inputs used in the process. There are basically two procedures on how to implement the DEA approach to cost-efficiency analysis. First is to obtain the relative technical efficiency (TE) scores using the efficiency measures introduced by Charnes, Cooper and Rhodes (1978). Consider *N* municipalities each producing *M* different outputs

using *K* inputs. The envelopment form of the output-oriented DEA linear programming is specified subsequently:

$$\text{Max}_{\theta,\lambda}\theta \quad (1)$$

Subject to: $\theta y_i - Y\lambda \leq 0,$

$-x_i + X\lambda \leq 0,$

$-\lambda \leq 0,$

where, y_i is the vector of outputs produced by the *i*th municipality, x_i is the vector of inputs used by the *i*th municipality, Y is the *M*x*N* ouput matrix for all *N* municipalities, X is a *K*x*N* input matrix for all *N* municipalities, *i* runs from 1 to *N*, θ is a scalar and λ is a *N*x1 vector of constants. The value of θ is the efficiency score for a particular municipality and it should satisfy $\theta \leq 1$, with the value of 1 indicating a point on the frontier, and hence a technically efficient municipality. The DEA efficiency score for a specific DMU is not defined by an absolute standard; it is measured with respect to empirically constructed efficient frontier by the best performing DMUs. The second procedure is to calculate cost efficiency (CE) with respect to this DEA dual reference technology. As the price of input used for each LGU is known, then the cost-efficiency score for each observation can be calculated by solving *N* linear programmes of the form:

$$\text{Minimize} \quad \sum_{k=1}^{K} P_{Kn} X_{Kn} \quad (2)$$

$W_1 \ldots\ldots, w_n, x_{ln} \ldots\ldots, X_{kn}$

Subject to:

$$\sum_{j=1}^{N} W_j Y_{ij} - Y_{1n} \leq 0 \qquad i = 1, \ldots I$$

$$\sum_{j=1}^{N} W_j X_{kj} - X_{kn} \leq 0 \qquad k = 1, \ldots K$$

$$W_j \geq 0 \quad j = 1 \ldots\ldots N$$

where, $P_{ln}, \ldots. P_{kn}$ are the input prices (salary/wages) for the *k* input (labour) that unit *n* utilizes. This linear programme chooses the input quantities that minimize n's total costs subject to a feasibility constraint and assuming that the inputs prices it faces are fixed. The solution vector to (2) x^*_{ln}, is x^*_{kn}, *n*'s cost-minimizing level of inputs given its input prices and output level. A score of 1 for this index would indicate that an organization is cost-efficient (SCRCSSP, 1997).

In the empirical literature on cash transfer programmes, there is no consensus regarding identification of the input and output variables to use in the cost-efficiency

evaluation. In the analysis, input and output variables were identified based on the nature and the process of how the cash transfer is being implemented, such as the inputs used to achieve the necessary outputs and the purpose of the programme. In this paper, inputs are normalized in order to come up with a common basis for measurement. The following set of inputs, outputs and input prices are used to quantify the administrative efficiency of LGUs implementing 4Ps:

- Inputs: total person-days for administrative staff, total person-days for social workers/municipal links and total travel days;
- Outputs: registered beneficiaries and the amount of cash transfer disbursed;

Input prices: average daily wage of administrative staff, average daily wage of social workers/municipal links and travelling expenses per day.

Table 2 provides the basic information about the variables used in the DEA analysis, the description of variables and the selected descriptive statistics.

An average of 2,341 4Ps beneficiaries per quarter or about 780 beneficiaries per month were registered in each municipality. Considering that the total average person-days utilized by the administrative staff, social workers and municipal links

Table 2. Variables and selected descriptive statistics

Variable description	Mean	Standard deviation
Outputs		
Registered beneficiaries	2 341.33	2 356.44
Amount disbursed (in million Philippine pesos (Pts))	4.61	5.86
Inputs		
Administrative staff – total person-days	530.22	57.79
Social workers/municipal and city links – total person-days	670.14	213.41
Total travel days	64.6	29.64
Input prices		
Average daily wage – admin staff (in Pts10 000)	43.78	5.74
Average daily wage – social workers/municipal and city links (in Pts10 000)	64.43	18.35
Travelling expenses per day (in Pts10 000)	6.41	2.94

Source: Authors' own compilation.

amounts to 1,200 person-days quarterly per municipality, it can be interpreted that for every person-day, there is an average of two beneficiaries being registered. While no similar indicator can be found in the empirical literature in terms of beneficiaries registered in person-days, given the detailed data in this study, the MOO of Malita was notably different from the other MOOs as it was able to register more than two beneficiaries per person-day. This explains why it has high technical and cost-efficiency scores.

