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Financing urban development in the EMCCA

Financement du développement urbain dans la CEMAC

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Abstract:

The internal and external financing of urbanisation enables governments to mobilise funds to finance urbanisation and urban infrastructure projects in the Economic and Monetary Community of Central Africa (EMCCA). The objective of this paper is to examine the effects of internal and external financing of the economy on the observed urbanisation rate from a sample of six (6) African countries. To achieve this, we specify and estimate a panel data model using Ordinary Least Squares (OLS) methods over the period 2000-2021. The robustness of the results is tested by adding additional variables. Our results show that internal and external financing of the economy, measured by Foreign Direct Investment (FDI), migrant remittances, official development assistance and investment, significantly increase the urbanisation rate in the EMCCA. We suggest that economies be opened up financially in order to improve urban planning in the EMCCA.

Keywords: EMCCA, Financing; OLS; Urbanisation.
Classification JEL: F65, O55,
Paper type: Empirical Research

Résumé :

Le financement interne et externe de l'urbanisation permet aux gouvernements de mobiliser des fonds pour financer des projets d'urbanisation et d'infrastructures urbaines dans la Communauté économique et monétaire de l'Afrique centrale (CEMAC). L'objectif de cet article est d'examiner les effets du financement interne et externe de l'économie sur le taux d'urbanisation observé à partir d'un échantillon de six (6) pays africains. Pour ce faire, nous spécifions et estimons un modèle de données de panel à l'aide de méthodes des Moindres Carrés Ordinaires (MCO) sur la période 2000-2021. La robustesse des résultats est testée en ajoutant des variables supplémentaires. Nos résultats montrent que le financement interne et externe de l'économie, mesuré par les investissements directs étrangers (IDE), les envois de fonds des migrants, l'aide publique au développement et l'investissement, augmente considérablement le taux d'urbanisation dans la CEMAC. Nous suggérons que les économies soient ouvertes financièrement afin d'améliorer la planification urbaine dans la CEMAC.

Mots clés : CEMAC, Finance, MCO, Urbanisation.
JEL Classification : F65, O55
Type du papier : Recherche empirique

** **EMCCA** is a recent creation that grew out of the defunct Customs and Economic Union of Central African States (CEUCAS). Set up in 1964, it has never really succeeded in achieving its main objective of promoting intra-regional trade. EMCCA comprises six member countries (Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea and Gabon), all of which belong to the franc zone, and its main mission is to achieve real integration between the member states, building on the achievements of their long history of monetary cooperation. It is made up of two unions, each governed by a convention. On the one hand, the agreement creating the Central African Monetary Union (CAMU) is based on a set of rules for monetary cooperation between member countries. Its objective, through the Bank of Central African States (BCAS) which forms its foundation, and according to article 1 of its new statutes ratified in 1998, is to issue currency and guarantee its internal and external stability. Without prejudice to this objective, it also supports the general economic policies developed within the Union. On the other hand, the convention creating the Central African Economic Union (CAEU) has the role of encouraging the achievement of real economic integration through the gradual removal of customs barriers and quotas.*

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1. Introduction

The Economic and Monetary Community of Central Africa (EMCCA) has continued to experience an urban boom over the past two decades, reflected in an increase in the urban population and the size of cities. According to official United Nations statistics (2023), urbanisation accounts for around 30% of per capita Gross Domestic Product (GDP) growth in Africa. Moreover, the gains in economic performance and quality of life resulting from urbanisation often extend to small towns and rural areas close to cities. The World Bank (2022) estimates that the urban population in the EMCCA member countries (Cameroon, Central African Republic, Republic of Congo, Gabon, Equatorial Guinea and Chad) was around 36% of the total population in 2018. But this urbanisation rate varies considerably between the different countries in the zone. For example, the urbanisation rate in the Republic of Congo in 2018 was around 65%, while in the Central African Republic it was around 42%. The most populous cities in the EMCCA are Douala and Yaoundé in Cameroon, Bangui in the Central African Republic, Brazzaville and Pointe-Noire in Congo, Libreville in Gabon and Malabo in Equatorial Guinea. This urbanisation boom has brought with it a number of challenges, including pressure on urban infrastructure, access to drinking water and sanitation, waste management and food security.

