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Abstract

While gerrymandering in developing countries is often pushed by local authorities to secure political advantages, fiscal grants systems under decentralization may also have result in the same. We investigate this issue to identify the correlates of the growth in the number of cities in the Philippines in 2001-2010. Using a panel of municipal-level data, incremental fiscal transfers are found to drive cityhood. Also, political payoffs – like the incumbent mayor's re-election or having another member of the same political clan elected to the same position – motivate the creation of new cities. Reforms in the country's fiscal transfer program are suggested.

JEL Codes: H11, H73, H77

Key words: Gerrymandering, fiscal grants, decentralization

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Introduction

Politicians or political parties attempt to redraw administrative boundaries to gain political advantage or to deprive their rival of their own support base. In the US and other developed countries, gerrymandering – which usually involves the splitting up or combining existing electoral districts – often work to the disadvantage of certain political groups, race, linguistic or ethnic minorities, or socio-economic classes. However, not all redistricting is harmful. New jurisdictions may be warranted if the population has grown big enough and that preferences for public goods have become sufficiently heterogeneous. Thus, examining the underlying reason for political subdivisions or consolidations is important for their contrasting policy implications: politically-motivated gerrymandering could worsen rent-seeking and wastage of public resources, whereas economically-motivated gerrymandering could lead to improved provisions of public services and thereby enhance overall welfare.

The issue is particularly pertinent in developing countries that adopted fiscal decentralization. In a devolved setup, local authorities can use their superior knowledge of the diversity of preferences for public services among the local populations and the costs of providing such services to advocate for alternative administrative configurations, which is usually decided by legislative fiat. The same officials, however, may benefit from redistricting since they, their kin or political allies can then run for the newly-created appointive or elective offices. Another possible motivation is that the new district will itself be entitled to revenue shares or fiscal grants from the national government. Possibly then gerrymandering could be an unintended consequence of the fiscal transfer system under decentralization (Khemani, 2009).

There is certainly some evidence in developing countries that the number of political districts grew following significant economic and political reforms, including fiscal

decentralization. In Indonesia the number of provinces grew from 26 to 33 during the period 1999 – 2004, which encompasses the years under decentralization (Firman, 2010; Kimura, 2010). In the late 1990s, some government reformers in Vietnam apparently pushed for the creation of new provinces to overcome opposition from the same ruling party (Malesky, 2009). Following political reforms in Uganda in the late 1980s, the number of districts grew from 39 to 80 in under ten years (Green, 2010). To account for the increase in the number of cities in the Philippines in the last twenty years of decentralization (1991-2010), Diokno (2012) suggested the inequities in the country's principal revenue sharing system on which most local government units (LGUs) depend. We further pursue this hypothesis empirically in this paper.

In particular, we investigate the correlates of city creation (or conversion from municipalities) in the Philippines under decentralization. We fit a Cox proportional hazard model on a panel of municipality-level data for the years 2001-2010. Our estimates suggest that incremental revenue shares indeed trigger city conversion among municipalities.

But conversion entails political and transaction costs as well. It may disenfranchise some groups or threaten the tenure or influence of some politicians. It could be a tedious process, requiring lobbying in the legislature and undertaking a referendum, whose outcome is not certain. Hence, we further examine if electoral incentives drove incumbent municipal mayors to sponsor the transformation of their towns into cities. In the Philippines, as in many developing countries, the mayors and other key elected local officials are dominant in local political affairs (Hutchcroft, 2012). Arguably, they can influence, if not direct, the gerrymandering process. They can initiate it or block it by controlling the local government resources required for the purpose. In other words, the incumbent municipal mayors who oversaw the process of city conversion possibly expected some benefits from it.

To test this claim, we estimate a model of probability of election using a cross-section data of all cities in 2004, 2007 and 2010. In this exercise, we find that the mayors are likely to be re-elected in newly converted cities. Also, we find that members of the same political families are likely to be elected in new cities in 2010. This provides partial evidence that gerrymandering yields political payoffs.

The rest of the paper is organized as follows. To set the context, the next section provides an overview of the evolution of local government in the Philippines since the passage of the Local Government Code in 1991. A model of decision to convert is developed in the third section, and then followed by the empirical framework. The last two sections present and discuss the results, and a short conclusion.

Evolution of local governments under decentralization

One of the most notable developments in the last 20 years under decentralization is the growth in the number of cities (Diokno, 2012). To explain this phenomenon, several reasons have been cited including the fiscal inequities between cities and municipalities. This section reprises these observations and explanations to set the context for the formal modelling and empirical analysis of the conversion of municipalities into cities in the next two sections.

Table 1 presents the number of administrative regions and sub-national governments in the Philippines during the period 1990-2010. Indeed, the most striking outcome in this period is the doubling of the number of cities, from 60 in 1990 to 122 in 2010. Sixteen new cities were added to the list in 2011 when the Supreme Court affirmed their status. Of the 78 new cities in all, 42 attained their new status only in 2000-2011. Of the new cities, 41 were previously classified as municipalities. The creation of new cities is partly justified by the 32-percent growth in

population over the same period. Perhaps the same population pressure led to the creation of two new regions and seven new provinces over the last two decades. While there were also 29 additional congressional districts created between 2000 and 2010, the growth in the number of cities is the more notable gerrymandering observation under decentralization.[1]

[Insert Table 1 here.]

An oft-cited reason for the rush to cityhood is the fiscal inequities under decentralization. This can be inferred from Figure 1 that shows the percentage distribution of the internal revenue allotment (IRA) and the costs of devolved functions (CODEF). Comprising the single, most-important fiscal transfers to local government units (LGUs), the IRA is apportioned as follows: 20 percent to provinces, 23 percent to cities, 34 percent to municipalities, and 20 percent to *barangays* (villages). In contrast, the CODEF – estimated to be around seven billion pesos based on the 1990 budget of the national government on the devolved functions – is inequitably distributed towards the provinces (46%) and municipalities (47%) (World Bank, 1994). The heavier burden assigned to the provinces is more evident for the devolved health functions, which comprise the bulk of devolved expenditure responsibilities in 1992. The devolved health functions included most government hospitals and around 45,900 health personnel then with the Department of Health, which allotted nearly four billion of its 1990 budget on these devolved functions. These constitute a significant portion of recurring expenditures provinces and municipalities since 1992.

[Insert Figure 1 here.]

