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The effectiveness of fiscal equalisation in Croatia

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The main objective of this paper is to examine the effectiveness of fiscal equalisation instruments in Croatia. Fiscal equalisation policy in Croatia is conducted through the personal income tax revenue sharing and the distribution of current grants from the central government budget to regional and local government units. However, the application of these instruments often relies on criteria that are not economic in nature. Therefore, this paper tests the hypothesis of the ineffectiveness of fiscal equalisation system in Croatia. The Gini coefficients are used to measure inequalities in fiscal capacities of local government units before and after the application of fiscal equalisation instruments. If the value of the Gini coefficient after the application of certain equalisation instrument is lower than before, that instrument is effective in alleviating fiscal inequalities and vice versa. It is found that the Croatian fiscal equalisation system mitigates local fiscal inequalities, but with the negligible effect.

Keywords: local government units; fiscal capacity; fiscal inequalities; fiscal equalisation; Gini coefficient; Croatia

JEL classification: H77, D63

1.   Introduction

In line with the transfer of responsibility for the provision of certain public functions from central to lower tiers of government (e.g. local government units – LGUs), the central government gives away part of the revenue for their financing. If subnational governments lack sufficient resources to finance fiscal needs they face a fiscal gap (the difference between the fiscal capacity and fiscal needs) resulting from the vertical fiscal imbalance. Similarly, the differences in fiscal capacities and/or needs of administrative units at the same level (tier) of government cause horizontal fiscal inequalities. Due to the very serious political consequences that long-term fiscal inequalities could have, a model for alleviating fiscal inequalities (fiscal equalisation model) is an imperative of each fiscally decentralised system.

In order to alleviate fiscal inequalities between LGUs, Croatian authorities have employed different fiscal instruments, applied according to the status of LGUs in the financing system. LGUs that are considered financially weaker enjoy the preferential treatment. Surprisingly, financially weaker LGUs are identified based on their geographic location rather than financial criteria (areas of special national concern – ASNC,[1] hill and mountain areas – HMA,[2] and LGUs on islands with an agreement on joint financing of capital projects for the development of the island). The EU accession

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process has encouraged Croatia to define the strategy for regional development and establish a map of regional disparities through underdevelopment indices. However, criteria for obtaining the special status in the financing system have not been redefined yet. Thus, currently over half of all LGUs in Croatia enjoy the preferential status in the fiscal equalisation system, which does not rely on inequality measures. Therefore, the effect of the equalisation system is questionable.

The aim of this paper is to measure the equalisation effect (effectiveness) of fiscal equalisation in Croatia. The effectiveness of fiscal equalisation instruments will be assessed by measuring inequalities among LGUs before (ex ante) and after the application of those instruments (ex post). Inequalities will be measured with Gini coefficients. If the value of the Gini coefficient after the application of a certain equalisation instrument is greater than before, the instrument is not effective in alleviating fiscal inequalities and vice versa.

The paper is structured in five parts. After the introduction, the second section is devoted to the literature review and theoretical background. Basic characteristics of fiscal equalisation instruments in Croatia and the criteria for their usage are described in Section 3. The fourth section analyses the effectiveness of the fiscal equalisation system through calculation of the Gini coefficients. The fifth section is the conclusion.

2.   Literature review and theoretical background

Fiscal equalisation in Croatia has not been extensively researched, but several papers have already pointed to problems in the Croatian fiscal equalisation system. Bajo and Bronić (2007) demonstrated that the use of fiscal instruments is not associated with the fiscal capacity of LGUs. Bronić (2008b, 2010) indicates the ineffectiveness of the fiscal equalisation system at the county (regional) level and points out the necessity of determining the extent to which fiscal instruments reduce inequalities at the level of cities and municipalities (local government level). Primorac (2014) proposed the new fiscal equalisation model that alleviates inequalities in the fiscal capacities of LGUs much better than the existing equalisation system for the same cost. However, the extent to which individual fiscal equalisation instruments reduce inequalities at the local government level in Croatia has not been determined yet.