Urbanisation is contributing to the profound transformation of Africa in general and EMCCA in particular. Since 1990, the number of cities in Africa has doubled, from 3,300 to 7,600, and their combined population has increased by 500 million people. With a particularly young population, African cities are the fastest growing in the world. Their impact on Africa's economic, social and political landscape over the next few decades is certain to be profound. According to forecasts by the African Development Bank (2022), the population of the EMCCA region is set to double by 2050, with two-thirds living in cities. This demographic boom will have an impact on the socio-economic, environmental and political organisation of the region. Public authorities should harness human and technological resources to improve productivity, mobility and human interaction, and control the upheavals that accompany urbanisation. Urban growth unaccompanied by appropriate policies leads to a deepening of inequalities and vulnerabilities.

As a result, urbanisation appears to be a central lever in the pursuit of the objectives set by the 2030 and 2063 Development Agendas, as well as a factor in the integration of the continent within the EMCCA. For decision-makers, urbanisation raises major challenges in terms of planning, managing and financing urban growth, at both local and national levels. Many retain a pessimistic view of urbanisation, seeing negative externalities first and foremost. This perception has hindered the implementation of public policies that fully take account of the phenomenon, despite the fact that urbanisation is set to become a central element of development strategies in Africa. To meet the challenges associated with urbanisation in the 21^{e} century, a new conception of cities is needed. These challenges are taken into account in the Sustainable Development Goals (SDGs), in particular SDG-11 on sustainable cities and communities. The financing of the economy, despite the risks, offers opportunities for the development of cities. Foreign direct investment, official development assistance, migrant remittances and public investment influence the current and future level of urbanisation in countries.

Urbanisation is an illustration of the feet-voting theory, which results from the natural agglomeration of the population, the rate of reproduction, migration, the sub-optimal provision of public goods and services, and the reclassification of rural land (Tiebout, 1956). It reflects physical, social, political, economic structure and technological conditions. At the end of the 21^{e} century, two important phenomena occurred in Africa: rapid urbanisation and the penetration of

various means of financing the economy. Financial integration and the internal financing of the economy are driving economic growth, leading to prosperity in urban areas. The trend towards urbanisation has increased, with a host of challenges promoting concepts such as smart growth, the intelligent city, the e-city, the knowledge city, the green city, etc.

The financing of the EMCCA economies is very heterogeneous. On the one hand, there is external financing. In 2000, FDI accounted for a large share of GDP in Equatorial Guinea (14.77%) and Chad (8.29%), unlike the Republic of Congo (-3.04%). By 2021, Congo will be attracting the most foreign investment (27.61%), followed by Gabon (8.08%). In 2000, Congo was the country in the zone that received the most remittances as a percentage of its GDP (0.32%), compared with 0.94% for Cameroon in 2021. Official development assistance accounted for 74.77% in CAR and 40.63% in Chad of total gross investment in 2000, compared with a different level in 2021, dominated by CAR with 99.73% and followed by Chad with 32.31% of gross investment. Secondly, internal financing, with gross fixed capital formation representing 18.97% for Chad and 18.83% for Cameroon as a percentage of GDP in 2021.

The consolidation of the theoretical foundations needed to distinguish between the nature, consequences and causes of urbanisation has led to the emergence of two opposing approaches. The pessimistic approach emphasises the harmful effects, such as insecurity, shanty towns, pollution and inequality. The other, which is optimistic, highlights the beneficial effects, such as job creation, capacity building, reduced inequality and poverty, and the emergence of an ecosystem governed by digital requirements. Research at both the micro and macroeconomic levels emphasises that urbanisation is associated with improved conditions for financing the economy. The literature on urbanisation focuses on three areas. Firstly, the construction of urbanisation indicators. Second, the effects of urbanisation on economic and meso-economic variables. Third, the determinants of urbanisation (Ongo and Song, 2019). Two groups are considered. On the one hand, traditional determinants such as migration, population explosion, industrialisation, natural resources, Foreign Direct Investment (Ebeke and Etoundi, 2017). On the other hand, modern determinants such as Public-Private Partnership, the quality of institutions and ICTs (Brückner, 2012).

