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Intergovernmental Grant Transfers from Central to Local Levels of Government in Ghana: Does Formula Allocation Prevents Political Influences?

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Abstract

This study examines how the district assemblies' common fund grant is distributed among the local governments in Ghana to ascertain the objectivity of the sharing formula scheme created under the 1992 Constitution. The dynamic GMM panel estimation approach is employed for the empirical analysis with focus on new versus mature democracy and how swing and aligned districts tend to benefit from the distribution. Annual data on the fund disbursements and the election outcomes from 1994 to 2018 for 216 district assemblies is used. The findings reveal that average transfers to each district was GhȻ7.54 million which generally increased by 9.4 percent in election years reflecting the opportunistic behavior of incumbent governments. Swing districts benefited more from the increase than non-swing districts, as the former received 4.3 percent more than the latter. Aligned districts in new democracy received, 2 percent more than non-aligned ones, while it was 4.3 percent more for swing districts in mature democracy. Therefore, the allocation formula is subject to political manipulations hence it is recommended that the unilateral appointment of the fund's administrator by incumbent Presidents be reviewed in addition to creating autonomous public agencies to be responsible for the allocation formula and the fund administration independently.

Keywords

Intergovernmental transfers, Local governments, Allocation formula, Redistributive politics, Political influences, Ghana

JEL Classification: D72, H73, H77

1. Introduction

The influence of tactical considerations on resource distribution has been amply demonstrated in many studies. The evidence from these studies reveal a strong relationship between resource transfers and political concerns, such as voting patterns, timing of elections, geographical locations and lobbying activities among others. Examples of these studies include Wright (1974), Anderson and Tollison (1991) and Grossman (1994) for the United States. In recent times, a completely different picture of distributive politics has emerged with studies including Dahleberg and Johansson (2002), Veiga and Pinho (2007), and Cole (2009). However, it is argued that for any resource distribution, the normative principles of equity and efficiency must supplant political motives. This theory assumes that central governments act as benevolent entities interested in maximizing social welfare (Oates, 1972, Musgrave, 1983). This assertion underscores the economic and institutional rationale for intergovernmental transfers, but evolution of political economy models bring to light how politicians use transfers as tactical instrument to achieve certain political objectives. Cox and McCubbins' (1986) political-economy model explains that in partisan politics, resource sharing may reflect patronage objectives in favour of loyal political followers. Conversely, Dixit and Londregan (1996) argue that opportunistic politicians, who want to increase their chances of re-election, could design an allocation programme in favour of non-loyal supporters or 'swing voters'.

Given these two ideological positions, the empirical evidence is mixed with respect to which political type, partisan or opportunistic is relevant and which group of voters, swing or aligned is favoured in the allocation of intergovernmental transfers. For instance, Johansson (2003) and Arulampalam et al. (2009) support the claim that design of intergovernmental transfers favour swing voters, while Levtt and Snyder (1995) and Ansolabehere and Snyder (2006) confirm that larger transfers go to areas where the incumbent party have strong support base. Since politics affects resource allocations across different groups of politicians and political jurisdictions, it is imperative to extend the empirical evidence to different country settings. Therefore this study contributes to the debate by examining how intergovernmental fiscal transfers are used as tactical political tool in Ghana focusing on the District Assemblies Common Fund (DACF), a formula-based grant distribution system which was conceived in 1992 but became operational in 1994.

The formula-based allocation system is supposed to prevent external influences over resource distributions, and it is a common strategy in most decentralised countries across the world. It should however, be noted that such a system in itself does not guarantee an objective and efficient distribution of resources. In many countries, the formula is manipulated in many ways to suit specific objectives including political, thereby altering the equitable distribution of the funds. For example, in the mid-1990s, Russia's allocation formula was diluted with changes in assigned weights, hence was not consistently followed by the central government. This is because they discovered that the existing formula could not produce any politically desirable results (Martinez-Vazquez & Boex, 2001). Ekpo (2004) also reports of the tendency of some states in Nigeria to manipulate census data so that they can

receive more revenue from the federation account, since population factor constitute 30 percent of the sharing formula.

In Ghana, since the inception of the distribution formula in 1994, it has undergone many transformation but four main factors tend to dominate, namely, 'need', 'equality', 'service pressure' and 'responsiveness'. While these factors have remained largely the same over the years, in 2016, however, the responsiveness factor was modified with the introduction of budget implementation status which measures performance of the subnational governments in terms of compliance with their budget and budgetary provisions. In spite of the relative stability of the factors, the indicators and their weights have changed many times, particularly the "need" factor. For instance, in 1994 "need" factor consisted of the 1992 GDP *per capita* and population; in 1996 however, number of health and basic education facilities, as well as the 1992 GDP *per capita* were used. In 2000, population per medical doctor and pupil per teacher ratios were considered while 1992 GDP per capita was dropped. In 2002, proportion of districts with access to safe drinking water was added, and in 2004, mileage of tarred roads, as well as nurses *per capita* was added as indicators (Banful, 2007). Quite recently in 2019, classroom facilities per population have been added to augment the formula. In 2007, there was an increase in the percentage of taxable revenue from 5 percent to 7.5 percent, apparently to cater for additional districts created by the President. However, the percentage has been reduced again from 7.5 percent to 5 percent since 2016 and the 'responsiveness' factor is no longer considered in the sharing. Similar changes have also occurred in the other factors as well with the most critical ones in election years (1996, 2000, 2004, 2008, 2012 and 2016). Appendix A, shows a summary of events over time in respect of the formula. These numerous and rampant changes have been subject of much concern for many people including policymakers, particularly about the effective administration of the transfers system devoid of any political motives. In spite of this concern, there is a dearth of empirical studies on whether Ghana's formula system of allocation completely alienates tactical political influences. This research therefore aims at examining the extent to which the DACF sharing formula eliminates political maneuvering. By undertaking this enquiry, an attempt is made to provide answers to the following germane questions: does the quest to entrench political support in aligned or swing districts affect the transfer system; and how do electoral outcomes affect political considerations of the transfers, as democracy evolves over time.

Apart from its contribution to the extant literature on intergovernmental transfers, the novelty of this study, particularly concerning Ghana is the use of the electoral outcomes (presidential and parliamentary) to construct indices of politically aligned and swing districts for the analysis. In addition, this research examines the role of political factors on the transfers as the country's democratic status changes from 'new' to 'mature'. According to Brender and Drazen's (2005) classification of democratic periods, three alternative definitions are used to characterise 'new' and 'mature' democracy. These are: the period spanning the first four competitive elections; the first ten years of democracy; and the first fifteen years of a democratic period. The relevance of this classification is that pre-election fiscal

manipulations and implementations of political budget cycles by incumbent governments are likely to occur in countries with short electoral history (Viego & Pinho, 2007). Also, the estimation approach adopted is based on the Generalised Method of Moments (GMM) in dynamic panel settings developed by Arellano and Bond (1991). This technique overcomes the endogeneity challenges between the variables, in particular the inherent feedback effect generated by the districts' actions on the transfers as the few existing studies on Ghana have predominantly used fixed effects models within a static panel framework which assumes strict exogeneity of the dependent variables (see Banful, 2007; and Miguel & Zaidi, 2003, Fumey, 2018).