The empirical research abounds with a range of different measures to assess fiscal inequalities. Bird and Tarasov (2002) and Portnov and Felsenstein (2010) describe some of those measures, including the minimum to maximum ratio, minimum (maximum) as a percentage of the national average, the coefficient of variation, the Theil index, the Atkinson index, the Williamson index, the Hoover coefficient, the Coulter coefficient and the Gini coefficient. Besides numerous solutions for numerical expression, inequality can also be expressed graphically in several ways.[3] Probably the most convenient method for a graphical illustration of inequalities was established by Lorenz (1905).

All those methods have been used in the empirical literature interchangeably to measure inequalities at lower tiers of government in both federal and unitary states. Shankar and Shah (2003) use the minimum to maximum ratio, the weighted and unweighted coefficient of variation, the relative mean deviation, the Theil index as well as the weighted and unweighted Gini coefficient for measuring fiscal inequalities in 18 developing countries. Monfort (2008) employs a wider set of instruments to analyse the trend of convergence and disparities between regions of the European Union. Blöchliger (2014) uses the Gini coefficient and the ratio of highest to lowest tax-raising capacity to measure fiscal disparities before and after equalisation in 16 countries (federal countries:

Australia, Austria, Canada, China, Germany, Italy, Spain and Switzerland and unitary countries: Chile, Denmark, Finland, Japan, Norway, Portugal, Sweden and Turkey). UN-HABITAT (2012) presents regional disparities – measured with Gini coefficients – in Japan before and after equalisation from 1950 until 2002. Hierro, Atienza, and Patiño (2007) use measures of dispersion (the relative range, the coefficient of variation and the logarithmic variance) and inequality indexes (the concentration index, the Gini coefficient, the Reynolds-Smolensky index, the Pechman-Okner index and the reranking contribution) to measure inequalities in Germany, Australia, Canada, Spain and Switzerland. They also present inequalities graphically with Lorenz curves. Hofman and Cordeira Guerra (2004) explore the effect of equalisation systems in East Asian countries (China, Indonesia, Philippines, Thailand and Vietnam) using descriptive statistics (minimum, maximum, average, max/min, standard deviation and coefficient of variation).

Although there is no consensus on which of these measures is most appropriate, several measures have proven to be more effective and have been used more frequently than others. Since the Gini coefficient[4] has become one of the most commonly used inequality measures (Portnov & Felsenstein, 2010), it will be used also in this study to assess the effectiveness of fiscal equalisation instruments in Croatia.

3. Croatian fiscal equalisation system

The fiscal equalisation in Croatia relies on the personal income tax (PIT) revenue sharing and allocation of grants from the central government budget.

The PIT revenue is shared between counties, cities and municipalities, with distribution coefficients depending on the status of LGUs (City of Zagreb, ASNC, HMA, LGUs on islands and LGUs without any special status). Owing to different shares in the PIT revenue, this tax sharing arrangement could have an impact on fiscal inequalities if the preferentially treated LGUs are adequately determined. In general, the PIT is divided between counties (16%) and cities and municipalities (56.5%). Several LGUs that assumed the financing of decentralised functions retain an additional PIT share (3.1% for primary education, 2.2% for secondary education, 2.2% for social welfare, 3.2% for health care and 1.3% for fire protection – a total of 12% in the case of assuming all decentralised functions). LGUs on ASNC and HMA enjoy the privileged position in the PIT revenue sharing. They retain 90% of the PIT collected in their area, while counties they belong to get only 10% of the PIT revenue. In addition, LGUs in ASNC and HMA do not participate in the financing of the equalisation fund for decentralised functions. For LGUs (cities) with only certain parts of the territory belonging to the ASNC, the standard allocation of the PIT revenue applies (see Table 1).

Table 1. Personal income tax sharing scheme (in %).

Group	County	LGU	Dec. functions	Capital project financing	Equalisation fund for dec. functions
ASNC	10.0	90.0			
HMA	10.0	90.0			
Islands	16.0	56.5	12.0	15.5	
Standard	16.0	56.5	12.0		15.5

Source: The Law on Financing of Local and Regional Self-government OG 117/93, 33/00, 59/01, 107/01, 117/01, 150/02, 147/03, 132/06, 73/08 and 25/12.