The aim of this article is to assess the effects of financing on urbanisation in the EMCCA. As in all countries, urbanisation policy is a public policy mainly financed by the State budget. However, in the face of insufficient internal resources, external funding is generally sought. Official development assistance, foreign direct investment, migrant remittances and donor loans can all contribute to financing urbanisation. However, the international financial crisis, the political crisis, insecurity at national borders and falling commodity prices have reduced the resources available to finance urbanisation in the EMCCA. As part of a forward-looking analysis, it is therefore urgent to look for innovative sources of funding. So, in addition to analysing traditional sources of funding for urbanisation in the EMCCA area, we will be looking for innovative sources that are more realistic and more stable. The aim is to reduce the high level of indebtedness associated with structuring urbanisation projects.

To our knowledge, no such study has yet been carried out in the EMCCA zone. Africa is responding to global calls for sustainable cities and communities, contributing to the African Union's Agenda 2063 and UN-HABITAT's New Urban Agenda. Using a sample of 06 countries over the period 2000-2021, we specify and estimate a panel data model using Ordinary Least Squares (OLS) methods. The results show that internal and external financing significantly improve urbanisation in the EMCCA.

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2. Literature review

This section outlines the analytical framework needed to understand the theoretical underpinnings of urbanisation. It also provides an empirical summary of the direct effects of financing the economy on urbanisation. The empirical work summarised is inspired by the theories previously analysed.

2.1. Theoretical summary of the effects of financing on urban development

Without claiming to be exhaustive, four theories contribute to the assessment of the effects of financing on urbanisation. Firstly, the theory of concentric zones developed by Burgess et al (1925), which suggests a form of economic competition to regulate urban space, and the theory of urban density. Secondly, the modernisation theory (Hawley, 1944; Rostow, 1960) suggests that financing can have positive effects on urbanisation in developing countries. According to this theory, external and internal finance can help to modernise the economy, which can lead to increased urbanisation. Foreign finance brings capital, technology and knowledge, which encourages the development of key sectors such as industry, services and urban infrastructure. This creates jobs and attracts the rural population to urban areas in search of better economic opportunities. In addition, internal financing, such as loans and public investment, is used to develop urbanisation projects such as the construction of housing, schools, hospitals, transport networks and other urban infrastructure. This theory is in line with endogenous growth theory (Romer, 1986; Barro, 1990), which suggests that external financing has positive effects on urbanisation in developing countries if it is used to stimulate endogenous economic growth. Financing can be used to fund internal factors such as infrastructure, innovation and human capital formation, which can help to stimulate economic growth and improve living conditions in urban and rural areas.

In addition, the urban bias theory (Lipton, 1977) is an approach that suggests that external funding and development policies have favoured urban development at the expense of rural development in many developing countries. This critical approach argues that development policies have often neglected the needs of rural populations and concentrated resources on cities, causing an imbalance between urban and rural areas. External funding benefits cities more than rural areas, which explains the rapid and unbalanced urbanisation. This has often led to the marginalisation of rural populations and the concentration of wealth and power in urban areas. Finally, dependency theory is a critical approach that challenges modernisation theory. According to dependency theory (Cardoso and Faletto, 1979), foreign funding can have a negative impact on urbanisation in developing countries by limiting their capacity to invest in sustainable urbanisation projects and by forcing them to follow externally imposed development models.

The theoretical roots of the effects of finance on urbanisation go back to the theory of financial liberalisation, which emphasises their contribution to the modernisation of cities. Financial theory and the theory of law and finance are constantly referred to. Urbanisation remains largely driven by the demand for housing in urban areas (Todaro, 1969). Although the effect of finance on urbanisation has long emerged, metaphors for futuristic and idealistic visions have circumscribed cities to internal and external flows of finance.

2.2. Empirical synthesis: Financing and urbanisation

There is still no consensus on the effects of financing on urbanisation. Two aspects of financing urbanisation are considered in the literature, namely external and internal financing.