The rest of the study is organized into five sections. Section two presents the intergovernmental fiscal relations in Ghana, while section three provides a brief empirical literature review. Section four discusses the theoretical and empirical models, as well as data sources and estimation techniques. Section five reports the empirical findings and their interpretations while the last section gives the conclusion and also provides some lessons for policy.

2. Intergovernmental Fiscal Relation in Ghana

The intergovernmental fiscal relations describe all aspects of expenditure, revenue and service delivery arrangements between the national and sub-national levels of government. This includes the assignment of functions; authority for decision-making over resources and staffing; taxing and regulatory responsibilities; funding arrangements; financial management and accountability. The central government is responsible for fiscal policy of the country and the subnational governments (District Assemblies) are guided by the policies of the central government. The central government generates revenue within its assigned taxing areas and undertakes revenue sharing with and/or transfer payments with/to local governments, while the assemblies generate revenue within its assigned tax regime and receives transfer payments from central government.

The 1992 constitution and other legislative instruments (Note 1) gave substantial powers and functions to the local governments in order to perform their mandated functions. The local Government Act, 1993 (Act 462) provides that 86 statutory functions of the state be shifted to local government bodies. These functions include provision of services like health, education water**,** sanitation, roads, storm water drainage and electricity to the local citizens. These functions require huge expenditure outlays from the districts. As such, to meet these responsibilities, the Sixth Schedule of Act 462 provides local governments with relatively broad tax bases. These include entertainment duty, casino revenue, betting tax, and business registration charges. Others are gambling tax, rates and levies, fees and licenses, among others. However, variations in population size, income distribution, revenue base, degree of urbanization and administrative capacity means that the actual distribution of responsibilities and revenue collection differs extensively within and across local governments.

Therefore, the constitution acknowledges a system of intergovernmental transfers that significantly addresses the disparities in service delivery among district assemblies. The Intergovernmental transfers

include the District Assemblies Common Fund (DACF), Recurrent Expenditure Transfers and Ceded Revenue. Districts also get income from other financial arrangements for their capital investments, and it can take different forms such as borrowing, investment fund and non-monetary arrangement that include community contributions. Although, there are various sources of income for the districts aside transfers, they do not yield much revenue, so some districts depend almost entirely on the DACF. Therefore, DACF has become the single most significant source of funding for majority of the district assemblies particularly the rural ones. Given that an average of 80 percent of these district assemblies' revenue depends on the DACF, it creates a direct link between government controls and development at the districts. This therefore provides opportunity for the central government to influence the transfers for political gains.

Since the inception of the DACF, the annual mandatory deduction from the government's total tax revenue has been from 5 percent to 7.5 percent but has remained at 5 percent since 2016 and this amount is distributed among the assemblies based on a formula. This relatively small share of the national income seems to mask some important realities of district level financing in Ghana. Thus, without these transfers, some assemblies would not be able to provide their residents with basic services, such as health and education. Moreover, increased demands by the residents on the assemblies to provide development projects and expand service delivery, has led to the common fund becoming such an important revenue source since 1994. It helps assemblies to cover costs associated with their role of provision of socio-economic goods and services, particularly to the most deprived communities. The transfers are perceived by voters in Ghana as benefits coming from a particular political party in power, so it has become an avenue for incumbent governments to manipulate the common fund allocation to the assemblies despite the existence of the allocation formula which is expected to be devoid of any manipulations, particularly political machinations. The yearly releases of transfers from the government in millions of Ghana cedis, number of districts and the percentage of deductible taxable revenue are shown in Appendix B.

3. Literature

The issue of political parties distributing resources to some set of targeted individuals or groups was first raised in the analysis of New Deal spending during the era of great depression in the United States. At the time, states in the West received far greater *per capita* transfers than the relatively poorer states in the South. Researchers observed that the redistributive decision is influenced by political factors rather than by economic factors (see Arrington, 1969; Reading, 1973; Wright, 1974). Despite disagreements on this conclusion by Wallis (1998) based on issues of measurement, the New Deal spending analysis largely holds as the basis of the literature on political distribution of resources. However, beyond the New Deal analysis, a large number of studies have considered how political factors affect intergovernmental transfers.

Distributive politics suggests that politicians have incentives to engage in targeted spending especially

in decentralized political systems with weak parties and candidate-centered elections. In this regard, Fouirnaies and Mutlu-Eren (2015) argue that in centralized political systems with party-centered elections, parties use intergovernmental transfers to advance their electoral fortune via performance spillovers across different levels of government. Using a new data set on partisan composition of local councils in England and central government's grant allocation from 1992 to 2012, and applying difference-in-difference estimation method, the study reveals that governments allocate up to 17% more money to local councils controlled by their own party. The study further shows that the effect is strongest when local elections are due and in swing councils. In their study on intergovernmental fiscal transfers as pork barrel, Veiga and Veiga (2013) analyse the determinants of intergovernmental fiscal transfers and the corresponding votes that are earned in subsequent legislative elections in Portugal. Using annual data from 1979 to 2005 on 278 municipalities of continental Portugal and by applying Generalized Method of Moments (GMM) on system of simultaneous equations, their result suggests that increases in central government's transfers to municipalities in election years secure additional votes, and that these transfers are targeted at jurisdictions where the government faces risk of losing support (Note 2).

To examine the effectiveness of strategies to prevent political manipulation of intergovernmental grant allocations, Arulampalam et al. (2009) developed a model of resource allocation from the central government to the local governments. In this model, opportunistic central governments use political considerations as the criterion for transferring resources to local governments. Using India's state panel data, they validated the theoretical model which predicts that aligned states and swing states receive more allocations than non-swing states (Note 3). The evidence of the prediction was that aligned states and swing states in the last election, received grants higher than unaligned and non-swing states by 16 percent. To explore the relationship between politics and resource allocations, Maystadt and Salifu (2015) employ instrumental variables approach to analyse the effects of opportunistic fiscal transfers on the electoral fortunes of incumbent politicians in Nigeria. By exploiting within State variations from 2007 to 2015, the study finds that increases in VAT transfers induced by higher oil windfalls improve the electoral fortunes of incumbent government. Caldeira (2012) uses a micro-level public finance dataset, to test whether Senegal's system of transfers from the central government to communes was driven by equity concerns. Based on the empirical results, the study concludes that the Senegalese system of redistribution is tactical as grants allocation target swing communes relative to partisan communes.