The privileged status of LGUs on islands is evident from the release of these units from the obligation of financing the equalisation fund for decentralised functions. With 15.5% of the PIT revenue (which other LGUs transfer to the equalisation fund), those LGUs finance their capital projects. This method of capital projects financing is not very common in the rest of the world. Usually, unconditional (matching or nonmatching) capital grants are used for this purpose, taking into account the economic abilities and financial capacities of LGUs (Bajo & Bronić, 2007).

Apart from the tax revenue sharing, fiscal inequalities in Croatia are alleviated through the distribution of current grants from the central government budget. There are several different types of current grants assigned to LGUs in this respect. These are:

- equalisation grants for decentralised functions,
- current grants of the Ministry of Finance (MOF) to counties
- current grants of the MOF to cities in ASNC I and II,
- current grants as a substitute for the corporate income tax (CIT) and
- grants through the PIT return.

Through fiscal decentralisation, local and regional governments are enabled to take on the responsibility for providing decentralised functions (primary education, secondary education, social welfare, health care and fire protection). LGUs that have taken over decentralised functions but do not have sufficient funds to meet the minimum financial standards (even with the additional PIT share) are beneficiaries of the equalisation fund for decentralised functions, i.e. they receive equalisation grants for decentralised functions.

For the purpose of the tax relief of the population inhabiting LGUs in the ASNC and HMA, that group of taxpayers enjoy an increased basic personal allowance (according to the status at ASNC I, II III or HMA). The amount of the basic personal allowance reduces the PIT tax base and therefore also the potential tax revenue of LGUs in these areas. This in turn neutralises the effect of the assignment of the preferential treatment in the tax sharing system that allows LGUs in ASNC and HMA to retain greater shares of the PIT revenue. To avoid cancelling of the above measures, the central government has undertaken the financing of the annual PIT return that residents of LGUs in ASNC and HMA use in order to claim the tax benefits resulting from the increased personal allowance.

Besides grants from the central government budget in the form of the PIT return, LGUs in ASNC and HMA also receive grants in the amount of the CIT collected in their area. The reason for this is compensating for the loss of the CIT due to the tax sharing reform, which completely centralised revenue from the CIT (shared until 2007) (see Table 2).

Lastly, Annual State Budget Execution Acts determine the value of current MOF's grants to LGUs. These grants are allocated to counties and LGUs in the ASNC I and II. LGUs in ASNC I and II can use the MOF's current grants to finance material expenditure and energy, as well as investments in capital programmes (except for the purchase of personal cars). On the other hand, counties may use the grants received only for investment in capital programmes (except for the purchase of personal cars).

It is important to point out that counties can retain only up to 25% of grants for their own purposes, while at least 75% must be distributed to LGUs in their area, LGUs that are not direct beneficiaries of the grant, i.e. LGUs that are not located in ASNC group I or II. The county assembly prescribes the distribution criteria (see Figure 1).

Table 2. Criteria for the calculation and distribution of the MOF's current grants to counties and LGUs in ASNC I and II from 2005 to 2011.

LGUs in ASNC I and II[a]	Counties[b]
Population according to the 2001 census	Population according to the 2001 census
Average LGUs' revenue per capita (state average) two years ago	Average counties' revenue per capita (state average) two years ago
Average LGUs' revenue per capita in certain group of ASNC	Average county's revenue per capita two years ago
Population per km^2 in ASNC groups I and II (group average)	Population of Croatia (without City of Zagreb) per km^2 (state average)
LGU's population per km^2	Population of individual counties' per km^2
Share of expenditure for capital programmes in total expenditure (two years ago)	
Rationality of the execution of systemic functions (number of employees, expenditure per employee)	
Expenditures for the functions of the city (under 30,000 inhabitants) two years ago	