With regard to external financing, in particular, official development assistance, foreign direct investment and migrant remittances. Yoo and Woo (2023) study how types of foreign financing, such as official development assistance (ODA), foreign direct investment (FDI) and remittances from abroad affect slum upgrading in developing countries. They find that the effects of the provision of financial resources differ according to the type of foreign funding. Specifically, ODA and remittances will be more effective than commercial FDI in improving slums. But the effects of ODA differ depending on whether a country is autocratic or democratic. Indeed, according to Yoo and Woo (2023) and Grekou and Owoundi (2020) autocratic rulers have more political incentives to channel public resources to slums in order to avoid urban uprising - a major threat to the political survival of autocratic rulers. For Yoo and Woo (2023) by comparison, slum dwellers in democracies often face legal and practical difficulties in participating in political life; the political incentives for democratic leaders to take the interests of slum dwellers into account are therefore weaker, resulting in less public investment in slums in democracies.

Grekou and Owoundi (2020) study the effects of FDI flows on urbanisation in Africa using a broader approach than Yoo and Woo (2023), including the amount of CO2 emitted in urban areas, urban population growth and the value added of services. Using a large sample of African countries, unlike Yoo and Woo (2023), they find that FDI flows have significantly influenced the dynamics of urbanisation on the continent, regardless of the urbanisation proxy. But Grekou and Owoundi (2020) argue that it is resource-seeking FDI that appears to be more responsible for urbanisation than market-seeking FDI. Wu and Chen (2016) suggest that FDI has a positive impact on urbanisation in the coastal region, but no significant impact on urbanisation in the inland region. However, Wang et al (2022) suggest a non-linear effect of official development assistance on the relationship between urbanisation and the environment in a sample of 37 sub-Saharan African countries. Indeed, official development assistance has a double threshold effect on the urbanisation-carbon emissions and urbanisation-ecological footprints link. When aid crosses the threshold, the effect of promoting urbanisation on carbon emissions first increases, then weakens, and the regression coefficient shows an inverted U-shaped change trend. This indicates that official development assistance is reshaping the link between urbanisation and the environment in these sub-Saharan African countries, and that official development assistance is helping sub-Saharan countries to ease the environmental pressure in the urbanisation process. This result is in line with that of Wang et al (2021), for whom when carbon dioxide intensity and urbanisation are below threshold values, ODA favours the development of renewable energies, but not always. On the contrary, when technological progress and changes in social structure reach a certain stage, ODA hinders the development of renewable energies.

In terms of internal funding, Wang et al (2021) and Ongo and Song (2022) suggest that ICT infrastructure has a positive effect on urbanisation and directly improves the levels and efficiency of urbanisation. They argue that the application of mobile phones is an indispensable tool for future urban development. Less developed cities lag behind well-developed cities due to poor basic conditions and low levels of ICT awareness among residents. Liu and Su (2021) clearly support the search matching theory in that transport infrastructure has positive effects on urbanisation. The transport structure is inadequate and a rational allocation of transport resources is necessary to improve the level of urbanisation. This means that transport improves urbanisation through government investment and regional integration. The development of transport infrastructure has been rapid, making it possible to improve urbanisation during the period of the great cultural revolution. Maparu and Mazumder (2017), examine different transport infrastructure sub-sectors to determine their long-term relationships and direction of causality with economic development

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and urbanisation. The results show that there is a long-term relationship between transport infrastructure and economic development, and the direction of causality runs from economic development to transport infrastructure in most cases, arguing in favour of Wagner's law (Maparu, and Mazumder, 2021; 2017).

Three observations emerge from this non-exhaustive summary of the state of the art. Firstly, the work focuses more on investigating the effects of internal financing on urbanisation. Secondly, very few studies have looked at the effects of external financing. Thirdly, the non-consensual conclusions of the empirical work justify new investigations in a context of demographic growth and increasing urbanisation. It is essential to assess the effects of internal and external financing on urbanisation in the EMCCA.

3. Methodological strategy

In this section, we briefly outline the various stages of the empirical strategy adopted. First, we present the basic empirical model and its various specifications. Second, we outline the different estimation techniques used. Third, we present the sample, the time horizon and the data.