Using local public finance data set with election results in Ghana from 1994 to 2003, Banful (2007), applied a fixed effect estimation technique to test the Dixit and Londregan (1996) model. The findings show that per capita grants are higher in districts where vote margins in the previous presidential election were lower, suggesting that swing districts are targeted. The study concludes that political characteristics of recipient districts matter in redistribution (Note 4).

4. The Theoretical Model

The study draws mainly from redistributive politics model by Dixit and Londregan (1995, 1996) as used in Dahlberg and Johansson (1999), Banful (2007) as well as Fumey (2018). Consider a country consisting of N subnational governments (districts) whose national government has the sole responsibility to make transfers to districts out of an endowment of size Y which is exogenously given. The transfer amount may differ across districts but individuals within a district receive the same amount. The "Government" consists of one president who has agenda setting power on the distribution of Y, and N members of parliament, one each from each district, who through their legislative votes can accept or reject the proposed distribution of Y.

There are two political parties competing to be in power, Party A is the party of the incumbent President and Party B, the opposition party. The President is elected by winning a national majority at the presidential election and a member of parliament by winning majority votes cast at the parliamentary elections in the district. Voters have ideological preferences over the parties and decide which party to vote for, taking these preferences into consideration and the amount of transfers the incumbent government offers to each district, as well as the amount the opposition party promises to offer if elected.

In each district, there is a distribution of ideological preferences, and given a certain level of district transfers, there will be a critical value (cut-point) that divides voters into those voting for party A and those for party B. The parties' ultimate objective is to move this cut-point in order to increase their vote shares, by using transfers to the districts. The amount of transfers a district receives will hence be positively correlated with the density at the cut-point. This theory further predicts that transfers are targeted at districts with low income, since voters with low income have higher marginal utility of money and thus can be more easily persuaded to vote for a party promising them higher transfers. Given the parties' objective functions, and assuming that the distribution function is symmetric and single peaked, then there exists a one-to-one correspondence between the density at the cut-point and the closeness of the last election.

A more formal presentation of the theoretical framework is as follows:

There are two parties, A and B, maximizing the number of votes. The utility of a voter in district *i* is given by U*i*(y*i* + G*i*) where y*i* is the income of a voter in district *i*, *Gi* is the transfer received and U*i* is a utility function such that U'*i*>0 and U"*i*<0. A voter located in district *i*, with the preference X for Party A over Party B, will vote for Party B if:

$$U_i(y_i + G_i B) - U_i(y_i + G_i A) > X \quad (1)$$

The critical value or cut-point for district *i* whereby all citizens of district *i* with values of X less than X*i* will vote for Party B and all the rest for Party A is defined as:

$$X_i = U_i(y_i + G_i B) - U_i(y_i + G_i A) \quad (2)$$

In each district, there is a distribution of X given by $\Phi_i(X)$, with density $\phi_i(X)$. The vote share for party B (VP_B) is then given by:

$$VP_B = \sum_{i=1}^{N} P_i \phi_i(X_i) \tag{3}$$

where P_i is the share of the population living in district *i*. This is maximised by the party by choosing the amount of transfers to distribute to each district, thus G_{ip}, p = A, B; subject to

$$\sum_{i=1}^{N} P_i G_{ip} = Y \tag{4}$$

where Y is the available endowment. In equilibrium, both parties choose the same transfers/promises given by the condition.

$$U_i(y_i + G_{ip})\phi_i(X_i) = U_j(y_j + G_{jp})\phi_j(X_j) \tag{5}$$

Therefore, transfers become an increasing function of the density at the cut-point, $\phi_i(X)$, and a decreasing function of income as higher income means lower marginal utility of income (Note 5).

4.2 Model Specification

The baseline empirical framework as derived from the theoretical model is expressed in a dynamic specification form as follows:

$$y_{it} = \sum_{j=1}^{k} \delta_j y_{i,t-j} + \beta' P_{it} + \gamma' X_{it} + v_i + \varepsilon_{it} \tag{6}$$

where the dependent variable, $\boldsymbol{y_{it}}$, is *per capita* transfers that a district ***i*** receives from the central government in year *t*; $\boldsymbol{P_{it}}$ is a vector of political variables which may influence the distribution; $\boldsymbol{X_{it}}$ is a vector of control variables; δ_j is a parameter to be estimated, β' and γ' are vectors of parameters to be estimated, $\boldsymbol{v_i}$ represents unobserved effect specific to district ***i*** and $\boldsymbol{\varepsilon_{it}}$ denotes the error term. To account for autoregressive component of the time-series of grant allocations, the empirical model includes lags (of order *k*) of the dependent variable.

Given the presence of district specific-effects ($\boldsymbol{v_i}$), in the model, ordinary least squares (OLS) estimation with the lagged dependent variables lead to a potential dynamic bias result because of the correlation between the lagged dependent variable and the error term. An attempt to use Pooled OLS would also be inconsistent because it assumes a constant slope and intercept over the cross section (districts) which is unrealistic. In this case, fixed effects (FE) model is considered to be appropriate as it allows the intercept term to vary, thereby correcting for both cross-sectional and contemporaneous correlations. Therefore, by assuming that the district effect ($\boldsymbol{v_i}$) is fixed or random, then equation (6) can be estimated using fixed effect (FE) or random effect (RE) technique. Though the fixed effects (FE) can eliminate potentially large number of unmeasured explanatory variables specific to district *i*, the bias still exist. Even if there were no serial correlation between the lagged dependent variable and the error term, the bias would still occur because there is a clear dominance of cross section (N=216) over time period (T=28) in the data set. To overcome this bias problem, the study uses the Generalized Method of

Moment (GMM) estimator developed by Arellano and Bond (1991) as it controls for both district specific effects and the bias from the lagged dependent variable. This is done by first differencing equation (6) to remove the district specific effect (v_i), and using instrumental variables to estimate the resultant equation (7):

$$\Delta y_{it} = \Delta \sum_{j=1}^{k} \delta_j y_{i,t-j} + \beta' \Delta P_{it} + \gamma' \Delta X_{it} + \Delta \varepsilon_{it} \quad (7)$$

The instruments used in this approach are the available lags in levels of the differenced predetermined and endogenous variables; two or more periods lag in levels of the dependent and endogenous variables. Also used is one or more period lags of the pre-determined variables, while the exogenous variables are used as their own instruments. One shortcoming of this method is that lagged levels of the explanatory variables are weak instruments for first-differences in persistent time series variables, which may result in bias coefficients (Blundell & Bond, 1998). However, Arellano and Bover (1995) explain that efficiency can be enhanced by adding the original equation in levels to the system, hence the system-GMM estimator. In this case, the appropriate instruments used are the lagged values of the first-differences in the levels form equation, since the first differences of the explanatory variables are uncorrelated with the cross-sectional effects.