Notes: [a]For detailed explanation of the distribution formula see (Bronić, 2008a).
[b]For detailed analysis of the formula see (Bronić, 2010).
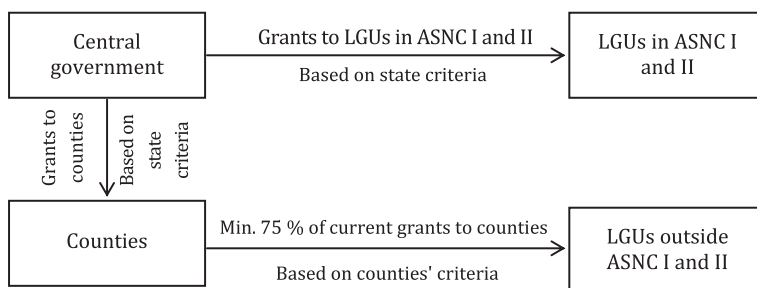Source: Annual State Budget Execution Acts from 2005 to 2010.

Figure 1. Distribution of the MOF's current grant to counties and LGUs in ASNC I and II.
Source: Author based on Annual State Budget Execution Acts

The major drawback of these grants is the fact that counties have self-prescribing distribution criteria with questionable validity and consistency (for the detailed list of criteria see Appendix 1). Because of uneven distribution criteria, grants – that could potentially mitigate fiscal inequalities among LGUs in individual counties – can hardly be effective at the national level.

4. The effectiveness of fiscal instruments

The effectiveness of the fiscal equalisation system is assessed by measuring inequalities in *per capita* fiscal capacities of LGUs. Fiscal inequalities are quantified with the Gini coefficient before and after the application of fiscal equalisation instruments. The Gini coefficient ranges from 0 to 1 where 0 represents complete equality and 1 complete inequality. In line with that, if the value of the Gini coefficient after the application of

certain equalisation instrument is greater than before – the instrument is not effective in alleviating fiscal inequalities and *vice versa*.

Martinez-Vazquez and Timofeev (2008) define the term *fiscal capacity* as the ability of the particular area to collect revenue for public consumption, with a given level of economic activity within the boundaries of that area and the authority for deriving public revenue from these activities. Accordingly, the fiscal capacity of LGUs in Croatia is determined as the per capita income of LGUs reduced by aid from abroad and from entities within the general government and the portion of income obtained through equalisation grants for decentralised functions.

Since the Gini coefficient treats all LGUs in the same way, analysts often use derivative forms of a Gini coefficient weighted by GDP, population or area (surface). In this way, it is possible to calculate the Gini coefficients sensitive to extreme values of variables of interest in LGUs with high GDP, large population or spacious LGUs. At the same time, for example, given that rural areas tend to have fewer residents than urban, the Gini coefficient weighted by population systematically underestimates the differences between rural and urban areas (Spiezia, 2003). Similar problems are associated with other forms of weighted Gini coefficients.

Since GDP data for LGUs in Croatia are not available, the unweighted Gini coefficient and Gini coefficients weighted by area and population are used to measure fiscal inequalities of LGUs. Nevertheless, the interpretation is confined exclusively to the unweighted Gini coefficient. This is because the unweighted Gini most vividly reflects inequalities in Croatia that are probably most pronounced exactly between rural and urban areas. In addition, the results reveal that – at least in terms of effectiveness of certain fiscal equalisation instruments – Gini coefficients weighted by area and population generally do not significantly deviate from those unweighted (see Table 3).

The Gini coefficients indicate that all grants, except grants from the equalisation fund for decentralised functions, have a positive but a relatively low impact on the alleviation of fiscal disparities among LGUs.

Apart from the direct distribution of grants from the central government budget to LGUs, the distribution of grants to LGUs is partially done through counties. Counties

Table 3.   Fiscal inequalities of LGUs before and after distribution of grants in 2010.