3.1. The empirical model

The empirical model results from the work of Grekou and Owoundi (2022) who analyse the effects of FDI on urbanisation in Africa, taking into account three measures of urbanisation. The reduced specification is illustrated in Equation 1.

$$Urb^{k}_{i,t} = \alpha + \beta Fin_{i,t} + \theta X_{i,t} + \mu_i + \eta_t + \varepsilon_{i,t} \quad \textbf{(1)}$$

Where Urb represents the urbanisation indicator in country *i* and year *t*, with *i* = 1, 2, ..., 6 and *t* = 2000, 2001, ..., 2021. *k* indicates the proxy chosen, i.e. either the urbanisation rate, the concentration of the urban population in the largest city, CO2 emissions in urban areas, or value-added services. On the one hand, the first variable represents the total number of people living in urban areas as a proportion of the total population as defined by national statistical offices, while the second focuses on the role of primary cities in explaining urbanisation. On the other hand, CO2 emissions in urban areas correspond to the total quantity of CO2 emissions in kilotonnes multiplied by the share of the overall urban population in the total population. The value added of services is the value added of non-tradable goods (retail, transport, government, real estate, health, education), *Fin* is the financing of the economy which has two compartments, external and internal. It includes foreign direct investment, official development assistance, remittances and public investment. $X_{i,t}$ is a set of control variables. μ_i and η_t mean country-specific effects and time effects, to control for time-invariant structural factors, such as political instability or the investment climate, correlated with FDI flows and urbanisation. $\varepsilon_{i,t}$ is a random disturbance term.

3.2. The estimation technique

We use the Ordinary Least Squares (OLS) econometric technique based on contemporary empirical literature. Four justifications can be put forward: *(i)* OLS minimises the impact of measurement errors; *(ii)* OLS assumes that the countries in the sample are perfectly homogeneous; *(iii)* the OLS econometric technique is preferred because of the linear nature of the variables and reduces the problem of measuring the dependent variable; *(iv)* OLS is recommended in cases where the dependent variable does not change much over time. Developed by Legendre (1805) and Gauss (1809), it allows regressions on cross-sectional data and highlights the effects of financing on

urbanisation in the EMCCA zone. Moreover, the endogeneity tests between the explanatory variables are not validated. Consequently, OLS regression is particularly powerful, as it is relatively easy to test model assumptions such as linearity, constant, variance and the effect of outliers using simple graphical methods. OLS is also based on the work of Sundström et al (2017), who achieved good results using this method.

3.3. The data

This study covers the 06 countries (*Central African Republic, Chad, Congo Rep, Equatorial Guinea, Gabon*) of the Economic and Monetary Community of Central African States (EMCCA) for the period 2000 to 2021. The data used was taken from the World Bank's World Development Indicators database (WDI, 2022). Descriptive statistics suggest low dispersion between EMCCA countries. The low dispersion between the countries in the sample can be seen from the fact that the values of the standard deviations are close to the mean values. This leads us to assume the existence of homogeneity between the countries in the zone (Table 1). The variables are described in Appendix 1.

Table 1 : Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FDI	132	5.889	10.188	-18.918	64.384
GFCF	127	24.645	12.905	4.722	81.021
Remittances	113	18.634	26.164	0	94.864
ODA	127	26.985	37.807	-.741	159.544
Urban	132	3.954	1.403	.667	8.368
Pop	132	39.56	10.59	21.683	61.975
CO2 emiss	45	14.033	13.305	0	36.893
Services v.a	117	37.76	9.186	15.415	59.918
GDPpc	132	.701	8.635	-36.778	55.59
Energy urban	132	62.987	31.153	10.068	98.692
Inflation	132	4.907	12.808	-21.165	64.735

Source : Author.

The correlations between the different variables are not high enough to cause serious problems of serial multicollinearity, as Table 2 suggests. But nevertheless, there are strong correlations between urban energy and CO2 emissions; value added of services and population; and population and public investment (Table 2). To deal with this problem, we do not include all these variables in the same model.