The average amount disbursed in 4Ps implementation is Pts4.61 million, or about Pts1,968 monthly per beneficiary. Each MOO worker implementing the programme utilized an average of 65 travel days in each quarter, or about 21 days in a month, spending an average of Pts21,300 each month for travelling expenses. With regard to the total expenses for the wages of the administrative staff and social workers/municipal links, a daily average wage of Pts826 and Pts961 were spent, respectively.

Data and study area

The Davao Region served as a "case study", as it could shed light for all regions and provinces with similar characteristics, namely the poorest provinces (28 provinces) and poorest municipalities (140 municipalities) based on poverty incidence above 60 per cent (Fernandez and Olfindo, 2011) implementing 4Ps, given that the structure and implementation guidelines of the cash transfer programme is the same for all areas. Davao was also suitable as a "case study" as 50 per cent of the municipalities in the four provinces of the Davao Region were covered in the first three phases of implementation. This study used a secondary, pooled cross-section administrative data collected from the four provinces of the Davao Region: Davao del Sur, Davao del Norte, Compostela Valley and Davao Oriental. The Davao Region is designated as Region XI. It is on the south-eastern portion of Mindanao and consists of five provinces[2] with Davao City as the regional capital. It is also the largest city on Mindanao. Pooled cross-section data were used as they can be useful for evaluating the impact of policy interventions and also because observations across different time periods allow for policy analysis. While there are a total of 48 municipalities in all four provinces, only 24 municipalities were included in the sample. As the implementation of 4Ps was done on a per set basis, the municipalities included in the sample are those that belong to Set 1, 2 and 3 phases. The period covered varies for each set as follows: Set 1 (2008-2014); Set 2 (2009-2014) and Set 3 (2010-2014). This is because the start of programme implementation for each set also differs. As the data obtained

[2] The Davao Region consist of five provinces namely Compostela Valley; Davao del Norte; Davao del Sur; Davao Oriental; and the newly created Davao Occidental. For this study, LGUs in Davao Occidental are still part of Davao del Sur.

were on a per quarter basis, (most municipalities in the sample started at the middle of the year), there are a total of 475 observations.

The study aimed to cover at least a five-year period of implementation as this was the duration of the programme, while the succeeding sets of implementation (Sets 4 to 6) had only been implemented for less than two years. However, in estimating cost transfer ratios, the succeeding sets were included in order to show a comparison of costs of varying phases of 4Ps implementation (five years implementation versus two years implementation).

In order to analyse 4Ps cost structures, the various implementation costs data, such as administrative costs, training costs, advocacy costs and monitoring and evaluation costs, were obtained from the accounting and budget data of DSWD. Total cash transfers (direct cash transfer) data were obtained by summarizing the actual payroll of 4Ps beneficiaries for the period 2008-2013 provided by DSWD. These data were the important elements for the estimates of CTR, activity cost shares, the activity cost transfer ratio and the total annual cost per beneficiary.

IV. RESULTS AND FINDINGS ESTIMATES OF COST TRANSFER RATIOS, ACTIVITY COST SHARES, ACTIVITY COST TRANSFER RATIO AND TOTAL COST PER BENEFICIARY

Using the information on programme costs, table 3 contains CTRs of 4Ps' costs on a per set basis. The estimates of CTR show that the average CTR for 4Ps (from Set 1 to Set 6) is 0.090, which implies that, on average, only 9.0 cents were spent on the non-transfer programme cost for every peso transferred to beneficiaries. CTR can be expressed in percentage terms using the alpha ratio, namely the administrative cost as a percentage of total budget, which means that a CTR of 0.90 is about 8.2 per cent of the total budget that was absorbed by non-transfer programme costs.[3] A model averaging technique was employed to assess robustness in terms of the entire set of empirical evidence, thus even if the data of the last year were removed, the result still would yield almost the same CTR. The CTR results were presented on a per set basis while the computation of CTRs were done on an annual average based on the number of years each set was implemented. There is thus no significant difference in the value of CTRs, even if each set does not have a similar number of years of programme coverage. A summary of the computed 4Ps costs on a per set and a per year basis is presented in the annex.