Description	Gini (unweighted)	Gini (population)	Gini (area)
Fiscal capacity before grants	0.3832	0.3558	0.3448
Grants from equalisation fund for decentralised functions	0.3860	0.3645	0.3516
Grants as a substitute for the CIT	0.3794	0.3492	0.3488
Grants through the PIT return	0.3610	0.3229	0.3373
MOF's grants to LGUs in ASNC I and II	0.3755	0.3474	0.3346
MOF's grants to LGUs outside ASNC I and II (through counties)	0.3771	0.3503	0.3400
Total MOF's grants	0.3693	0.3419	0.3298
Total (all grants)	0.3528	0.3171	0.3372

Note: The Gini coefficient for the 'fiscal capacity before grants' refers to fiscal inequalities before the distribution of grants to LGUs, while other coefficients indicate inequalities after the distribution of certain grants. Columns 'Gini (population)' and 'Gini (area)' show fiscal inequalities weighted by population and area (surface) of LGUs.
Source: Author's calculations.

are required to pass on at least 75% of grants received from the MOF to LGUs (which are not direct beneficiaries of grants) based on criteria set by the county assembly. Given the different distribution criteria set in individual counties, these grants have a poor performance in fiscal equalisation at the national level. However, they might be more effective in alleviating fiscal disparities among LGUs at the county level. This hypothesis can be tested by calculating the Gini coefficient of per capita fiscal capacities of LGUs in each county before and after the distribution of grants.

For a better insight into the effectiveness of these grants, Table 4 provides an index calculated as a ratio of the Gini coefficient after and before the distribution of grants. Values lower than 1 indicate a decrease in the Gini coefficient after grants, i.e. the positive impact of grants on fiscal equalisation, while values greater than 1 indicate the opposite.[5]

It was not possible to calculate the index for seven counties that did not receive the MOF's grant in 2010. Interestingly, the distribution of grants in Sisačko-moslavačka and Šibensko-kninska counties did not help alleviate fiscal disparities among LGUs in their area, while the distribution of grants in other counties proved to be (more or less) effective. The most effective county is Brodsko-posavska, followed by Bjelovarsko-bilogorska, Požeško-slavonska and Vukovarsko-srijemska. Other counties were less successful.

Since fiscal equalisation in Croatia is also performed through the PIT revenue sharing, the effectiveness of this instrument is analysed as well. Besides the Gini coefficient for fiscal capacities of LGUs in the existing PIT sharing scheme, the Gini coefficient is

Table 4. Fiscal inequalities of LGUs within certain counties before and after the distribution of grants, in 2010.

County	Gini coefficient before grants	Gini coefficient after grants	Index (after/before)
Zagrebačka	0.2771	n/a	n/a
Krapinsko-zagorska	0.1796	0.1771	0.9857
Sisačko-moslavačka	0.2370	0.2385	1.0063
Karlovačka	0.1893	0.1849	0.9767
Varaždinska	0.2480	0.2397	0.9664
Koprivničko-križevačka	0.4276	0.4112	0.9617
Bjelovarsko-bilogorska	0.2264	0.2120	0.9365
Primorsko-goranska	0.2153	n/a	n/a
Ličko-senjska	0.3480	0.3479	0.9997
Virovitičko-podravska	0.1609	0.1566	0.9733
Požeško-slavonska	0.2080	0.1959	0.9416
Brodsko-posavska	0.1852	0.1642	0.8868
Zadarska	0.3111	n/a	n/a
Osječko-baranjska	0.2334	0.2290	0.9808
Šibensko-kninska	0.3541	0.3544	1.0008
Vukovarsko-srijemska	0.2238	0.2131	0.9523
Splitsko-dalmatinska	0.3140	n/a	n/a
Istarska	0.2851	n/a	n/a
Dubrovačko-neretvanska	0.2492	n/a	n/a
Međimurska	0.1754	n/a	n/a

Source: Author's calculations.

also calculated assuming a unique allocation of the PIT revenue. In this regard, two separate simulations have been conducted with LGUs retaining 100% of the PIT revenue in the first and 56.5%[6] in the second simulation (see Table 5).

The Gini coefficient of fiscal inequalities before the PIT sharing (i.e. if the LGUs retain the overall PIT revenue collected on their territory) is lower than after the tax sharing arrangements. This reveals that the current PIT sharing system is ineffective in mitigating fiscal inequalities and confirms the inadequacy of criteria for the preferential treatment of LGUs in the PIT sharing system.