Table 2: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) FDI	1.00										
(2) GFCF	0.66	1.00									
(3) Remittances	-0.29	-0.24	1.00								
(4) ODA	0.02	-0.30	0.29	1.00							
(5) Urban	0.07	0.02	0.17	0.26	1.00						
(6) Pop	0.47	0.62	-0.57	-0.30	-0.04	1.00					
(7) CO2emiss	-0.15	-0.09	-0.54	-0.41	-0.21	0.06	1.00				
(8) Services v.a.	-0.34	-0.50	0.63	0.29	-0.06	-0.89	-0.21	1.00			
(9) GDPpc	0.04	-0.00	0.22	0.27	0.25	-0.05	-0.31	-0.05	1.00		
(10) Energy	-0.38	-0.40	-0.04	-0.20	-0.20	-0.53	0.75	0.39	-0.21	1.00	
(11) Inflation	0.07	-0.14	-0.15	0.18	0.21	0.23	-0.02	-0.34	0.02	-0.16	1.00

Source: Auhor.

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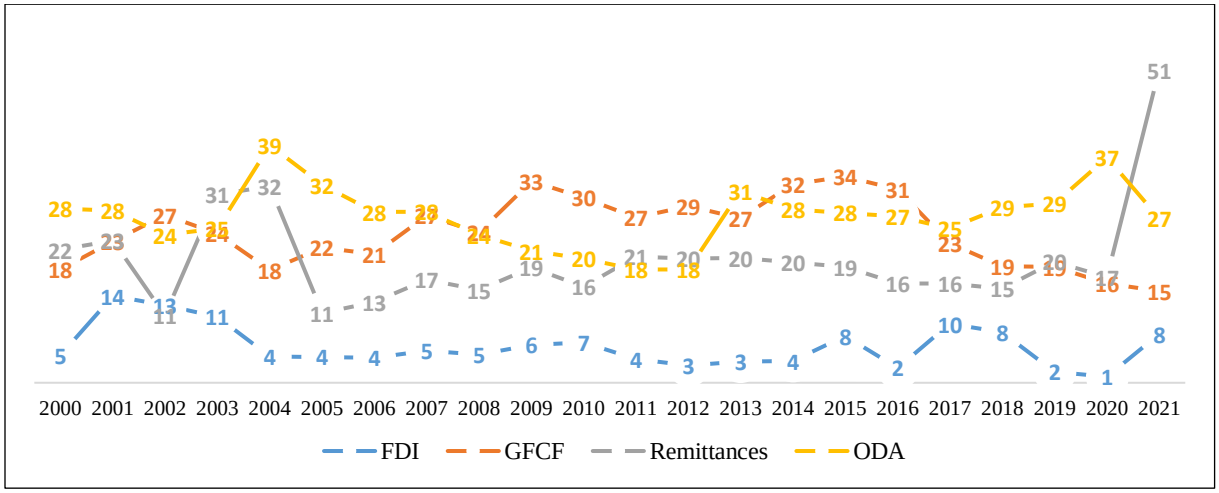
Figure 1 shows the evolution of internal and external financing in the EMCCA zone over the period 2000 to 2021. It is true that the level of financing of the zone's economies is more or less stable over the study period. Foreign direct investment (FDI) rose from 5 in 2000 to 8 in 2021. The highest levels were recorded in 2001 and 2002, with 14 and 13 respectively, which can be explained by the internet boom. During the Covid-19 crisis, FDI inflows to the region were low on average, at 2 in 2020 and 1 in 2021. Investment stood at 18 in 2000, but fell to 15 in 2021. Migrant remittances went from a low of 22 in 2000, to a high of 51 in 2021 after the Covid-19 crisis. Official development assistance has fallen slightly in the region, from 28 in 2000 to 27 in 2021, despite having risen sharply the previous year.