[3] This is calculated as 9.0/(100+9.0) = 0.082. CTR is always greater than the percentage of administrative costs for positive transfer levels (Caldes and Maluccio, 2005).

Table 3. 4Ps costs in US dollars, per set

Cost structures/set	Set 1 (2008-2013)	Set 2 (2009-2013)	Set 3 (2009-2013)	Set 4 (2011-2013)	Set 5 (2013)	Set 6 (2013)	Total
Total non-transfer programme costs	1 167 040	2 068 755	2 600 201	2 719 968	708 493	1 252 512	10 516 969
Total programme cash Transfers	10 500 137	38 353 074	9 504 922	42 218 205	11 579 857	4 272 284	116 428 479
Cost transfer ratio (CTR)	0.111	0.054	0.274	0.064	0.061	0.293	0.090
Admin cost as percentage of the total budget	9.9	5.1	21.5	6.0	5.7	22.7	8.2

Source: Authors' own compilation.

Note: 4Ps figures are translated into US dollars using an average exchange rate of Pts47.03 per $1 from 1998 to 2014.

The following programme activities (after targeting) were identified and implemented at the regional level: (a) programme delivery, which includes such activities as the identification and registration of beneficiaries, calculation of cash transfers and beneficiaries informed of the scheduled payout; (b) trainings for programme partners, DSWD workers and 4Ps beneficiaries; (c) information, education and communication (IEC)/advocacy, which covers stakeholders' visit, a volunteers congress, press conferences, production of brochures, leaflets and fan flyers, radio and TV advertisements and consultation; and (d) monitoring and evaluation. The associated costs per programme activity were summed and the activity cost shares (the fraction of costs for each activity) were calculated. The 4Ps activity cost shares are shown in table 4.

As expected, a large proportion of the cost shares were devoted to the delivery of the programme. Over the span of the three years of implementation of Sets 1 to 3, the cost share of programme delivery decreased from 92 per cent to 56 per cent. This can be attributed to a decline in some of the administrative costs, such as travelling expenses, supplies and materials, freight expenses and repairs and maintenance. However, increases in the cost share of programme delivery for the period 2011-2013 were expected following the implementation of 4Ps in LGUs covering Set 4, Set 5 and Set 6, respectively. The cost of services derived from additional social workers and municipal links for each LGU absorbs much of the cost shares. Accordingly, there is an expected increase every time 4Ps commence implementation in a local

Table 4. *Pantawid Pamilyang Pilipino Program* activity cost shares

Programme activity	2008	2009	2010	2011	2012	2013
Programme delivery (identification and registration of beneficiaries, delivery of cash transfers)	0.92	0.89	0.56	0.69	0.62	0.85
Trainings of partners, workers and beneficiaries	0.04	0.03	0.42	0.29	0.33	0.10
Advocacy/IEC	0.04	0.03	0.01	0.01	0.01	0.02
Monitoring and evaluation	–	0.05	0.01	0.01	0.04	0.03
Total	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Source: Authors' own calculation.

government unit. It is interesting to note that a significant cost share for training was posted in 2010 and 2012. Detailed data show that much of the training of workers, programme partners and beneficiaries, such as capacity-building, team building, basic orientation and municipal workshops, were carried out in 2010 when the 4Ps implementation system was already in place and more workers were hired solely for 4Ps implementation. Moreover, it was observed that this training was done a year prior to a new roll out of implementation for new LGUs covered, as in the case of Set 4 in 2011 and Set 5 and Set 6 in 2013. The cost share of monitoring and evaluation was noticeably low, at an average cost of only 2.8 per cent, as it dealt with institutional strengthening expenses, such as grievance forums, cluster meetings and dialogues, while other monitoring costs for activities, such as checking conditionality, became part of the functions of social workers and assigning costs for each function/task is not possible because they cut across programme activities.

The annual activity cost transfer ratio was also computed in order to determine the costs associated with each programme activity per one unit transferred to the beneficiary. This is the cost share for each activity multiplied by the aggregate cost transfer ratios for all activities. As indicated in table 5, the patterns of the activity cost transfer ratio on a per year basis showed little difference from the cost transfer ratio on a per set basis.