It should be noted that the Gini coefficient for the existing PIT sharing system also reflects the impact of the additional share in the PIT revenue that some LGUs enjoy due to the takeover of decentralised functions. Unfortunately, because of the unavailability of data it was not possible to isolate the PIT revenue that LGUs receive as a compensation for decentralised functions. Therefore, fiscal capacities of LGUs in the current equalisation system reflect not only the relative differences in the PIT revenue resulting from the different status of LGUs, but also the different scale of public functions decentralised to LGUs. Larger fiscal capacities of LGUs that have taken over decentralised functions are justified by higher fiscal needs. Nevertheless, this should be born in mind when interpreting the Gini coefficient for other (simulated) PIT sharing arrangements, which do not take into account additional shares of the PIT revenue for the decentralised functions assumed.

Tax revenue sharing arrangements in Croatia have changed frequently, affecting the fiscal inequalities of LGUs. The share of LGUs in the PIT revenue was altered several times in the period from 2002 until 2010. Moreover, the revenue from the CIT – which was initially shared between the central and lower tiers of government – from 2007 belongs completely to the central government. Figure 2 shows the disparities in LGUs' fiscal capacities with regard to the different ways of allocation of income tax revenue.

Assignment of a larger share of the PIT revenue to LGUs and shifting the CIT revenue completely to the central government in 2007 resulted in a sharp reduction in inequalities. This is largely because criteria for the preferential treatment of LGUs in the tax sharing system are inadequately determined. Nevertheless, these findings should be interpreted with extreme caution because a number of other factors could also have an impact on inequalities in the observed period. However, the comparison of these findings with the results of simulations – which showed that the complete abandonment of the PIT revenue to LGUs would have a beneficial effect on alleviating inequalities – confirms the conclusion about the ineffectiveness of the tax revenue sharing in the Croatian fiscal equalisation system.

Table 5.   Fiscal inequalities of LGUs before and after the PIT revenue sharing in 2010.

Description	Gini (unweighted)	Gini (population)	Gini (area)
Current tax sharing arrangement	0.3832	0.3558	0.3448
Unique distribution scheme (all LGUs retain 100% of the PIT revenue collected in their respective areas)	0.3661	0.3715	0.3228
Unique distribution scheme (all LGUs retain 56.5% of the PIT revenue collected in their respective areas)	0.4000	0.3838	0.3524

Note: Columns 'Gini (population)' and 'Gini (area)' show fiscal inequalities weighted by population and area (surface) of LGUs.
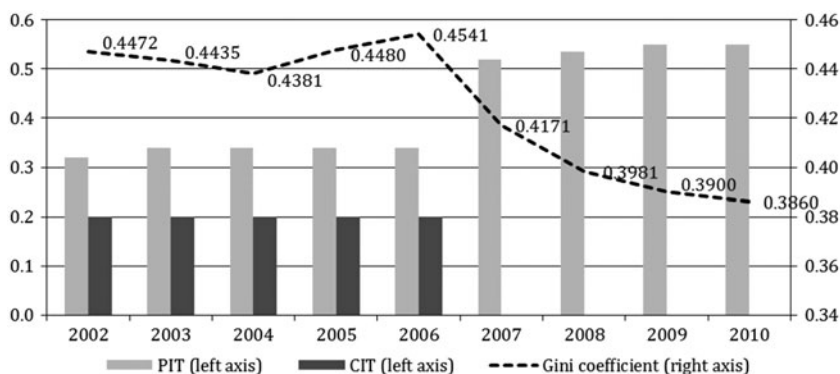Source: Author's calculations.

Figure 2.   Fiscal inequalities and LGUs' share in the PIT and CIT revenue from 2002 to 2010.
Note: The PIT is the share of LGUs in the revenue from the personal income tax, whereas the CIT is the share in the revenue from the corporate income tax.
Source: Author

5.   Conclusion

Fiscal equalisation in Croatia is based on the allocation of the preferential status in the PIT sharing system and the distribution of current grants from the central government budget. However, criteria for the application of these fiscal instruments do not rely on the assessment of actual fiscal capacities of LGUs. It is questionable to what extent such a complex system without the long-term strategic commitment really mitigates against inequalities among LGUs.