To secure financing for their additional expenditure obligations, municipalities attempted several ways to raise revenues. For many of these municipalities, however, cityhood seemed to be the most tenable and gainful option. The reason is that there are far fewer cities sharing in

their 23-percent IRA share than the 1500-odd municipalities sharing in their 34-percent IRA share. As shown in Figure 2, for the period 2000-2010 the average annual total revenues (in real per capita terms) of cities are nearly twice as much as that of municipalities. Moreover, the cities consistently generate more local revenues (i.e., excluding IRA) than municipalities earn from combined local and external sources (i.e., including IRA and other grants).

Despite the cities' greater revenue potentials, their incomes from real property taxes, fees and charges and other incomes from local sources constitute only about half of their total incomes. A handy explanation for this is that the cities, with their large IRAs, are less compelled to raise more funds for their programs and projects.

Figure 2 shows that municipalities are also dependent on their IRA. Of the ten pesos per capita that municipalities raise in annual revenues on the average, less than three pesos come from local sources. Unlike the cities', however, their IRA dependency is due both to their inability and reluctance to tap local sources. Whereas IRA shares are fixed by law and released automatically to LGUs, raising revenues real property taxes, fees and charges has significant transactional and political costs. For many municipalities then the incentive is to secure higher IRA shares, possibly through cityhood.

[Insert Figure 2 here.]

Municipalities that pined for city status however must consider several factors. In particular, there are institutional and procedural requirements for cityhood. Both an Act of Congress and the approval of the majority of the local residents are needed before a group of barangays, a municipality or a group of municipalities can be declared a city (Table 2). Additionally, the jurisdiction must have earned at least 20 million pesos (in 1991 prices) for the two succeeding years, a minimum of 150,000 inhabitants, and occupies a contiguous area of 100 square

kilometers. Also, they must prepare to become either a component or an independent city. Unlike component cities, independent cities (also called independent component cities) have charters that prohibit their inhabitants in voting for provincial elective officials. Some cities are classified as both independent and highly urbanized if their annual income for two succeeding years is not less than 50 million pesos (in 1991 prices) and their population is not less than 200,000.

[Insert Table 2 here.]

Independent cities and highly urbanized cities are autonomous. Therefore, they cannot expect the usual transfers and other assistance from the provincial government to which they belong geographically. They are mandated to perform the same roles and expenditure responsibilities of ordinary municipalities and component cities, and of provincial governments. In contrast, municipalities and component cities are only responsible for the basic, frontline services not assigned to provinces. These include agricultural extension services, community-based forestry services, health and social welfare services, solid waste disposal system, investment and job placement services, municipal- and barangay-level infrastructures (parks, roads and bridges), and public markets and slaughterhouses.

One advantage of a city has over a municipality is its greater revenue-raising powers, which explains the relatively higher local revenues of cities. In particular, cities are allowed to impose taxes, fees and charges that provinces and municipalities may levy (Table 2). They may also impose higher tax rates (albeit with a cap). In comparison, municipalities share in their provincial government's tax collections on real property, quarry resources (e.g., sand and gravel), and professional and amusement services. For most local governments, the bulk of their local revenues comes from real property taxes. The municipalities only get to keep their incomes from business taxes, charges on licensing of weights and measures, fishery rentals and other special

fees and charges. Thus, the municipalities that aspire to cityhood must then expect the incremental IRA shares to be adequate for the additional expenditure obligations.

However, the aspiring municipalities must also expect opposition from existing cities whose IRA shares will inevitably diminish. Recent events illustrate how serious can the contention be between the new and old cities. Following the creation of 16 new cities by Congress in 2006, the League of Cities of the Philippines, representing the then existing cities, questioned before the Supreme Court the constitutionality of "cityhood laws" for failure of the 16 municipalities the income requirements. In 2008, the Supreme Court declared the 16 "cityhood laws" as unconstitutional. The Court even affirmed its decision when it denied two later motions for reconsideration. In 2011, however, the Court reversed itself and effectively declared legal the city status of the same 16 towns. This episode only shows how protective LGUs are over their IRA entitlements, and the difficulties in reforming the country's principal intergovernmental fiscal transfers scheme (Hutchcroft, 2012).

For some towns, the resulting fiscal benefits to their inhabitants are sufficient to confront the stiff opposition of established cities. For some town mayors, there could also be personal gains from city conversion. One such political payoff could be electoral success for them, their kin or political allies. Figure 3 shows that a significant number of the mayors elected in the May 2010 elections were either the same incumbent mayors or related by consanguinity or affinity to the mayors that oversaw the transition to cityhood. In 2007, for example, 12 of the mayors in the 16 new cities belong to the same political families as the mayor that oversaw the transformation. Of the 14 new cities in 1999, five of them still had the same ruling families in 2010. This trend is perhaps understandable. Given that cityhood is a long, uncertain process that requires the initiative, time and effort on the incumbent mayor and that local elected officials face a legal

limit of three consecutive three-year terms in the same office, a mayor who expects a political clan member to succeed her then in a way is justified for her efforts.

[Insert Figure 3 here.]

A model of decision to convert

Following previous studies that stressed the dominant role of local chief executives (mayors and governors) on the local fiscal affairs (e.g., Solon, Fabella and Capuno, 2009; Lacaba, 1995; Lande, 1965), we model the decision to convert from the point of view of the incumbent municipal mayor. We assume that the mayor is motivated to convert her municipality into a city to obtain greater fiscal transfers from the national government, from which she derives rents from office. To convert to city, however, would be costly since she has to convince the voters and political oppositionists and then find a sponsor in Congress, all of which make the outcome uncertain. Moreover, the cost of providing public services is greater for cities than for municipalities because of higher prices and greater expenditure responsibilities. Hence, the incumbent will exert effort only to the extent she can influence the outcome and that the expected fiscal gains (including rents) are adequate.