Programme delivery and training activities show that, on average, only 8.7 cents and 2.3 cents, respectively, were spent for every peso of cash transferred to a beneficiary. For the two remaining programme activities, the average activity CTR is only about 1 cent per one unit cash transferred. The value of CTR of 4Ps is not noticeably different from CTRs in Latin American countries, though they are not comparable due to different implementation strategies. Hence, the results

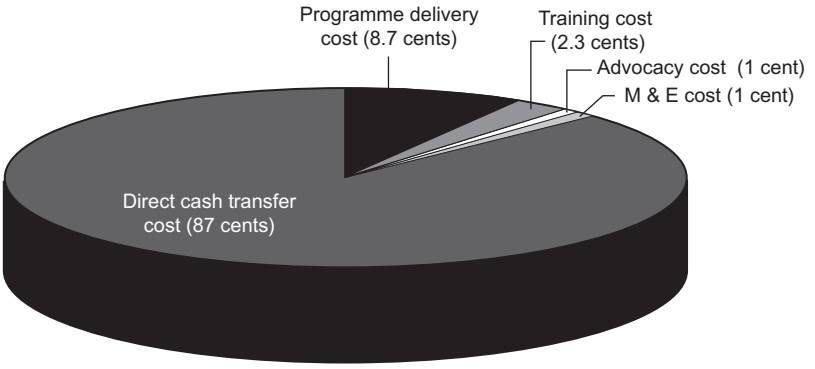
Table 5. *Pantawid Pamilyang Pilipino Program* activity cost transfer ratio

Programme activity	2008	2009	2010	2011	2012	2013	Average
Programme delivery (identification and registration of beneficiaries)	0.20	0.05	0.06	0.07	0.05	0.09	0.087
Trainings of partners, workers and beneficiaries	0.01	0.01	0.05	0.03	0.03	0.01	0.023
Advocacy/IEC	0.01	0.01	0.01	0.01	0.01	0.01	0.010
Monitoring and evaluation		0.01	0.01	0.01	0.01	0.01	0.010
Total	**0.22**	**0.08**	**0.13**	**0.12**	**0.10**	**0.12**	**0.130**

Source: Authors' own calculation.

demonstrate that a greater proportion of the programme's budget is spent on the direct cash transfer itself and not much on administrative cost, as pointed out by Grosh (1994). For all the activities, the programme spent 13 cents for every dollar transferred to a household, equivalent to around 11.5 per cent of the total budget that is absorbed by the costs of different programme activities. A breakdown of cost for every US$1 transfer is shown in figure1.

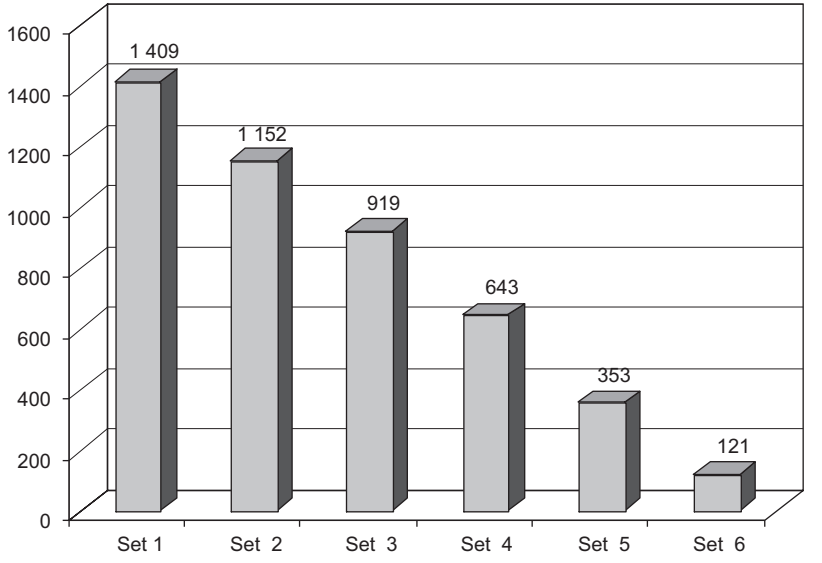
Figure 1. Breakdown of cost per US$1 transfer



Source: Authors' own calculation.