Equation (7) is applied to Rogoff and Sibert (1988) opportunistic political budget cycles prediction that national governments transfer larger resources to subnational governments in election years. They do this with the aim of winning more votes from electorates during elections. To examine this prediction, the study uses an election year dummy (ELYDum) which equals to one (1) in election years, and zero otherwise. The specification is expressed in equation (8) which is substituted into equation (7) for estimation.

$$\beta' P_{it} = \beta'_1 ELYDum + \beta'_2 PAL + \beta'_3 PSW + \beta'_4 ELYDum \times PAL + \beta'_5 ELYDum \times PSW$$

$$+ \beta'_6 ELYDum \times (1 - PAL) + \beta'_7 ELYDum \times (1 - PSW) \quad (8)$$

According to Arulampalam et al. (2009), the theoretical model predicts that aligned and swing districts obtain higher transfers relative to a non-swing district. To test this prediction, the study considers the political variables as *Swing* and *Alignment*, which are constructed as indicator variables. To allow for the influence of political considerations on the transfers to vary according to the party and electoral dynamics in the country, the vector of political variable is specified in the form of interacted regressors. The dynamics of this prediction is shown in (9), and it is subsequently substituted into equation (7) for estimation.

$$\beta' P_{it} = \beta_1 PAL_{it} + \beta_2 PSW + \beta_3 PAL_{it} \times PSW_{it} + \beta_4 PAL_{it} \times (1 - PSW_{it})$$

$$+\beta_5(1-PAL_{it})\times PSW_{it}+\beta_6(1-PAL_{it})\times(1-PSW_{it}) \quad (9)$$

where, $\boldsymbol{PAL_{it}}$ is an indicator variable for political alignment that equals one (1) if the same party is at national and districts $\boldsymbol{i}$ levels at time $\boldsymbol{t}$, and zero otherwise. $\boldsymbol{PSW_{it}}$ denotes the proportion of constituencies in districts $\boldsymbol{i}$ at time $\boldsymbol{t}$ identified as swing during elections.

This variable ($\boldsymbol{PSW_{it}}$) measures the difference in vote shares, expressed in percentage terms, between the incumbent party at the center and its main opponent, in the last parliamentary election in each district. This variable captures the closeness of the last parliamentary election at the district level. Following Case (2001), Dahlberg and Johansson (1999), and Veiga and Pinho (2007), it is used as a proxy for the number of swing voters. Using the results of electoral outcomes of previous presidential and parliamentary elections in district *i*, a variable *votediff* is constructed. For electoral constituency *c* in district *i*, *votediff* equals the difference in percentage votes shares between the two leading contestants with majority of votes in c. On this basis, an electoral constituency *c* is classified as swing if *votediff* is a value less than or equal to a cutoff value of 67%. The choice of the cutoff point is in line with the theoretical framework which requires the swing variable to be a relative measure. Also, rather than an arbitrary value, this cutoff point captures an important aspect of the multi-party setting typical of the democratic dispensation in Ghana. The constitutional requirement under article 291(3) is that a vote of at least two thirds of all the members of Parliament is needed to pass a resolution on a bill to become a binding law (Note 6). As such, it is the desire of every party in government to win a two-third majority in every parliamentary election, so they can unilaterally enact or amend legislations without bargaining with rival parties. The empirical work does not use *votediff* as a regressor but employs a dummy variable, denoted ***PSW***, which takes value of 1 when *votediff* is strictly less than 67% and 0 when *votediff* is strictly more. This variable helps to test the Lindbeck and Weibull (1987) and Dixit and Londregan (1996, 1998) prediction that districts with many swing voters are targeted by the ruling party as a strategy to win the subsequent election.

To test whether the effects of political factors on the transfers (if any) have changed over time since 1994, the study adopts the classifications of democratic periods by Brenda and Drazen (2005). Based on this, Ghana's democracy is considered to be mature as it is over two decades old. Following Viega and Pinho (2007), two dummies are created, *newdem* and *matdem* to separate the democratic period into new and mature. Equation (6) is then augmented with interaction terms of *newdem* and *matdem* with all variables in vector P_{it} to yield equation 10.

$$y_{it}=\delta_j y_{i,t-j}+\varphi'(P_{it}\times DEM)+\gamma' X_{it}+v_i+\varepsilon_{it} \quad (10)$$

where *DEM* in the case of *newdem* takes the value of one (1) for years 1992-2004, and zero (0) afterwards; for the case of *matdem*, *DEM* is a dummy variable with a value of one (1) after 2004, and zero (0) for earlier years.

The vector of control variables, X_{it}, consists of demographic and economic variables that allow for the

analysis of whether intergovernmental transfers improve the well-being of people in the districts. The demographic variable used is the age composition of a district's population which is described by the percentage shares of children under 15 years (*%CHD*), and elderly 65 years and above (*%ELD*). This vector reflects features of government tax and spending behaviour of the districts assemblies. Therefore, the dependent age composition of the population in a district indicates how cost disadvantages and possible economies of scale in service delivery are driven by key clients of the district assemblies. Given that districts are tasked with providing services such as basic education for the children as well as healthcare services for the elderly, the coefficient estimates associated with the variables on percentage age composition are expected to be positive because these groups of the population exerts specific influence on the spending priorities of local governments (Viega & Pinho, 2007).

The macroeconomic performance of the country affects the tax revenue collected by the national government; hence, the amount of funds transferred to the district assemblies. To proxy the macroeconomic condition of the country, the growth rate of GDP at 2006 constant prices (ΔGDP_{it}) is used. A positive sign is expected for the coefficient associated with this variable. To control for passage of time, time trends (*Trend*) and quadratic time trends (*Trendsqr*) capture the time effects that affect the distribution of transfers equally across all municipalities. The coefficients are expected to be positive depicting an increase of the funds over time.

4.3 Estimation Techniques

The study employed the system-GMM linear dynamic panel data regression approach for the estimations. For purposes of robustness and unbiased estimates, the autoregression (AR) tests for autocorrelation and Sargan test of over-identification were conducted. In particular, AR(1) and AR(2) examine the autocorrelation of the variables in the model. This test has the null hypothesis of no autocorrelation and it is applied to the differenced residuals. The model is said to be properly specified if AR(2) is significant as it detects autocorrelation in levels. The post estimation Sargan test of over-identification helps to validate the instrumental variables, and in this estimation, one period lagged first differences in the levels equation is used as instrument. This technique is considered the most suitable for generating consistent estimations of the parameters. In this estimation, the election year variable is considered as endogenous since transfers to the districts are important sources of fund for the assemblies. Therefore, the expenditure decisions are likely to affect the electoral outcomes during election years.