The dilemma was resolved by determining the degree of inequality of per capita fiscal capacities among LGUs before and after the intervention using certain fiscal equalisation instruments. The analysis revealed that the grants of the MOF, current grants as a substitute for the CIT and grants through the PIT return are minimally effective in alleviating local fiscal disparities. On the other hand, grants from the equalisation fund for decentralised functions are, in this sense, counterproductive. The same applies to the PIT revenue sharing arrangements. By abolishing the preferential treatment of LGUs in ASNC, HMA and islands (i.e. by introducing a unique scheme according to which all LGUs would retain 56.5% of the PIT revenue), fiscal inequalities would increase. However, the complete abolition of the redistribution (tax sharing) and release of the total PIT revenue to LGUs would reduce fiscal inequalities.

In other words, the tax sharing system and the distribution of central government grants reduce fiscal inequalities, but only by the negligible effect, which could be achieved at much lower cost. The Government and the MOF support LGUs in ASNC, HMA and islands through the tax sharing and the distribution of current grants. However, LGUs with below average fiscal capacities are not necessarily in these areas. In order to financially support LGUs with weak fiscal capacities, it is necessary to introduce a simple and transparent fiscal equalisation system. Such a system should be based on the distribution of general (unconditional) current grants from the central government to LGUs based on the assessment of their fiscal capacities. In this way, it would be possible to assign each LGU a different (in absolute and relative terms) amount that minimises differences in LGUs' fiscal capacities.

Despite the illusion that the fiscal equalisation system in Croatia is developed and properly organised, it is in fact complex, unclear, non-transparent and inefficient and requires a comprehensive review and an urgent reform.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes

1. ASNC are determined to achieve more even development of Croatia, encourage demographic and economic progress, the completion of the reconstruction programme, return to pre-war population and permanent housing. ASNC are defined into three groups – the first and the second group according to the circumstances occurring as the consequence of aggression on Croatia, and the third group according to three criteria: the criterion of economic development, the criterion of structural problems and demographic criteria. The first group includes areas of cities and municipalities occupied during the war that are located directly along the state border, with no more than 5000 inhabitants according to the census of 1991, whereby the city/municipal centre is not more than 15 km away from the state border. This group also includes other occupied areas of cities, municipalities and villages of the Croatian Danube region. The second group consists of areas of cities, municipalities and villages that were occupied during the war but do not belong to the first group of ASNC. The third group includes areas of municipalities and cities evaluated as economically less developed regions of Croatia.
2. HMA are determined as areas of interest and under special protection in order to encourage the demographic renewal, settlement and creation of preconditions for efficient use of natural and economic resources for the economic development. The HMA are areas whose elevation, slope and vertical stratification of the field, and conditioned soil, climate and other natural characteristics represent difficult conditions for life and work of residents.
3. The most commonly used methods include the parade of dwarfs, the frequency distribution and the Lorenz curve (for a detailed description see Cowell, 2009).
4. See Gini (1912, 1921).
5. Similar indexes have often been calculated and presented in the literature (e.g. Musgrave & Thin, 1948; Reynolds & Smolensky, 1977).
6. LGUs that do not enjoy the preferential status in the current tax-sharing system retain 56.5% of the PIT revenue collected in their area.