The results of the total cost per beneficiary on a per set basis as presented in figure 2 show a declining cost trend from Set 1 to Set 6, which could in part be due to the scale effect. One reason for the decline in total cost per beneficiary is that most fixed costs are incurred during the initial phase of implementation. Thus, average fixed costs over the years of 4Ps implementation were spread out, resulting in lower cost per beneficiary. This is reflected in Son (2008, p. 4). Another reason is that during the first phase of implementation, few beneficiaries were registered, as the system and process of implementation had only been set up recently, resulting in lower efficiency. As expected, after almost five years of 4Ps implementation, during which time the management system became fully established, programme implementation for Set 6 was less costly. 4Ps implementation in the Davao Region yielded a total cost of $126.945 million (2008-2013) and reached 206,776 household-beneficiaries. The total cost per beneficiary was about $613.93, of which $50.86 comprised non-cash transfer costs and the rest, $563.07, comprised direct cash transfer (the alpha-ratio is 91.7 per cent). The average annual total cost/beneficiary is $265.88 (approximately Pts12,504.10 annually or Pts1,042.01 monthly), which is expected as the maximum monthly allocation per beneficiary is about Pts1,400.00.

Figure 2. Total cost per beneficiary (in US$)



Source: Authors' own calculation.

Table 6. Total cost per beneficiary (in US$)

	Set 1 (2008-2013)	Set 2 (2009-2013)	Set 3 (2009-2013)	Set 4 (2011-2013)	Set 5 (2013)	Set 6 (2013)
Total beneficiary (as of June 2014)	8 281	35 079	13 168	69 924	34 831	45 493
Total non-cash transfer programme cost	1 167 040	2 068 755	2 600 201	2 719 968	708 493	1 252 512
Total programme cash transfers	10 500 137	38 353 074	9 504 922	42 218 205	11 579 857	4 272 284
Total programme costs	11 667 177	40 421 829	12 105 123	44 938 173	12 288 350	5 524 796
Total cost/beneficiary (in US$)	**1 408.91**	**1 152.31**	**919.28**	**642.67**	**352.80**	**121.44**
Annual total cost/ beneficiary (in US$)	**281.78**	**288.08**	**229.82**	**321.33**	**352.80**	**121.44**

Source: Authors' own calculation.

Note: 4Ps figures are translated into US dollars using an average exchange rate of Pts47.03 per $1 from 1998 to 2014.

However, when examining the data on an annual basis, the total cost per beneficiary tended to be higher on years when a new phase or set was implemented (2008, 2009, 2011 and 2013). Plausible reasons for this were presented above.

While the computed total and average cost per beneficiary for 4Ps cannot be compared to the cost per beneficiary of social transfers in other studies (even for similar programmes) because of the wide variations in the costs included in the calculations and the variations in the method of estimation, the information provided in table 7 elucidates how 4Ps implementation has fared in terms of cost efficiency.

The 4Ps' design features in terms of objectives, qualified beneficiaries and grants may have differences in some aspects with the various social programmes outlined in table 7. However, the cost per beneficiary of those social transfers does not show much disparity with that of 4Ps. Therefore, it can be deduced that the cost of implementing the latter programme falls within the accepted standard of cost efficiency.

Data envelopment analysis estimates of relative technical and cost efficiency

A summary of DEA estimates of relative technical efficiency (TE) and cost efficiency (CE) under variable returns to scale (VRS) assumptions per MOO is presented in table 8. It shows that most LGUs in the Set 1 phase of implementation

Table 7. Design features and costs of social transfers

Programme	Objective	Qualified beneficiaries	Grants	Cost per beneficiary
Bangladesh – BRAC Targeting the Ultra Poor (TUP)	To assist the ultra-poor population graduate from extreme poverty, get access to mainstream development programmes and establish sustainable livelihood improvement****	Ultra-poor households****	Intensive integrated support, including asset grants, skills development, personalized health-care support and social security****	$287 (total cost, including value of asset transferred plus monthly stipend to beneficiaries for 18 months)*
Ethiopia – Productive Safety Net Programme (SNP)	To increase access to safety net and disaster risk management systems, complementary livelihoods services and nutrition support for food insecure households in Ethiopia**	Chronically food insecure Ethiopians**	Cash transfers as wages for labour on small-scale public works projects**	$35 (annual cost)*
Malawi 2003/04 Targeted Input Programme (TIP)	To reduce poverty, hunger, starvation for all ultra-poor and labor-constrained households; to increase school enrolment and attendance of children living in target group household and invest in their health and nutrition status***	Ultra-poor household with high dependency ratio***	Monthly cash transfers that vary according to household size***	$7 per household (total cost)*