Formally, let W be the utility of the mayor defined over current rents under municipal classification (R_M) and the expected value of the incremental rents under city classification (R_C), i.e.,

$$W = R_M(1 + \delta) + \pi(e)\delta(R_C - R_M) - e, \qquad (1)$$

where π is the probability of conversion to city, δ is the discount factor and e is the effort level (including personal or family resources she has). We assume further that, $0 \leq \pi, \delta \leq 1$, $\pi' > 0$, $\pi'' < 0$ and $\pi(0)=0$. Clearly, when the incumbent does not exert any effort ($e=0$), then she gets the default rent (R_M) in the first period and the discounted value of the same in the second period (δR_M). If she is successful, then she gets the same total rents ($R_M(1+\delta)$) plus the additional discounted incremental rents from being a city ($\delta(R_C - R_M)$), but net of the cost of her efforts (e). For somebody with low discount factor ($\delta \approx 0$), however, high incremental rents may not provide enough incentives to exert effort to convert to city. The rents are limited by the following budget constraints under municipal and city classifications, respectively:

$$I_M = G_M + R_M \qquad (2')$$
$$I_C = G_C + R_M \qquad (2'')$$

where I_j is the exogenous income of the jth LGU level, G_j is the cost of providing public services in the jth LGU level, and the j stands for municipality (M) or city (C). Further, we assume that G_j corresponds to the legally admissible or institutionally set minimum spending. If the total spending falls below G_j, then the incumbent will face legal or administrative sanction. For simplicity, let the exogenous income be equal to the fiscal transfers from the national government. To provide the incentives for conversion, we also assume that

$$(I_C - I_M) > (G_C - G_M) > 0.$$

That is, the incremental revenues are positive and greater than the incremental costs of public provisions. Consequently, there are additional rents to be generated once converted. Substituting (2') and (2'') in (1) yields

$$W = (I_M - G_M)(1 + \delta) + \pi(e)\delta\big((I_C - G_C) - (I_M - G_M)\big) - e. \qquad (3)$$

The incumbent maximizes (3) by choosing her effort level (e). The necessary condition for a maximum is:

$$W_e = \pi'\delta\big((I_C - G_C) - (I_M - G_M)\big) - 1 = 0. \qquad (4)$$

Define $\Delta I = (I_C - I_M)$ and $\Delta G = (G_C - G_M)$. We can then rewrite (4) as

$$\pi'\delta(\Delta I - \Delta G) = 1.$$

The left-hand side of the previous equation is the discounted expected value of the net fiscal gain (or rents) from conversion, and the right-hand side is the marginal cost of the conversion to the incumbent. The optimal effort level (e^*) balances the two, and it is going to be a function of net fiscal gains and discount factor, i.e.,

$$e^* = e(\Delta I, \Delta G, \delta).$$

Plugging the optimal effort level in the probability function yields $\pi(e^*)=p(\Delta I, \Delta G, \delta)$. Differentiating the resulting probability function yields three main testable hypotheses. Namely, the probability of conversion is higher the greater the incremental transfer ($\partial\pi/\partial\Delta I>0$) or the lower the incremental costs of public provision ($\partial\pi/\partial\Delta G<0$), other things being constant and provided that $\delta>0$. If $\delta=0$, then incumbent will simply take all the rents that she can appropriate under municipality status. The likelihood of conversion also increases with the discount factor (i.e., $\partial\pi/\partial\delta>0$), *ceteris paribus*.

Empirical framework

Estimating equations

We empirically verify the hypotheses derived from the formal model with two sets of estimating equations. The first hypothesis is that the incremental fiscal transfers and expenditure responsibilities influence a municipality's propensity to convert to a city, given the planning horizon of the incumbent mayor. Note that given the IRA formula used, any gains in fiscal transfers from being a new city are going to be a loss to the old cities. Hence, the net gains are likely to be bigger for the first new cities, and will then dwindle as more and more new cities are created. In equilibrium, the marginal municipality could no longer expect to benefit from conversion. Extending the first hypothesis, we therefore expect municipalities to convert sooner than later. Our first estimating equation identifies the correlates of the duration or the length of time that the *i*th municipality stays as such until it converts into a city. In particular, we estimate a Cox proportional hazard model, given as follows:

$$h(t) = h_0(t)\exp(\boldsymbol{X}'\boldsymbol{\beta}), \qquad (5)$$

where $\boldsymbol{X}$ is a vector of covariates, $\boldsymbol{\beta}$ is the vector of associated regression coefficients, $h_o(t)$ is the baseline hazard, and t is time. The marginal effect of a unit change in, say, x_j on the baseline hazard is derived as:

$$\frac{\partial h(t)}{\partial x_j} = h_0(t)\exp(\boldsymbol{X}'\boldsymbol{\beta})\beta_j = \beta_j h(t).$$

The implicit assumption in equation (5) is that none of the regressors vary through time, although they may vary across cross-section units. Possibly this assumption is too restrictive for the purpose of the paper since some municipal characteristics that determine their conversion to cities, like population and income, also change through time. To allow for time-varying covariates, equation (5) is then redefined as follows:

$$h(t) = h_0(t)\exp\{\beta_1 X_1 + \cdots + \beta_k X_k + g(t)(\gamma_1 z_1 + \cdots + \gamma_m z_m)\}, \qquad (6)$$

where (z_1, z_2, ..., z_m) are the time varying covariates. In (6), the effect on $h(t)$ of a unit change in, say, z_i, is estimated in two steps: the first is $\gamma_i g(t)$, which then in turn affects exp{...}. For these proportional hazard models, we report the estimated hazard ratios (Cleves et al., 2010).

The second hypothesis is that a municipal mayor at the time of the conversion is more likely to support the cityhood process the greater is her expected payoffs. The payoffs may manifest in many forms, including her re-election or the election of her kin to the same office. To capture this notion, we estimate a binary outcome model to account for the effects of the newly acquired city status on the likelihood of electoral success of the incumbent mayor or that of her chosen

successor. Let *E* be a measure of election outcome with a value of 1 if the candidate is elected and with probability *p* and 0 if not elected with probability 1-*p*, i.e.,

$$E = \begin{cases} 1 & \text{with probability } p \\ 0 & \text{with probability } 1-p. \end{cases}$$

Further, assume that the probability of the election outcome for the *i*th mayor-candidate depends on vectors of covariates $\boldsymbol{X}$ and parameters $\boldsymbol{\beta}$ as follows:

$$p_i \equiv Pr(E_i = 1|\boldsymbol{X}) = F\left(\boldsymbol{X}_i'\boldsymbol{\beta}\right), \qquad (7)$$

where *F* (.) is a conditional probability distribution function. First specifying *F*(.) to be the cumulative distribution function (cdf) of the logistic distribution, we then estimated a panel-data, fixed-effects logit model to test whether the successful mayoral candidates in the election years 2004, 2007 and 2010 are more likely to come from newly converted cities. Alternatively, we also specified *F*(.) to be a standard normal cdf to estimate a probit model of the likelihood of an elected mayor in 2010 to be the same or related (by blood or marriage) to the mayor at the time of city conversion. For the logit and probit models, we report the estimated odds ratios and marginal effects, respectively (Cameron and Triverdi, 2005). Equations (5), (6) and (7) are fitted to the data using STATA.