4.4 Data Sources

A panel dataset from 1994 to 2018 for 216 district assemblies was obtained from various sources to carry out the analysis. Specifically, data on Ghana's local government public finance was sourced from the annual reports of Ministry of Local Government and Rural Development in Ghana. This report contains information on revenue and expenditure of each district. The Socioeconomic and demographic data, such as population distribution of the districts (Note 7) and growth rate of the gross domestic products (GDP) were extracted from Economic Review of Ghana Statistical Services. Data on

allocation and disbursement of the District Assemblies Common Fund (DACF) was also obtained from annual reports of the DACF Administrator's Office. The political data was also acquired from Election reports of National Electoral Commission (NEC) of Ghana.

5. Results and Interpretations

The empirical estimates and their discussions thereof are presented in this section, beginning with the descriptive statistics and followed by the 2 step system GMM. Note that the transfer amounts are expressed in millions of Ghana cedis *per capita* in 2012 prices.

5.1 Descriptive Statistics

Table 1. Descriptive Statistics of Study Variables

Variable	Obs.	Average	Std. Dev.	Min.	Max.
Per Capita Transfer (PCTransf)	3575	7.54	8.96	0.07	104.15
Election Year (ELYDum)	3575	0.20	0.35	0.00	1.00
Political Alignment (PAL)	3575	0.60	0.52	0.00	1.00
% Vote Difference (VoteDiff)	3575	34.54	21.55	1.00	98.00
Political Swing (PSW)	3575	0.81	0.32	0.00	1.00
% Popn below 15 years (%CHD)	3575	42.02	2.46	26.00	55.00
% Popn above 65 years (%ELD)	3575	7.12	0.42	4.26	11.08
GDP Growth Rate (GDPGR)	3575	6.65	1.96	3.42	14.13
Trend	4107	13.00	8.02	1.00	25.00
Trend square	4107	169.00	64.32	1.00	625.00

Source: Computed by the authors

The descriptive statistics show that the average Transfer *per capita* is 7.54 million Ghana cedis at constant 2012 prices, with the minimum transfer being Gh₵ 0.07 million *per capita* while the maximum is Gh₵ 104.15 million *per capita*. The election year dummy (ELYDum) which is 1 for election years and 0 otherwise, has a mean of 0.20 implying an average of five elections over the study period. The Political alignment dummy (PAL) which takes the value of 1 for same party at both national and district levels and 0 otherwise has a mean of 0.52. This implies that on average 52% of the districts are aligned to the ruling party at the national level. The percentage vote difference (VoteDiff) in the parliamentary elections at the districts, expressed in percentage between the winning party and the runner-up shows a maximum of 98 percent and a minimum of 1 percent with an average of 36%. The Political Swing (PSW) is an indicator variable that takes the value of 1 when VoteDiff is less than or equal to 67 percent and 0 when it is strictly greater than 67 percent. It has a mean value of 0.62 which implies that on average, 62 percent of the districts in Ghana are swing politically. In terms of the

demographic variables, percentage of the population in the districts below 15 years old ranges from 26 percent to 55 percent with an average of 42 percent. The percentage population which is at least 65 years old also ranges from a minimum of 4 percent to a maximum of 11 percent with a mean value of 7 percent. This suggests that the average dependent population in the districts is 45 percent which is quite high. The GDP growth rate (GDPGR) at 2006 constant prices reflects the economic health of the country, as it forms the tax base from which the DACF Transfers are drawn. The average GDP growth rate is 6 percent and it fluctuated between a minimum of 3 percent and a maximum of 14 percent. The time trend (Trend) is from a minimum of 1 to 25 with a mean of 13, while the trend square (Trendsqr) ranges from 1 to 625 with an average of approximately 169 depicting a steady rise in the grant transfers to the assemblies.

5.2 The 2-Step System GMM Estimates of DACF Transfers (1994-2018)

Table 2 presents the results of all districts for the sample period on how political considerations influence intergovernmental fiscal transfers in Ghana. Column 1 of Table 2 show results of examining the existence of Political Budget Cycles (PBC), in the allocation of the DACF transfers and its effect on politically aligned (PAL) and unaligned (1-PAL) districts. From the estimates, statistical significance of the lagged transfer per capita PCTransf(-1), suggests that there is some level of inertia in the disbursement. In confirmation of the PBC, the result indicates that transfers increase during election years. This is indicated by the positive statistical significance of the election year variable (ELYDum). All other things being equal, transfers *per capita* increase by 0.61 million Ghana cedis in election years relative to non-election years.

This evidence supports the findings of Banful (2007) that in election years, districts can expect to receive twenty-five (25) percentage points more in disbursement than they receive in non-election years. The finding therefore confirms the theoretical prediction by Rogoff and Sibert (1988) that the incumbent government tends to increase transfers to subnational governments so as to enhance its popularity for a probable re-election. According to Brender and Drazen (2005), political budget cycles may come about because democracy is far more likely to collapse in an election year than any other year. Therefore, election years are considered as a turning point for the survival of democracy because it is the period many people tend to strongly register their dissatisfaction with the system in various forms including violent protests. This is usually common in developing countries where democratic and political institutions are weak. Hence, it becomes a technical point of disruption in democratic dispensations. On account of this, governments tend to provide more transfers in election years under the guise of consolidating democratic gains.

Table 2. The 2-Step System GMM Estimates of DACF Transfers (1994- 2018)

	1	2	3
PCTransf(-1)	0.5462***	0.5538***	0.5315***
	(10.461)	(11.225)	(8.133)
Election Year	0.6104***	0.5391***	
	(8.226)	(7.683)	
Aligned	0.2006		0.1037
	(0.792)		(1.269)
Swing		-0.3254***	-0.2905***
		(-4.391)	(-4.552)
ElecYear*Aligned	0.1042		
	(0.681)		
ElecYear*Unaligned	0.2723		
	(1.100)		
ElecYear*Swing		-0.1008***	
		(-4.162)	
ElecYear*Non-Swing		0.0372	
		(0.427)	
Aligned*Swing			-0.1072**
			(-2.345)
Unaligned*Swing			-0.0343**
			(-2.126)
Aligned*Non-Swing			0.0735
			(1.236)
Unaligned*Non-Swing			0.1012
			(0.693)
%CHD(-1)	0.0621***	0.0556***	0.0527***
	(10.254)	(10.687)	(10.218)
%ELD(-1)	-0.3082**	-0.2431**	-0.2813***
	(-2.837)	(-3.774)	(-4.175)
GDPGR(-1)	0.2013***	0.2082***	0.1206**
	(5.136)	(5.204)	(6.118)
Trend	0.3194***	0.2516***	0.3027***
	(6.107)	(5.322)	(4.043)
Trend Square	0.0631**	0.0522**	0.0505***
	(6.312)	(6.459)	(6.653)

AR(1)	-4.523	-4.371	-4.857
AR(2)	0.877	0.897	0.819
Sargan (P-Value)	0.354	0.358	0.358
No. of Observation	3835	3835	3835
No. of Districts	260	260	260

Notes.