Table 7. *(continued)*

Programme	Objective	Qualified beneficiaries	Grants	Cost per beneficiary
Zambia - Pilot Social Cash Transfer Scheme	To reduce extreme poverty, hunger and starvation in the most destitute and incapacitated households**	Critically poor households and households with incapacitated member**	Monthly cash benefit**	US$144 per household**

Sources: * Devereux and Black (2007);
** www.ids.ac.uk/files/MakingCashCountfinal.pdf;
*** www.fao.org/fileadmin/user_upload/p2p/Publications/MalawiSCT_ProductiveImpacts.pdf;
**** www.ids.ac.uk/files/dmfile/2.1.Pahlowan2014-CFPR-TUPProgramBRACpptv229-apr-14.pdf.

Table 8. Summary of technical and cost-efficiency scores

Set	MOO	Average TE	Average CE
1	Caraga	1.00	0.66
1	Manay	1.00	0.66
1	Davao City	1.00	0.62
1	Malita	0.96	0.75
1	Sta Maria	0.93	0.70
2	Laak	0.90	0.35
2	Talaingod	0.80	0.34
2	Don Marcelino	0.87	0.35
2	Jose Abad Santos	0.88	0.35
2	Sarangani	0.87	0.35
2	Tarragona	1.00	0.34
3A	Compostela	0.88	0.83
3A	Island Garden City of Samal	0.87	0.85
3B	Braulio E Dujali	0.86	0.85
3B	Asuncion	0.86	0.85
3B	Carmen	0.86	0.85
3B	Kapalong	0.86	0.85
3B	New Corella	0.86	0.85

Table 8. *(continued)*

Set	MOO	Average TE	Average CE
3B	Panabo	0.86	0.85
3B	Sto Tomas	0.86	0.85
3B	Governor Generoso	1.00	0.86
3B	San Isidro (Oriental)	1.00	0.86
3C	Magsaysay	0.87	0.85
3D	Kiblawan	0.88	0.86
	Average	0.905	0.689

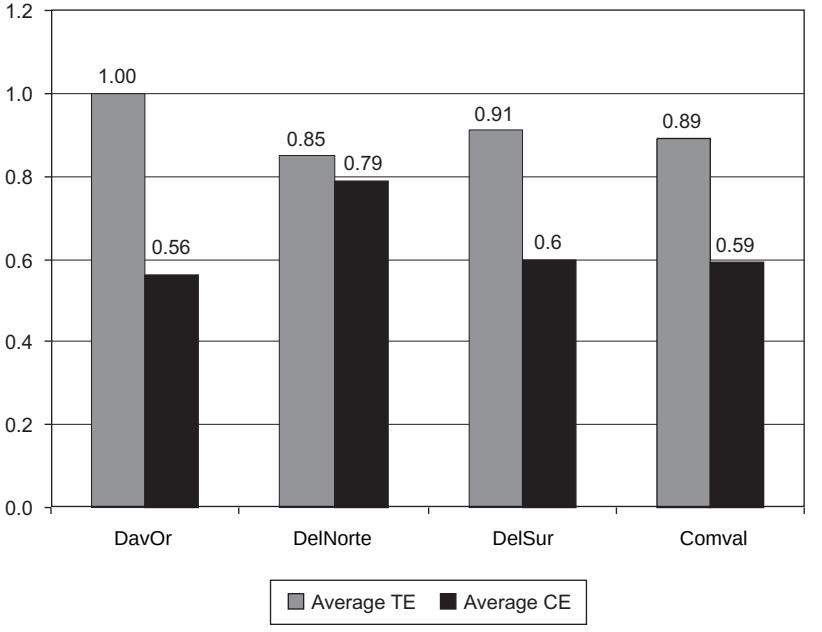
Source: Authors' own calculation.

posted technically efficient scores, while the technical efficiency scores of other MOOs in other sets were not far behind and relatively high, implying that implementation of 4Ps in the Davao Region was done efficiently. This may be attributed to the fact that most LGUs in the region were committed to the implementation of 4Ps at the local level by providing budget support for additional staff, logistics and other implementation requirements.