Data

We assembled a panel dataset comprising all municipalities and cities for the years 2001-2010. The dataset includes fiscal variables, demographic variables, and socioeconomic and

political indicators. The information is obtained from various official sources including the Bureau of Local Government Finance, National Statistical Coordination Board, National Statistics Office, and the Commission on Elections.

From this big dataset, we construct three sets of regression samples. Comprising around 13,800 observations, the first set of regression samples is used in the estimation of the Cox proportional hazard models to identify the correlates of city conversion among municipalities during the 2001-2010 period. Comprising 131 observations, the second set of regression samples is limited to the old and new cities in existence in the election years 2004, 2007 and 2010. We fit a panel-data, fixed-effect logit model to this dataset. Comprising 40 observations, our final set of regression samples used to estimate the probit model comprises the 40 cities that attained their new status only during the period 2001-2010.

Regression variables

Table 3 shows the definitions of the first set of regression variables and their summary statistics for the 13,848 observations (municipalities only). Our indicator of the additional fiscal transfers that a municipality can expect once it becomes a city is *incremental IRA*, which is defined as the difference between the average IRA of all existing cities and the municipality's own IRA, in real per capita. The mean value for this indicator is -171 pesos (approximately US$4), which implies that for some municipalities the conversion will lead to fiscal losses. As a proxy for the additional costs of providing city services, we use *population density*, defined here as the number of population per hectare within the local government's jurisdiction. To capture possible non-linear effects, we also use the squared value of population density. The average population density is around 4 persons per hectare. The mayor's planning horizon is measured here with the variable *last term*, which indicates whether or not the incumbent mayor is on her

third consecutive term in the same office (which bars her then from running for re-election). About 20 percent of the samples faces term limit.

[Insert Table 3 here.]

The sample municipalities are further differentiated by the memberships in political clans of their mayors and district representatives to Congress, which are found to be critical features of local politics in the Philippines (Solon, Fabella and Capuno 2009; De Dios, 2007; Lande, 1965). Thus, the variable *mayor belongs to political a clan* takes on a value of 1 if the incumbent mayor is related by consanguinity or affinity to another incumbent or previous mayor in the province or to an incumbent or previous congressperson, and 0 if not.[3] About 24 percent of the mayors belongs to political clans. An incumbent mayor facing a term limit may still benefit from city conversion if her clan members succeed him or her in the same office. Basically the same idea is behind *congressperson belongs to a political clan,* which takes on a value of 1 if any of the elected district representatives from the province is related by consanguinity or affinity to another incumbent or previous mayor in the province or to an incumbent or previous congressperson also from the same province, and 0 if not. Around half of the congressperson belongs to political clans. Note that representatives to Congress are elected by districts, which may include one or more cities or municipalities in many places in the country. In a big city like those in National Capital Region (i.e., Metro Manila), however, there could be one or more congressional districts within its jurisdiction.

To account for the initial fiscal capacity for public provisions, the LGUs are further classified according to their level of socioeconomic development. As a proxy measure, we introduce *high income class,* which takes on a value of 1 if the LGU belongs to the 1st income or 2nd class[2] and 0 if not. Around 26 percent of the LGUs belong to these income classes. Given the

gross differences between the LGUs in the National Capital Region (i.e., Metro Manila) and those outside NCR, we also use a binary indicator *National Capital Region*, which takes on a value of 1 if the LGU is among the 17 in the National Capital Region (NCR) 0 if not. Less than a percent of the observations belongs to this region.

Table 4 and Table 5 present the definitions and summary statistics of the regression variables used in the logit and probit models, respectively. Many of the variables in these tables have the same definitions as those in Table 3. The new variables in Table 4 are binary indicators of the re-election status of the mayor (*mayor is re-elected*); whether the city just attained its new status in the years immediately preceding the election years 2004, 2007 or 2010 (*new city* (*before election*)); and dummy variables for the last two election years (*year 2007* and *year 2010*). For this dataset, around half of the observations had mayors re-elected and around 10 percent were new cities.

[Insert Table 4 and Table 5 here.]

In Table 5, the four new variables are *mayor in 2010 is related to mayor at conversion*, *new city (2005-2010), Luzon* and *Visayas.* The first variable equals 1 if the incumbent mayor in 2010 is the same or related to the mayor at the time of conversion to city and 0 if not. About 60 percent of the samples had mayors who were related to previous mayors who oversaw the cityhood. The second variable equals 1 if the new city just converted in 2005-2010 and 0 if not. Around half of the new cities in the period of study (2001-2010) attained their status just in the last five years. The variables *Luzon* and *Visayas* are binary indicators of geographical locations of the new cities. Around 43 percent of the new cities are located in the country's main island group of Luzon (but outside the National Capital Region), while around 28 percent are found in the country's middle part (the Visayas).

Analysis of results

Factors that influence a municipality's conversion into a city

Table 6 presents the results of the six Cox proportional hazard models estimated. The effects of the regressors on the hazard of city conversion are reported as estimated hazard ratios. Models 1, 2 and 3 assume that there are no time-varying covariates, while last three models allow for such. In Model 1, we find that the variables incremental IRA, last term, mayor belongs to a political clan and National Capital Region each has a hazard ratio that is greater than 1 and statistically significant, which implies that each factor independently increases the likelihood of city conversion (i.e., "hazard" of cityhood). The variable population density by itself has no statistically significant effect, while its squared term (population density squared) has a hazard ratio of 0.9999 which means that a further increase in population density slightly reduces the baseline hazard rate of cityhood.

In contrast to Model 1, Model 2 allows for an interaction between the variable last term and mayor belongs to a political clan to capture the notion that mayors who face term limits may still see benefits in cityhood if they expect that other clan members might succeed them in office. The results are qualitatively similar to those in Model 1. However, the interaction term is not statistically significant, which suggest that these two variables have no joint effects on the hazard of cityhood.

In Model 3, we also interacted last term with incremental IRA, population density and population density squared to see whether the effects of the latter variables are muted or magnified by the incumbent mayor's term limit status. The significant new results here is that last term and population density squared are no longer statistically significant. However,

incremental IRA, mayor belongs to a political clan and National Capital Region remains statistically significant, positive covariates of cityhood.