- System GMM estimation of linear models for panel data which combines levels and first differences equation by using STATA 14 econometric software;
- two-step results using robust standard errors corrected for finite samples;
- T-statistics are in parentheses;
- Significance level for which the null hypothesis is rejected: ***, 1%; ** 5%; * 10%.

The empirical evidence fails to support the Cox and McCubbin's (1986) assertion that politicians favour their supporters in resource distribution, as the political alignment (PAL) variable is not statistically significant but correctly signed. To ascertain, if the political budget cycles favour politically aligned districts or not, the empirical evidence suggests the contrary in the sense that neither of the aligned groups is supported with more transfers. This is seen in the statistically insignificant results of the interaction variable between election year and political alignment (ELYDum*PAL), as well as, election year and political unaligned, ELYDum*(1-PAL). This evidence is corroborated by Dahlberg and Johnsson (2002) for Sweden and Veiga and Pinho (2007) for Portugal. Column 2 of Table 2, presents the estimation for the case of swing and non-swing districts in relation to transfers during election years. In this case, there is also an evidence of PBCs, and this is shown by the statistical significance of the election year dummy variable. From the result, transfers *per capita* during election years increased by GhȻ0.67. This amount represents an increase of 8.9 percent compared to the sample average of GhȻ7.54 in non-election years.

To determine which class of swing districts is favoured in the transfer process, the result reveals that swing districts are given more support than non-swing districts. The results show statistically significant and negative coefficient of the political swing dummy (PSW) variable as expected. This implies that swing districts are tactically targeted in the transfer process in order to improve electoral fortunes. The negative relationship between the transfers and the swing districts suggests that as such districts are targeted with higher than average transfers; their total number reduces. This reduction favours the incumbent governments as it is more likely to produce an increase in goodwill votes from those preferentially treated swing districts. Other thing being constant, it is expected that transfers would increase by GhȻ0.32 *per capita* for a one swing district reduction. This is equivalent to 4.3 percent increase relative to the average disbursement of GhȻ7.54. This evidence confirms Dixit and Londregan (1995) proposition that political players tend to target swing voters to increase their votes in elections. The results also show that the interaction between election years dummy and political swing

(ELYDum*PSW) is statistically significant and negative. This implies that the increase in transfers during election years goes to support swing districts in order to win more votes. This evidence can be attributed to the rampant changes to the formula with the major ones happening in election years.

Column 3 in Table 3 provides estimates for six political characteristics of the districts that may affect the distribution. From the result, three out of the six political variables are statistically significant while the other three are not. The aligned variable is not statistically significant but it has the expected positive sign. However, the coefficient estimate of the swing variable is significant and negative as expected. The implication of this outcome is that transfers increase by GhȻ0.29 for one swing district fall, and this amount represents about 3.8 percent increase over the average transfer to the districts relative to non-swing districts. Given that this tactical distribution of transfer exists, the study proceeds to examine whether there is a swing effect in the distribution or not. This is carried out by interaction of swing dummy variables with politically aligned and unaligned variables. The results show that both interaction variables are statistically significant and negatively signed, implying that the negative swing effect dominates the positive alignment effect.

However, the magnitude of change in aligned-swing (PAL*PSW) districts exceed that of unaligned-swing (1-PAL)*PSW districts. The estimates show that the former changes by 1.42 percent while the latter changes by 0.45 percent. This suggests that swing effects dominate the allocations. The results also indicate that the interaction between non-swing and aligned districts, as well as, non-swing and unaligned districts are statistically insignificant, meaning the finding does not provide any evidence for preferential treatment of aligned non-swing districts and unaligned non-swing districts.

As regards the vector of control variables, the estimated signs are the same for the three models as shown in Table 2. The demographic control variables show that the estimates of proportion of young people below age 15 is statistically significant and positive as expected. However, percentage of the elderly above 65 years is statistically significant and negative contrary to expectation. This suggests that the transfers to the districts favour larger group of younger population and do not support the smaller, aging groups of the districts. This may be partially ascribed to the announced objectives of these transfers of which many are connected to ensuring free basic education and child health at the districts and the benefit of scale economies. The economic control variable which is the growth rate of GDP is included in the model to capture the macroeconomic performance of the country. The results show that it has the expected positive sign and is statistically significant. This implies that as the economy improves, it impacts on the amount of tax revenue that accrues to the nation, hence the statutory deduction that goes into the DACF also increase. Concerning the time trend variables which control for the passage of time, the coefficient estimates of both *Trend* and *Trendsqr* variables are statistically significant and positive. This means that the transfers are not only increasing over time but also growing at an increasing rate.

5.3 The Estimates over Time: New versus Mature Democracy

Table 3 presents the empirical findings on effects of political factors on the transfers as democracy moves from new to mature. The new democracy period ranges from 1994 to 2004, while the mature democracy covers 2005 to 2014. Column 1 of Table 3 gives the results of how politically aligned and unaligned districts have evolved over time in regard to the transfers. The results indicate that in the new democracy, the incumbent government allocates more transfers to aligned districts while in the mature democracy, more transfers go to unaligned districts. This evidence is shown by the statistical significance of the coefficient estimates of the interaction between aligned districts and new democracy (Aligned*NewDem) and unaligned districts and mature democracy (Unaligned*MatDem). In comparison with estimates in column 2 of Table 3, the results show that swing districts are favoured with more transfers in the mature democracy.

This outcome suggests that in the new democracy, voters' loyalty is rewarded as there may be lower transparency in the allocation processes coupled with inexperience of both politicians and voters. However, in the mature democracy period, politicians and voters become wiser and could easily denounce their allegiance to any party. In this case, the incumbent government undertakes tactical targeting of transfers to swing districts in order to increase votes. In view of the targeted transfers, the results show that relatively higher amount is given to the swing districts than the aligned districts. All other things being equal, the swing districts are expected to receive GhȻ0.25 *per capita*, while the aligned districts receive GhȻ0.19 *per capita*, reflecting 3.3 percent and 2.5 percent respectively over the average transfer amount of GhȻ 7.54 *per capita*.