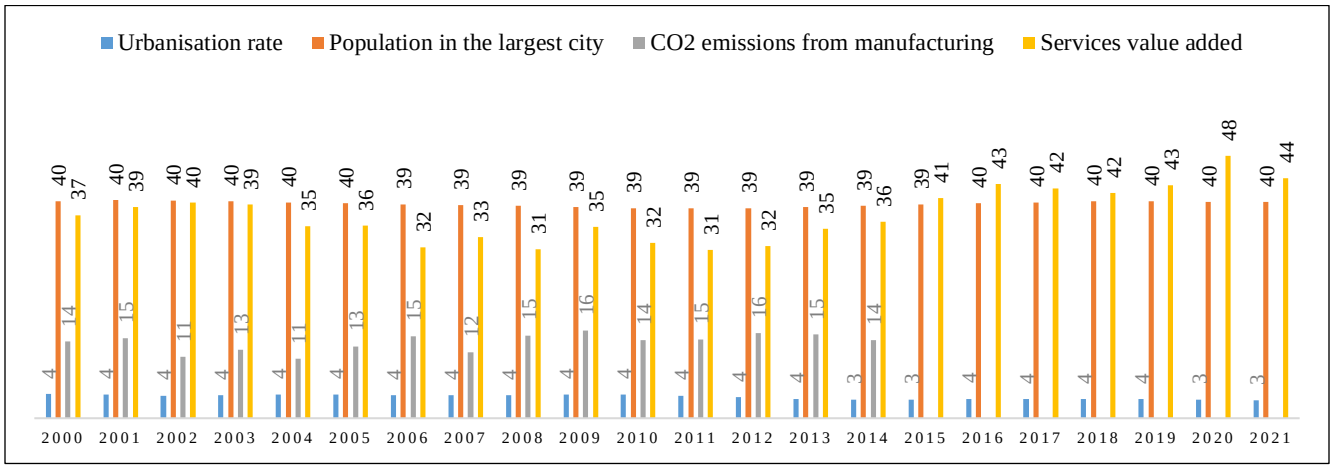
Figure 1: Financing trends in the EMCCA zone



Source : author

However, Figure 2 shows the average trend in urbanisation in the EMCCA zone over the period 2000 to 2021. It can be seen that the urbanisation rate remained almost unchanged during this period, but fell slightly during the health crisis. The urban population in major cities fell between 2006 and 2015. CO2 emissions from the manufacturing sector varied over the study period. The added value of services also fell slightly.

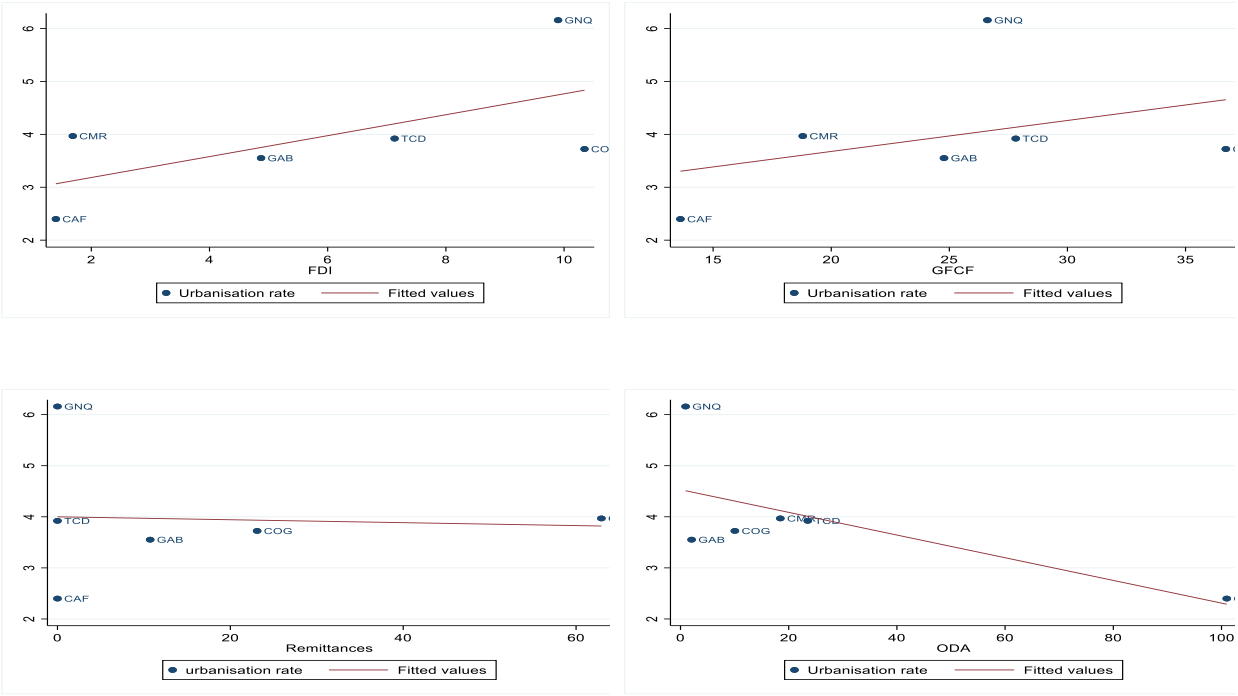
Figure 2: Urbanisation trends in the EMCCA zone



Source : Author.