Analogous to the first three models, Models 4, 5 and 6 allow for incremental IRA, population density and population density squared to change through time. The results of Models 4 and 5 are qualitatively similar to those of Models 1 and 2. In Model 6, however, only mayor belongs to a political clan remains statistically significant, while incremental IRA does not. Considering all the results so far, political motives (as captured by the mayor's clan membership) consistently and positively influence the probability of cityhood.

As shown in the bottom of Table 5, each of the six models performs reasonably well in accounting for the city conversions. The highly significant Wald χ^2 test statistics indicate that null hypothesis that the regressors are jointly equal to zero can be rejected.

[Insert Table 6 here.]

Effects on mayor's re-election

Table 7 shows the estimates of the effects of cityhood and other factors on the re-election of mayors. The first column of results show the estimates of the odds ratios for the panel data comprising all 50 old and new cities in the election years 2004, 2007 and 2010, with then incumbent mayors not yet facing term limits. For these cities, we find that the odds ratio for new cities (before election) is positive (3.8489) and significant (at the 10% level). This result implies that mayors who presided over the city conversion are immediately "rewarded" with a new term of office. The other statistically significant regressors are population density (0.6452), year 2007 (4. 0289) and year 2010 (7.7751). The LR χ^2 test statistic also indicates that the regressors are likely to be jointly different from zero.

The last column of Table 7 presents the estimated marginal effects of new city status and other factors on the likelihood of the incumbent mayor in 2010 in the 40 newly converted cities to be the same mayor or related by blood or marriage to the mayor who presided the cityhood. The key variable here is new city (2005-2010), which shows positive and statistically significant marginal effects (1.0653). This is consistent with the previous finding that mayors who pushed for cityhood immediately realize the expected political payoffs. Another interesting finding here is that mayors who belong to political clan are also more likely to have one of their kin among the elected mayors in 2010. This particular result implies that clan membership enables the incumbent mayors to internalize the future benefits of cityhood. Overall, the probit model does reasonably well: the pseudo R^2 is about 0.61 and the Wald χ^2 test statistic implies that the covariates are likely to be jointly different from zero.

[Insert Table 7 here.]

Discussion and conclusion

In sum, we find some evidence that municipalities convert to cities because of the possible incremental fiscal transfers, while population pressure (as an indicator of incremental costs) has only negligible independent effects. The first result lends support to the claim that the inequities in the country's most important fiscal transfer program (IRA) accounts for the huge increase in the number of cities at least since 2001. That population pressure shows no big influence on cityhood can be partly explained by the fact that it is also highly correlated with IRA, which is partly based on population and land area. As such, population density then is a better measure of the current cost of service provision than of the incremental costs of due to cityhood.

Arguably, the case of the San Jose del Monte City in Bulacan province is a good example of a municipality that faced population pressure. According to figures from the National Statistics Office and National Statistical Coordination Board, its population at the time of its conversion to city in 2000 was about 316,000, more than double its population in 1990. One reason for the big increase in the number of inhabitants is that the national government transferred to it many squatter families from Quezon City and other parts of Metro Manila. The relocation of squatter families in San Jose del Monte continued after it became a city, which again helps explain the additional 115,000 residents in 2007. So in this case, the rise in population density is the trigger to cityhood as a coping mechanism for the increased demand for local public services.

Interestingly, we also find that political motives drive city conversion. Interestingly, municipalities with mayors facing term limit are apparently more likely to convert to cities. This seemingly odd result can be explained by the recent jurisprudence that defined a city that converted from a municipality to be essentially a different local government unit from the latter. Consequently, the municipal mayor facing a term limit can immediately run as mayor in the newly converted city, although the two LGUs are essentially the same political-administrative jurisdictions. Thus, for example, the mayor of the Municipality of Mabalacat, who served for three consecutive terms, was allowed to run as mayor immediately when the town became a city. Hence, cityhood effectively extends the term limits for mayors. Our results also show that re-electionist mayors are more likely to be found in new cities. Further, mayors who oversaw the city conversion are likely to be succeeded by their kin or their clan members in the same office, which then explain as well their drive to spend time, effort and political capital to advocate for cityhood.

In contrast, gerrymandering has no such impact on the re-election of the members of the US House of Representatives (Friedman and Holden, 2009). While the political institutions and culture are clearly different between the Philippines and the US, the differential impact of gerrymandering on the re-election of congressperson and mayors in the Philippines is worth exploring further.

Overall, the results lend support to the claim that the inequities in the distribution of IRA and the costs of devolved functions account for the spate of city conversions in the last twenty years of decentralization in the country. In the words of Khemani (2009), the gerrymandering in the Philippines certainly looks grants-induced. One policy implication of the findings is to introduce fiscal equalization grants or a revision in the IRA to make it based on a per capita basis (Werner, 2012). In this case, the fiscal inequities across local government units are reduced.

Reducing the fiscal inequities to reduce gerrymandering could have a desired effect on the overall fiscal health of the country. One of the challenges under decentralization is the management of the fiscal debt since there are many fiscal decision makers that need to be coordinated for an effective macroeconomic management. While the size of the public debt does seen to worsen under fiscal decentralization in the member countries of the European Union (Horváthová, 2012), this issue need to be explored as well in developing countries where institutional and political conditions are different. In the Philippines, for example, it has been observed that pork barrels funds are distributed to local allies of national leaders (Hutchcroft, 2012).

Thus, while the fiscal and demographic factors motivate conversion, the political incentives cannot be discounted as well. The results underscore the role of membership in local dynasties as a factor for cityhood. The policy implication is that so long as cityhood remains the initiative of

the local authorities, some conversions will only entrench vested interests and more rent seeking. Alternatively, a periodic and objective assessment of readiness of municipalities to become cities will help ensure improved welfare of the local residents.

Endnotes

1. Some of the new congressional districts are located in the new cities.
2. There are six income class categories used to classify LGUs in the Philippines, with the 1st income class as being the highest and the 6th income class as being the lowest. The LGUs are classified based on their average annual income for the year 2001.
3. "Previous" mayor or congressperson refers to any mayor or congressperson in the past three consecutive terms (i.e., nine consecutive years).
4. In the probit model, the marginal effect of a unit change in, say, x_j is computed as:

$$\frac{\partial p_i}{\partial X_{ij}} = \phi(\boldsymbol{X}'\boldsymbol{\beta})\beta_j, \qquad \text{where} \quad p_i = \Phi\left(\boldsymbol{X}_i'\boldsymbol{\beta}\right),$$

where Φ is the standard normal density function.