Table 3. Estimates over Time: New versus Established Democracy (1994- 2018)

	1	**2**	**3**
PCTransf(-1)	0.7013***(10.215)	0.6924*** (10.106)	0.6811*** (10.315)
Aligned	0.2034***(2.835)		0.1932*** (5.246)
Swing		-0.2514** (-4.162)	-0.2921 (-1.803)
NewDem	0.3147 (4.966)	0.3247 (4.353)	0.2915 (1.325)
MatDem	0.1142 (1.357)	0.2013 (1.293)	0.1611 (1.337)
Aligned*NewDem	0.1506***(2.357)		0.2256** (2.463)
Unaligned*NewDem	-0.1206		-0.1326

	(-1.2043)		(-1.316)
Aligned*MatDem	0.2501		0.2115
	(2.041)		(2.103)
Unaligned*MatDem	-0.1035**		-0.2504
	(-3.128)		(1.417)
Swing*NewDem		-0.1051	-0.8273
		(0.125)	(1.051)
NonSwing*NewDem		0.3227	0.3158
		(0.529)	(0.537)
Swing*MatDem		-0.3252**	-0.3167***
		(0.713)	(-2.829)
NonSwing*MatDem		0.1125	0.0822**
		(2.016)	(3.115)
%CHD(-1)	0.2031**(3.108)	0.2101**	0.2007**
		(2.225)	(2.106)
%ELD(-1)	-0.1025**	-0.1261**	-0.0912**
	(-3.155)	(-3.205)	(-3.116)
GDPGR(-1)	0.0514***(5.165)	0.0623***	0.0405**
		(5.145)	(5.207)
Trend	0.3167***(5.147)	0.4243***(5.132)	0.4142***
			(5.081)
Trend Square	0.0447**	0.0358***	0.0356**
	(4.613)	(4.335)	(4.523)
AR(1)	-5.201	-5.321	-5.335
AR(2)	0.767	0.743	0.704
Sargan (P-Value)	0.511	0.532	0.507
No. of Observation	3835	3835	3835
No. of Districts	260	260	260

Notes.

- System GMM estimation of linear models for panel data which combines levels and first differences equation by using STATA 14 econometric software;
- two-step results using robust standard errors corrected for finite samples;
- T-statistics are in parentheses;
- Significance level for which the null hypothesis is rejected: ***, 1%; ** 5%; * 10%.

This result is similar to that of Brender and Drazen (2005), as well as, Viega and Pinho (2007) whose findings indicate that central governments distribute grants strategically among municipalities run by

mayors with party affiliation with the central government in Portugal during the new democracy period. In Table 3 column 3, the study considers all the possible political factors in terms of swing and aligned that could impact on the transfer process contemporaneously. The estimates reveal that aligned districts receive more transfers since the political alignment variable is positive and significant. This increase however, occurs in the new democracy period with an amount GhȻ0.22 *per capita* representing approximately 3.0 percent over the average transfer. This is shown in the table by the positive statistical significance of the interaction term between the political alignment variable and the new democracy dummy (Aligned*NewDem). The results also presents a case where the interaction between the swing variable and the mature democracy variable (Swing*MatDem), and the interaction of non-swing variable with the mature democracy [(1-Swing)*MatDem] are statistically significant with the expected signs. This again suggests that swing districts are favoured with more transfers in the mature democracy period but unexpectedly, non-swing districts also receive some marginal increase in the same period. This means there is a general increase during mature democracy but the magnitude received by the districts varies and it depends on the characteristics of the recipient district. The swing districts, however, tend to receive the greatest share of the fund.

The empirical findings indicate that swing districts receive GhȻ0.33 *per capita* more representing approximately 4.3 percent increase compared to the average transfer, while the non-swing districts receive about 4.2 percent more relative to the average transfer amount in the mature democracy. Overall, the political influence on the transfers over the democratic period as shown in Table 3 indicates that while there is a seemingly mixed aligned and swing effect over the two periods, the aligned effect dominates in the new democracy and swing effect dominates in the mature democracy. This implies that there is patronage of loyalty in the new democracy due to inexperience of the political players as well as weak institutions to monitor the process. However, in the mature democracy, there is tactical targeting of swing districts to increase vote for re-election by the incumbent governments.

Another possible cause of this is the public doubt in the functioning of new democracies, where citizens have little faith in the survival and efficacy of democracy in delivering good economic outcomes in its budding stages. This perception compels governments to increase transfers to the districts in order to convince the public that there are gains in democracy.

6. Conclusion and Policy Recommendation

To prevent political influence over central to lower level grant transfers, Ghana has developed a sharing formula to ensure fair distribution. As a result, this study uses the District Assemblies' Common Fund (DACF) transfers, which is a formula-based grant scheme that was instituted in 1994 to examine how impervious it is to political manipulations. In particular, this study examines the relationship between the grant transfers and the electoral outcomes and its dynamics as democracy evolved over time since the inception of the fourth republic. The theory of redistributive politics by Dixit and Londregan (1995, 1996) is adopted to develop an empirical framework for the analysis. Using a panel data set of election

results, grant transfers *per capita* to 260 assemblies and controlling for some socioeconomic variables from 1994 to 2018, this study employs the system GMM approach of dynamic linear panel for the empirical estimates.

The findings reveal that there are tactical influences on the sharing formula for political gains in Ghana. In particular, there exists political budget cycle in the allocation mechanism. As such, election years tend to be characterized by higher transfers of about 9.6 percent more, relative to the average transfers of GhȻ7.54. More importantly, the increases in transfers tend to favour swing districts more than aligned ones. The findings further showed that as democracy evolved over time, more transfers were allocated to aligned districts in the new democracy era, while in the mature democracy swing districts received more. Specifically, swing districts received 5 percent more, while aligned districts got 1.8 percent over the average amount. This suggests that incumbent governments were more opportunistic in the mature democracy period. In general, the utilization of the transfers tend to impact more on the younger population below age 15 years whose needs, such as basic education seem to be provided by the districts than elderly ones above 65 years. The study also showed that the transfers to the districts are generally growing at an increasing rate which corresponds with the economic performance of the country.

For purposes of policy, the paper suggests a complete independence of the DACF offices, as it currently seems to be partially under the control of the Presidency (Note 8). Therefore, the law establishing the office should be reviewed to insulate it from the President's control and place it under the directives of the Public Services Commission. In pursuant of this, the administrator of the fund should be appointed by the Commission based on competence. In addition, a team of experts should be set up to come out with the allocation formula in consultation with stakeholders, such as Non-Governmental Organizations (NGOs), Civil Society Organizations (CSOs) and the Metropolitan, Municipal and District Assemblies (MMDAs). There should also be an intermittent revision of the formula for which this study suggests five years intervals after a thorough review of the existing one. This would help capture development changes over time and curtail the rampant changes that have bedeviled the formula. Parliament's oversight responsibility should therefore be focused on aligning the operations of the formula within the legal framework and the fund's distribution should adhere strictly with the established laws.