By contrast, it is noteworthy that there is a wide variation in cost-efficiency scores among MOOs in the different sets of implementation, with scores ranging from 34 per cent to 86 per cent. The variation in cost-efficiency scores among MOOs are shown in figure 3 by comparing the scores among MOOs by province. The most cost-efficient MOOs were in Davao del Norte, but it had the lowest technical efficiency scores, while the least cost-efficient MOOs were in Davao Oriental, which happened to be MOOs with the highest technical efficiency scores.

This finding suggests that not all MOOs implementing 4Ps with higher (or lower) technical efficiency scores would also be more (or less) cost-efficient in implementing the programme. The relevance of the trade-off between technical and cost-efficiency scores was noted by Grosh (1994, p. 46), who observed that "in several of the programmes, it appears that low administrative budgets might lead to deficient programme management", and that "spending more on administration with a given programme framework might lead to better service quality, better incidence or both". Accordingly, considering that most MOOs were given sufficient funds to implement the programme locally, there nonetheless would be MOOs that would need to spend more on administration costs, not only to deliver prompt service, but also to achieve the goals of the programme. MOOs that had higher administration costs typically were in areas far from the regional centre, resulting in

Figure 3. Comparison of average technical and cost-efficiency scores per province



Source: Authors' own compilation.

higher logistical and travelling costs. This is the case for MOOs on the east coast of Davao Oriental (Tarragona, Manay and Caraga) and the far-flung MOOs of Davao del Sur (Don Marcelino, Jose Abad Santos and Sarangani), Davao del Norte (Talaingod) and Compostela Valley (Laak).

V. CONCLUSION

The empirical evaluation of the administrative efficiency of 4Ps at the regional level in the present paper is the first of its kind in terms of the cost assessment of implementing the programme. The design features of 4Ps include targeting methods and monitoring conditionalities, which is similar to the design characteristics employed in other countries that have adopted cash transfer programmes. However, the way a programme is delivered in terms of implementation varies considerably among programmes. In the 4Ps, the targeting of beneficiaries is centrally managed by the Philippines DSWD through the National Household Targeting Systems for Poverty Reduction (NHTS-PR), whereas the implementation of the programme is

decentralized. Thus, assessing the cost of the programme at a regional level covers only from the implementation phase that commenced from the actual identification and registration of qualified beneficiaries to the actual delivery of cash through to the monitoring of conditionalities.

This study employed two methods of analysis: the estimation of CTRs and the estimation of technical and cost-efficiency scores using DEA. When computing CTRs of the programme, significant elements were revealed. On average, the largest proportion of the total spending per beneficiary is absorbed by the direct cash transfer, which is about 87 cents per one dollar (or peso) cash transferred to a beneficiary. Only 13 cents (per $1) was spent for programme delivery (including administration costs), capacity development, advocacy and monitoring, and evaluation, with a cost breakdown of 8.7 cents, 2.3 cents and 2 cents, respectively. This proportion of cost is equivalent to around 11.5 per cent of the total budget that is absorbed by the costs of different programme activities. When comparing CTRs of 4Ps with CTRs of the equivalent cash transfer programmes in Latin American countries with the same design features and cost structures (see table 1 for details), the 4Ps performance was similar to that of the Progresa programme in Mexico. This implies that as 4Ps were fashioned on those cash transfer programmes, while there might be some slight variation in implementation, cost efficiency was basically replicated by 4Ps.

Based on the computed activity cost shares, the largest proportion of the cost shares were devoted to the delivery of the programme (although most of that proportion was administrative costs). However, when taking the cost transfer ratio between non-transfer programme costs and the direct cash transfer costs, only 9 cents was spent on the non-transfer programme costs for every one dollar (or peso) transferred to a beneficiary. Consequently, this shows that, on average, 91.7 per cent of the budget for cash transfer is actually absorbed by the direct cash transfer. These findings conform with the principle proposed by Caldes, Coady and Maluccio (2006): “for a targeted and conditioned transfer programmes to be cost-effective at reducing poverty, they must be cost-efficient in terms of having low non-transfer costs”.