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Table 1. Number of regions, provinces, cities, municipalities and barangays in the Philippines, 1990-2010

Administrative units	1990	1995	2000	2005	2010	Increase 1990-2010
Regions[a]	15	16	16	17	17	2
Provinces	73	77	78	79	80	7
Cities	60	65	96	117	138[b]	78
Municipalities	1,537	1,542	1,513	1,501	1,496	-41
Barangays	41,502	41,929	41,943	41,980	42,025	523
Congressional districts[c]			209[d]	212[e]	229	
- in cities					48	
Population (in million)	60.7	68.6	76.5	88.6[f]	92.3	31.6

Source: National Statistics Coordination Board. Data as of 30 Dec. 2010.
[a]16 administrative units and one special regional government for Muslim Mindanao.
[b]Including the 16 new cities declared by the Supreme Court in 2011.
[c] Excluding the seats for winning party list candidates.
[d]2001, [e]2004, [f]2007.

Table 2. Manner of creation, roles, and fiscal powers and responsibilities of municipalities and cities

Aspects	Municipalities	Cities*
Manner of creation	• Act of Congress and subject to majority of local votes in special plebiscite • Minimum annual income=2.5 million pesos (in 1991 prices) for the last 2 consecutive years • Minimum population = 25,000 • Minimum land area = contiguous territory of 50 square kilometers	• Act of Congress and subject to majority of local votes in special plebiscite For component /independent component cities: • Minimum annual income=20 million pesos (in 1991 prices) for the last 2 consecutive years • Minimum population = 150,000 • Minimum land area = contiguous territory of 100 square kilometers For Highly urbanized cities: • Minimum annual income=50 million pesos (in 1991 prices) • Minimum population = 200,000 • Minimum land area = contiguous territory of 100 square kilometers
Role	• General purpose government for the coordination and delivery of basic, regular and direct services	• General purpose government for the coordination and delivery of basic, regular and direct services
Expenditure responsibilities	• Agricultural extension services; community-based forestry services; health services; social welfare services; solid waste disposal system and environmental system; investment and job placement information services; municipal infrastructures, including parks, school building, roads and bridges; municipal enterprises like public markets and slaughterhouses; public cemetery; tourism services; sites for police and fire stations.	• Agricultural extension services; community-based forestry services; health services; social welfare services; solid waste disposal system and environmental system; investment and job placement information services; municipal infrastructures, including parks, school building, roads and bridges; municipal enterprises like public markets and slaughterhouses; public cemetery; tourism services; sites for police and fire stations. • Communication and transportation facilities • Support for education, police and fire services • Other services and facilities of the province
Revenue-raising powers and sources	• Business taxes; fees and charges on licensing of weights and measures; fishery rentals, fees and charges; • Share in the real property tax revenues, taxes on sand, gravel and other quarry resources; professional tax; amusement tax; • Internal revenue allotment and other central government grants	• May levy taxes, fees, and charges which the province of municipality may impose. (The taxes, fees and charges levied and collected by highly urbanized and independent component cities accrue to them. The rates of taxes may exceed the maximum rates allowed for the province or municipality by not more than 50% except the professional and amusement taxes). • Internal revenue allotment and other central government grants

*The inhabitants of independent component cities or highly urbanized cities do not vote for provincial elective officials.
Source: Local Government Code of 1991.

Table 3. Definitions and summary statistics of the variables used in the Cox proportional hazard regressions (*N*=13,848)

Variable name	Definition	Mean	Std. dev.	Min.	Max.
Incremental IRA	Average city internal revenue allotment (IRA) less the municipality's own IRA, real per capita	-170.706	3386.39	-216449	961.38
Population density	Population per hectare	4.182	14.481	0.004	614.923
Population density squared	Square of population per hectare	227.163	6184.481	0.00002	378130
Last term	= 1 if incumbent mayor is on his/her last term in office; 0 otherwise	0.201	0.401	0	1
Mayor belongs to a political clan	= 1 if incumbent mayor is related by blood or marriage to another incumbent or past mayor, provincial governor or congressperson in the province, 0 otherwise	0.243	0.429	0	1
National Capital Region	=1 if municipality is in the National Capital Region, 0 otherwise	0.002	0.045	0	1
High income class	=1 if first or second income class, 0 otherwise	0.255	0.436	0	1
Congressperson belongs to a political clan	=1 if incumbent congressperson is related by blood or marriage to another incumbent or past mayor, provincial governor or congressperson in the province, 0 otherwise	0.509	0.500	0	1

Table 4. Definitions and summary statistics of the variables used in the panel-data logit regressions (*N*=131)

Variable name	Definition	Mean	Std. dev.	Min.	Max.
Mayor re-elected	=1 if incumbent mayor is re-elected in the election year 2004, 2007 or 2010 ; 0 otherwise	0.5191	0.5016	0	1
New city (before election)	=1 if became city before election year; 0 otherwise	0.0992	0.300	0	1
Population density	Population per hectare	24.220	53.772	1.0991	288.521
Population density squared	Square of population per hectare	3455.94	13246.27	1.2079	83244.4
Mayor belongs to a political clan	= 1 if incumbent mayor is related by blood or marriage to another incumbent or past mayor, provincial governor or congressperson in the province, 0 otherwise	0.3893	0.4895	0	1
High income class	=1 if first or second income class, 0 otherwise	0.5267	0.5012	0	1
Congressperson belongs to a political clan	=1 if incumbent congressperson is related by blood or marriage to another incumbent or past mayor, provincial governor or congressperson in the province, 0 otherwise	0.5038	0.5019	0	1
Year 2007	=1 if year is 2007; 0 otherwise	0.3435	0.4767	0	1
Year 2010	=1 if year is 2010; 0 otherwise	0.3359	0/4741	0	1

Table 5. Definitions and summary statistics of the variables used in the probit regression (*N*=40)