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Appendix 1. Counties' criteria for the distribution of MOF's current grants to LGUs outside ASNC I and II

County	Criteria
Krapinsko-zagorska (2010)	(1) The population density is lower than the county's population density which is 116 inhabitants per km², (2) Revenue up to 5,500,000.00 kuna
Sisačko-moslavačka (2010)	(1) The project is developing a new basic infrastructure (YES / NO), (2) The project brings benefits for entrepreneurship (YES / NO), (3) The project includes environmental sustainability (YES / NO), (4) LGUs participate in the financing of the project (YES / NO), (5) The financing of the project involves other sources of financing (YES / NO), (6) The project affects the increase in LGU's fiscal capacity (YES / NO)
Karlovačka (2010)	(1) The population according to the 2001 census, (2) Average per capita income for 2008 at the state level (national average) (3) Average per capita income per inhabitant of the group (Article 4 and 5 of the ASNC Act) or individual LGU (4) Number of inhabitants per 1 km at ASNC group I and II (group average) (5) Number of inhabitants per 1 km of individual municipality and city (6) The share of expenditures for capital programmes in total expenditure for the 2008 (7) Rationality for enforcement of systemic functions (number of employees (8) Expenditures for the city functions (fewer than 30)
Varaždinska (2011)	(1) Second group according to the development index between 50 and 75% of the national average
Koprivničko-križevačka (2012)	(1) Less than 75% of the county's average revenue per capita
Bjelovarsko-bilogorska (2011)	(1) Coverage of the LGU with the public water supply system and the need for design and construction of water supply system, (2) The impact of utility infrastructure projects on the environment, (3) The coherence of the utility infrastructure with the County Development Strategy, (4) LGUs' coverage with county and local roads, and the need for their modernisation and construction, (5) The impact of the project on the increase of LGU's or county's fiscal capacity, (6) participation in co-financing of creating and updating official spatial databases and real estate cadaster
Ličko-senjska (2010)	(1) The population of the city/municipality according to the 2001 census, (2) Total budgetary revenues and receipts of the city/municipality for 2008, (3) Total budgetary revenues and receipts of the city/municipality for 2008 per capita, (4) Total budgetary expenditure and expenses of the city/municipality for 2008, (5) Total capital expenditures and expenses for capital programmes for 2008,

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Appendix 1.   (*Continued*).

County	Criteria
	(6) Number of employees on December 31, 2008, (7) The share of capital expenditures and expenses in total expenditures and expenses for 2008, (8) Total expenditures and expenses per employee for 2008, (9) Total capital expenditures and expenses for 2008 per capita
Virovitičko-podravska (2010)	(1) Total budget revenues and receipts (with funds transferred) for 2008 – equalisation up to 50% of the average, (2) Non-tax revenues of LGU per capita for 2008 – equalisation to the average, (3) Capital revenue per capita for 2008 – equalisation to the average, (4) Expenditures for the acquisition of non-financial assets for 2008
Požeško-slavonska (2010)	(1) The population according to the 2001 census, (2) Average per capita revenue (county average) and per capita revenue of municipality/city – 70% of the grant (3) LGU's area (surface), (4) The average population density at the county level and the density of the LGU – 30% of the grant
Brodsko-posavska (2012)	(1) The population according to the 2011 census, (2) Average per capita revenue (county average) in 2010 and LGU revenue per capita in 2010 (3) LGU's area (surface) (4) The degree of utility construction according to the infrastructure development standards (5) The share of expenditures for capital programmes in 2010 (6) Rationality for enforcement of systemic functions (number of employees (7) Expenditures for the city functions (fewer than 30)
Zadarska (2008)	(1) Average per capita revenue for 2006 (county average), (2) The share of expenditures for capital investment in total expenditures, (3) Rationality for enforcement of systemic functions (expenditures per employee), (4) The share of expenditures of employees in total expenditures
Osječko-baranjska (2011)	(1) Average revenue per capita for 2009 lower than the county average
Šibensko-kninska (2013)	(1) Revenue per capita in 2011 lower than 75% of the average revenue per capita at the county level in 2011
Vukovarsko-srijemska (2012)	(1) Development index (unemployment rate, per capita income, budget revenues per capita, general population trends, education rates), (2) The share of expenditures for capital programmes in 2011 in total expenditures (3) Rationality for enforcement of systemic functions (number of employees
Međimurska (2009)	(1) The population according to the 2001 census (population of each LGU and population of the county), (2) Average revenue of the county budget for 2006 per capita and average LGU's revenue per capita for 2006 (3) Per capita budget revenue (net of grants)

Source: Counties' official gazettes for respective years.