As the cost data used in the analysis were limited only to the actual implementation activity, and did not include the targeting process of beneficiaries, as previously discussed, the study cannot fully refute common criticisms that a large proportion of the budget of cash transfer programmes is absorbed by administration costs instead of reaching the intended beneficiaries (Grosh, 1994). However, in a similar study, Grosh (1994, p. 46) pointed out that targeting costs are only a small part of total administrative costs and only equivalent to 0.4 to 8 per cent of total programme costs. It is thus prudent to deduce that the administrative costs of implementing 4Ps are relatively modest in terms of its share of the total transfer.

Moreover, when estimating the cost-efficiency scores using DEA, it was found that not all MOOs implementing 4Ps that had high relative technical efficiency scores translated to a more cost-efficient implementation of the programme, and vice versa. This finding corroborates the argument advanced by Grosh (1994). Furthermore, when analysing the relationship between cost-efficiency scores with that of the total cost per beneficiary, it was found that MOOs in Set 2 posting the highest total cost per beneficiary yielded lower cost-efficiency scores. The cost-efficiency scores for these MOOs in Set 2 were expected considering that most of these areas are geographically located farthest from the regional centre. Accordingly, more resources were devoted to monitoring conditionality, which essentially serves as a likely trade-off to cost efficiency. Similarly, LGUs in Set 3 that had a lower total cost per beneficiary posted higher cost-efficiency scores. Nonetheless, CTRs implied efficient use of resources with a greater proportion of the budget utilized in direct cash transfers, which also meant that MOOs implementing the programme were technically efficient. These results are consistent using CTR and DEA.

In sum, this study has established that the estimated average annual total cost per beneficiary of $265.88 is not dissimilar to the total cost per beneficiary of other cash transfer programmes with similar design features. Although these results are not comparable due to varying institutional circumstances, it can be concluded that 4Ps was reasonably well implemented by MOOs in a cost-efficient and technically efficient manner.

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ANNEX

Pantawid Pamilyang Pilipino Program costs in US dollars, per set and per year

Year	2008	2009			
Cost structures/set	Set 1	Set 1	Set 2	Set 3	Total
Programme costs	105 246	111 625	255 223	29 587	396 435
Total programme transfers	479 545	1 846 081	7 522 734	131 452	9 500 267
Cost transfer ratio	0.219	0.06	0.034	0.225	0.042
Cumulative cost transfer ratio/year	0.219	0.06	0.039	0.052	

Year	2010			
Cost structures/set	Set 1	Set 2	Set 3	Total
Programme costs	157 533	338 655	898 401	1 394 589
Total programme transfers	1 916 925	7 853 970	2 221 675	11 992 570
Cost transfer ratio	0.082	0.043	0.404	0.116
Cumulative cost transfer ratio/year	0.08	0.051	0.116	

Year	2011				
Cost structures/set	Set 1	Set 2	Set 3	Set 4	Total
Programme costs	187 087	349 547	904 783	685 602	2 127 019
Total programme transfers	2 012 620	7 508 752	2 698 263	9 355 706	21 575 341
Cost transfer ratio	0.093	0.047	0.335	0.073	0.099
Cumulative cost transfer ratio/year	0.093	0.056	0.118	0.099	

Year	2012				
Cost structures/set	Set 1	Set 2	Set 3	Set 4	Total
Programme costs	270 003	570 221	399 872	1 093 145	2 333 241
Total programme transfers	2 530 110	8 295 254	2 520 878	18 065 206	31 411 448
Cost transfer ratio	0.107	0.069	0.159	0.061	0.081
Cumulative cost transfer ratio/year	0.107	0.078	0.093	0.081	

Year	2013							Grand total-all sets
Cost structures/set	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Total	
Programme costs	335 546	555 109	367 558	941 221	708 493	1 252 512	4 160 439	10 516 969
Total programme transfers	1 714 856	7 172 364	1 932 654	14 797 293	11 579 857	4 272 284	41 469 308	116 428 479
Cost transfer ratio	0.196	0.077	0.190	0.064	0.061	0.293	0.100	0.090
Cumulative cost transfer ratio/year	0.196	0.100	0.116	0.086	0.078	0.100		

Source: Authors' own compilation.