Variable name	Definition	Mean	Std. dev.	Min.	Max.
Mayor in 2010 is related to mayor at conversion	=1 if incumbent mayor in 2010 is the same or related to the mayor at the time of conversion to city; 0 otherwise	0.60	0.4961	0	1
New city (2005 - 2010)	=1 if became city during the period 2005 – 2010; 0 otherwise	0.525	0.5057	0	1
Population density	Population per hectare	34.438	67.055	1.300	280.906
Population density squared	Square of population per hectare	5569.952	16504.04	1.690	78908.2
Mayor belongs to a political clan	= 1 if incumbent mayor is related by blood or marriage to another incumbent or past mayor, provincial governor or congressperson in the province, 0 otherwise	0.55	0.5038	0	1
High income class	=1 if first or second income class, 0 otherwise	0.65	0.4830	0	1
Luzon	=1 if city is in Luzon (but outside the National Capital Region); 0 otherwise	0.425	0.5006	0	1
Visayas	=1 if city is in the Visayas; 0 otherwise	0.275	0.4522	0	1

Table 5. Cox regression: Correlates of conversion to cityhood among municipalities

Explanatory variables	Without time-varying covariates			With time-varying covariates[a]		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Hazard ratio	Hazard ratio	Hazard ratio	Hazard ratio	Hazard ratio	Hazard ratio
Incremental IRA	1.0055*	1.0054*	1.0052*	1.0000*	1.0000*	0.9999
	(0.0013)	(0.0013)	(0.0013)	(6.22e-07)	(6.21e-07)	(0.0002)
Population density	1.0149	1.0147	1.0068	1.0000	1.0000	1.0012
	(0.0107)	(0.0108)	(0.0131)	(5.25e-06)	(5.33e-06)	(0.0048)
Population density squared	0.9999**	0.9999**	0.999966	1.0000**	1.0000**	1.0000
	(0.00003)	(0.00003)	(0.000034)	(1.26e-08)	(1.29e-08)	(0.00002)
Last term	1.7184***	2.005***	0.6778	1.7188***	2.0054***	0.6569
	(0.5635)	(0.7769)	(0.6935)	(0.5637)	(0.7771)	(0.6816)
Last term *x* Incremental IRA			1.0016			1.2370
			(0.0021)			(0.6183)
Last term *x* Population density			1.0304			0.0914
			(0.0201)			(0.8839)
Last term *x* Population density squared			0.9999			0.9989
			(0.00007)			(0.0353)
Last term *x* Mayor belongs to a political clan		0.5645	0.7069		0.5646	0.7206
		(0.4545)	(0.5484)		(0.4547)	(0.5600)
Mayor belongs to a political clan	2.1654**	2.434**	2.3080**	2.1655**	2.4340**	2.3016**
	(0.7249)	(0.9059)	(0.8510)	(0.7249)	(0.9058)	(0.8505)
National Capital Region	14.2787**	14.3073**	12.3372***	14.2525**	14.2859**	11.4211
	(16.6579)	(16.8943)	(18.4508)	(16.6362)	(16.878)	(17.379)
High income class	1.1774	1.1626	1.1725	1.1778	1.163	1.1718
	(0.5636)	(0.5595)	(0.5485)	(0.5639)	(0.5598)	(0.5477)
Congressperson belongs to a political clan	0.8372	0.8309	0.8840	0.8372	0.8309	0.8883
	(0.2637)	(0.2612)	(0.2891)	(0.2637)	(0.2612)	(0.2909)
Log pseudolikelihood	-245.83506	-245.60584	-244.08772	-245.83591	-245.60694	-243.95003
Number of observations	13884	13884	13884	13884	13884	13884
Number of subjects	1518	1518	1518	1529	1529	1518
Number of failures	40	40	40	40	40	40
Wald χ^2 statistic	147.86	146.65	177.76	147.84	146.61	244.64
Prob > χ^2	0.000	0.000	0.000	0.000	0.000	0.000

Notes: Figures in parentheses are robust standard errors adjusted for municipal clusters. Cox regression estimation uses Breslow method for ties.

[a]The time-varying covariates are Incremental IRA, Population density and population density squared.

*Significant at the 1% level.

**Significant at the 5% level.

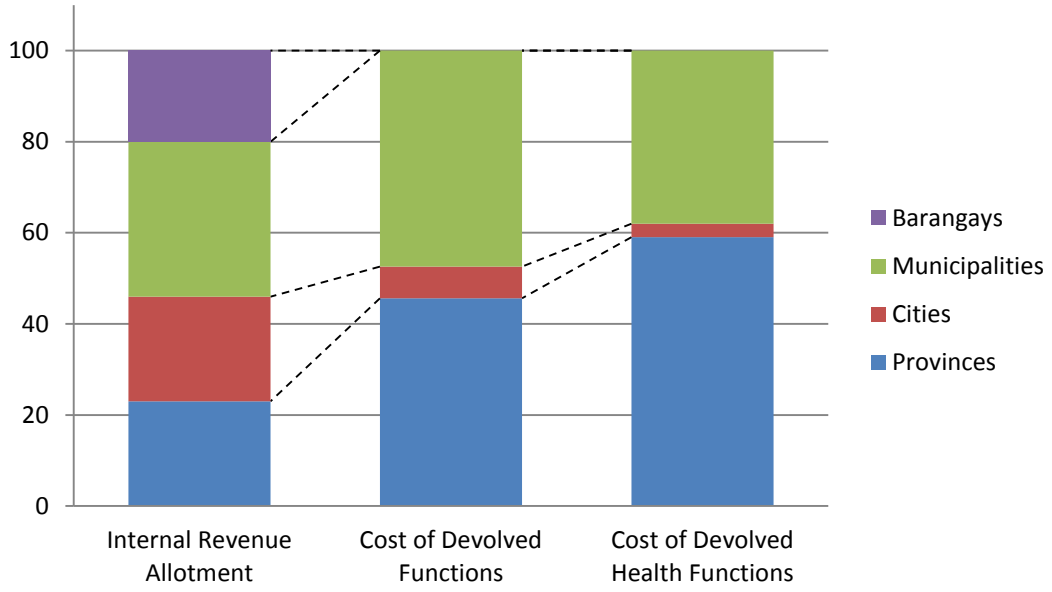
***Significant at the 10% level.