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Notes

Note 1. Local Government Act, 1993 (Act 463)

Local Government Service Act, 2003 (Act 656)

National Development Planning (system Act) 1994 (Act 480)

District Assembly's Common Fund Act, 2003 (Act 455)

Note 2. Sole-Olle and Sorribas-Navarro (2008), use data from 1993-2003 and find that partisan alignment has a significant effect on the amount of grants received by municipalities in Spain.

Note 3. Khemani (2007) compared two Indian institutions: a politically independent institution (Indian Finance Commission) and a political entity (Indian Planning Commission) in the implementation of fiscal transfer policy based on partisan influence. The result shows that allocation by the political body was in favour of states affiliated to the ruling party, and that among the affiliated states, more resources are devoted to states where the party controlled only a small share of seats in the national parliament (i.e. swing states) rather than to loyal states.

Note 4. Miguel and Zaidi (2003), find evidence in Ghana of targeting core supporters and districts from where the ruling party won all the parliamentary seats. Specifically, in 1998, government spending per pupil in Ghana averaged $23 and was $15 higher in districts that had voted overwhelmingly for the political party of President Jerry John Rawlings.

Note 5. See Dixit and Londregan (1995, 1996) for a more detailed presentation.

Note 6. *The 1992 Constitution, Article 291 clause 3* "Where Parliament approves the bill, it may only be presented to the President for assent if it was approved at the second and third readings of it in Parliament by the votes of at least two thirds of all the members of Parliament".

Note 7. The district population figures were based on estimates from 1986, 2000 and 2010 population census figures given the annual growth rates of the various districts. The district level election results were derived from summation of constituency results within a given district.

Note 8. The President appoints Administrator of the DACF.

Appendix A

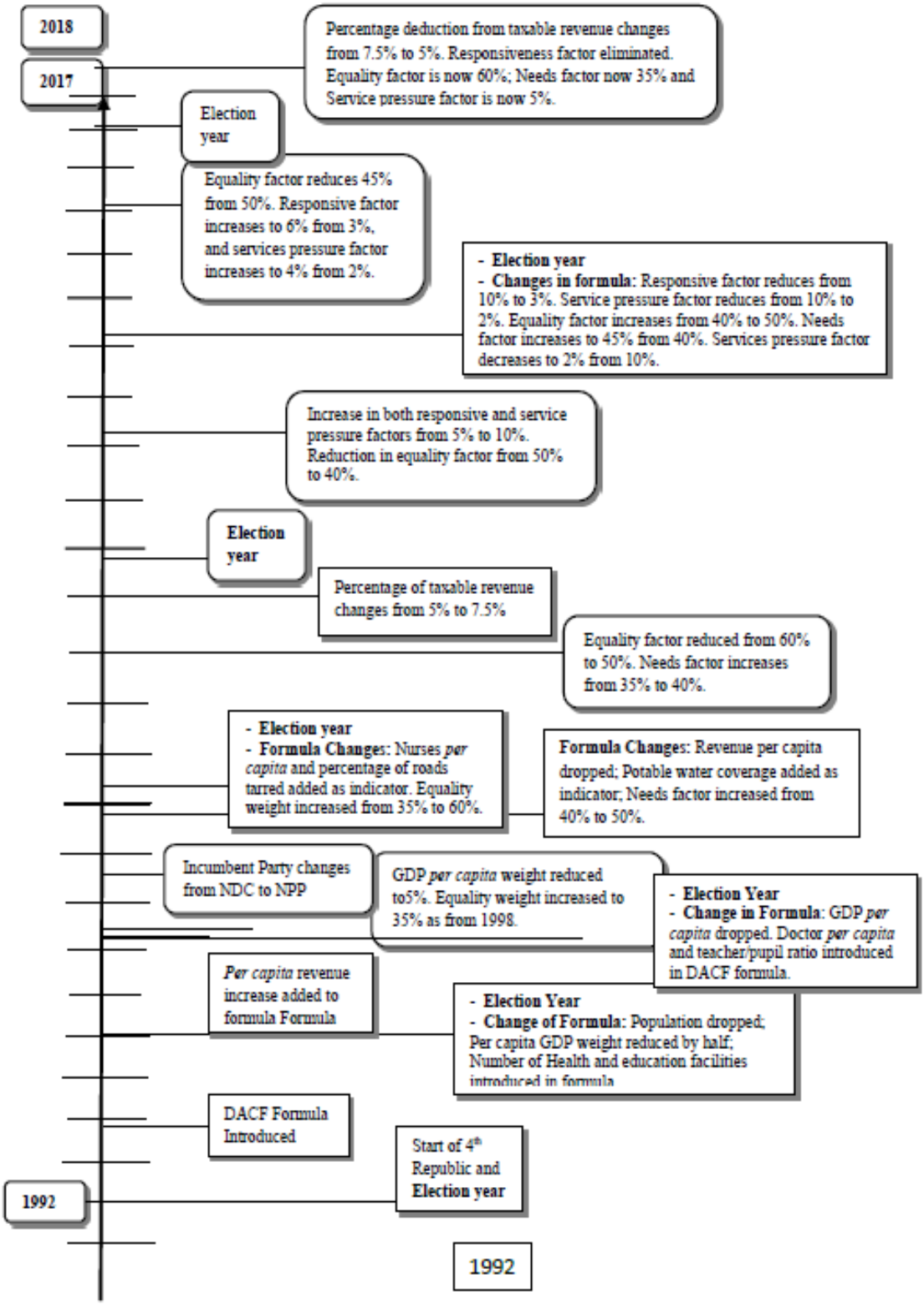

Figure 1. Event Timelines in DACF Administration and Ghana's Politics

Appendix B

Table 1. Annual Releases of the DACF (1992-2014) in Millions of Ghana Cedis (GhȻ)

Year	Amount	% Increase	No. of Districts	% of Taxable Revenue
1994	2.60		110	5
1995	5.40	107.69	110	5
1996	7.80	44.44	110	5
1997	7.90	1.28	110	5
1998	15.53	96.58	110	5
1999	11.24	-27.62	110	5
2000	14.95	33.01	110	5
2001	18.87	26.22	110	5
2002	26.53	40.59	110	5
2003	64.86	144.48	138	5
2004	85.86	32.38	138	5
2005	70.19	-18.25	138	5
2006	139.26	98.26	138	5
2007	173.34	24.56	170	7.5
2008	217.01	25.19	170	7.5
2009	188.57	-13.11	170	7.5
2010	340.40	80.52	170	7.5
2011	392.96	15.44	170	7.5
2012	571.70	45.49	216	7.5
2013	648.13	13.37	216	7.5
2014	772.44	19.18	216	7.5
2015	828.66	7.28	216	7.5
2016	961.25	16.00	260	5
2017	1213.18	26.21	260	5
2018	1463.50	20.63	260	5
Total	**8242.13**			

Source: Compiled by the Authors' from DACF annual reports