Table 6. Probability of mayor's re-election

Explanatory variables	Panel-date fixed effects logit model (Sample = All cities in 2004, 2007 and 2010)	Probit model (Sample = all new cities in 2001 -2010)
	Dep var = Mayor is re-elected (Odds ratio)	Dep var = Mayor in 2010 is related to mayor at conversion (Marginal effects)
New city (before election)	3.8489*	
	(3.0643)	
New city (2005-2010)		1.0653***
		(0.1309)
High income class	2.4342	-0.1385
	(2.1821)	(0.1569)
Population density	0.6452*	-0.0011
	(0.1619)	(0.0039)
Population density squared	1.0027	0.00001
	(0.0018)	(0.00001)
Mayor belongs to a political clan	0.5684	1.0230***
	(0.3683)	(0.1651)
Congressperson belongs to a political clan	0.3909	
	(0.2339)	
Year 2007	4.0289**	
	(2.3011)	
Year 2010	7.7751***	
	(5.0680)	
Luzon		0.2095
		(0.1590)
Visayas		0.0588
		(0.1850)
Log likelihood (pseudolikelihood)	-37.4055	-10.59034
Number of observations	131	40
Number of groups	50	
LR χ^2 (Wald χ^2)	19.64	389.45
Prob > χ^2	0.0118	0.0000
Pseudo R^2		0.6066

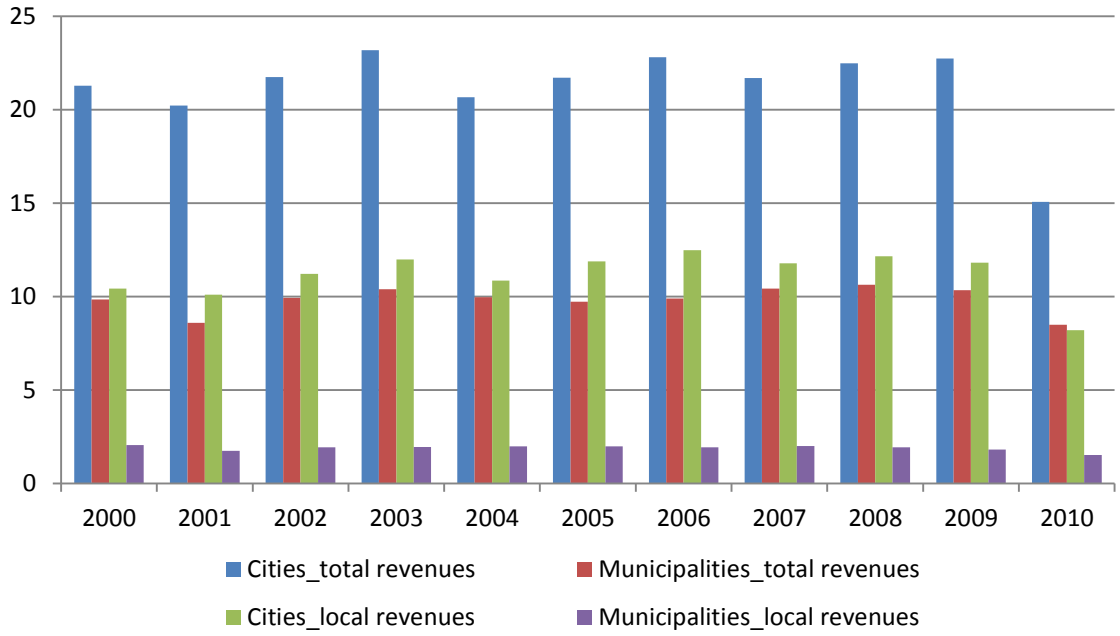
Notes: Figures in parentheses are standard errors (robust standard errors for probit estimates).
*Significant at the 1% level.
**Significant at the 5% level.
***Significant at the 10% level.

Figure 1. Percentage distribution of the internal revenue allotment and the cost of devolved functions by levels of local governments



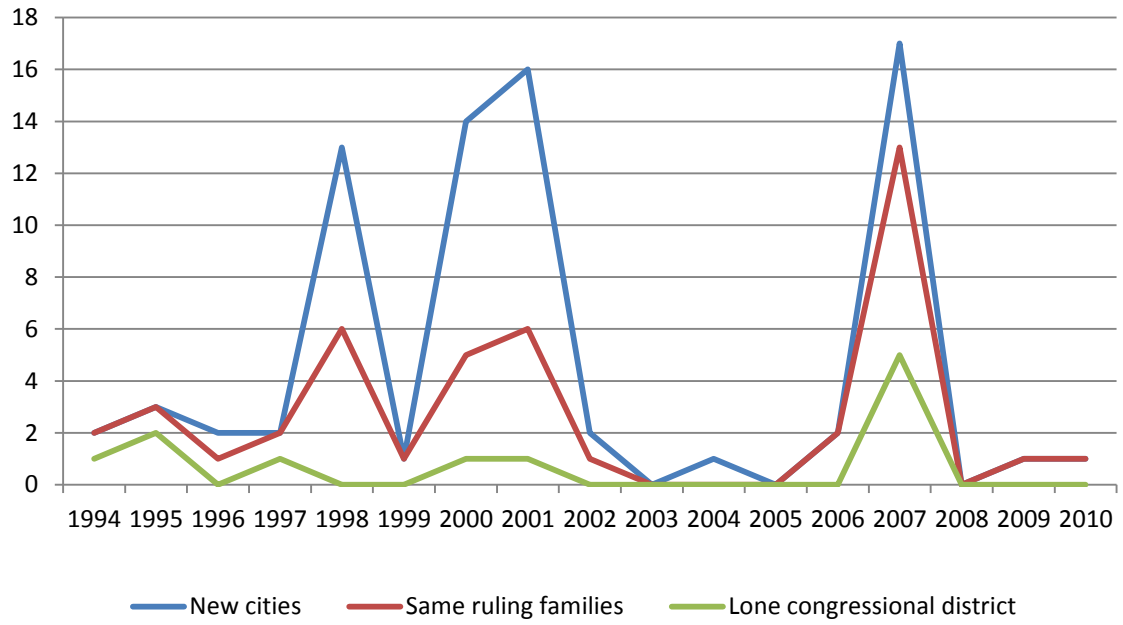
Sources: Local Government Code of 1991, Department of Health, World Bank (1994).

Figure 2. Total revenues and locally-sourced revenues of cities and municipalities, in real per capita, 2000-2010



Source of raw data: Bureau of Local Government Finance. Author's own calculations.

Figure 3. Number of new cities that have same ruling families at the time of conversion and after May 2010 elections



Sources of raw data: Bureau of Local Government Finance and Commission on Elections. Author's own calculations.