Figure 3 shows the graphical correlation between financing and urbanisation from 2000 to 2021. Observation of the figure shows a positive correlation between foreign direct investment, domestic investment and urbanisation in EMCCA. A different observation can be made for the relationship between migrant remittances, official development assistance and urbanisation. These correlations suggest that the direction of the relationship between financing and urbanisation depends on the type of financing selected.

Figure 3: Graphical correlation between financing and urbanisation in EMCCA



Source : author

4. Analysis of results

This section presents and discusses the results of the basic model as well as those of the robustness analysis, derived from the empirical investigations. The effects of financing on urbanisation in the EMCCA zone.

4.1. Results of the basic model

The analysis of the basic results contained in Table 3 confirms the relationships obtained in the graphical correlations in Figure 3. Financing explains urbanisation differently depending on the type of financing chosen in the EMCCA. Columns (1a), (2a), (3a) and (4a) show the marginal effects of financing on urbanisation. Columns (1b), (2b), (3b) and (4b) present the complete models, including control variables. The inclusion of control variables allows us to limit the omission bias of important explanatory variables. The values of the multiple determination coefficients (R-squares) suggest that the model fit is of more or less good quality. Estimates are made using the pooled ordinary least squares method, which shows us the effects of financing on urbanisation.

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Table 3: Basic results - Financing and urbanisation

	Dependent Variable: Urbanisation rate Technical estimate: Ordinary Least Square							
Variables	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)
FDI	0.040***	0.017*						
	(0.012)	(0.010)						
GFCF			0.032***	0.029***				
			(0.008)	(0.007)				
Remittances					-0.006**	-0.008*		
					(0.003)	(0.004)		
ODA							-0.017***	-0.013***
							(0.002)	(0.003)
GDPpc		0.061***		0.036***		0.046***		0.033**
		(0.012)		(0.014)		(0.017)		(0.014)
Energy		0.019***		0.016***		0.020***		0.007*
		(0.003)		(0.003)		(0.004)		(0.004)
Inflation		0.016**		0.018**		0.014*		0.015**
		(0.007)		(0.007)		(0.008)		(0.007)
Constant	3.719***	2.505***	3.010***	2.035***	3.558***	2.627***	4.245***	3.676***
	(0.136)	(0.219)	(0.211)	(0.245)	(0.082)	(0.247)	(0.123)	(0.284)
Observations	132	132	127	127	113	113	127	127
Countries	6	6	6	6	6	6	6	6
R-squared	0.084	0.427	0.123	0.360	0.053	0.273	0.293	0.367
r2_adj	0.0766	0.409	0.116	0.339	0.0442	0.246	0.287	0.347
F-stat	11.86	23.69	17.60	17.16	6.180	10.14	56.72	17.72

Source : Author. Note : Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

The results suggest two typologies of results, on the one hand financing that improves urbanisation and on the other external financing that reduces urbanisation. When FDI increases by 10, it increases urbanisation by 0.17. When internal investment increases by 10, there is an increase of 0.29 in urbanisation. For certain categories of external financing, an increase of 10 leads to a reduction in urbanisation of around 0.08 in the case of migrant remittances. An increase of 10 in official development assistance leads to a reduction in the urbanisation rate of 0.13. There are various explanations for these relationships. Foreign Direct Investment (FDI) and domestic financing can have a number of positive effects on urbanisation, notably through the development of urban infrastructure, job creation, the transfer of knowledge and technology, the attraction of capital and the promotion of the services sector. In addition, promoting investment in urban infrastructure such as public transport, roads and water supply networks can improve the quality of life of city residents and make the city more attractive to investors and businesses. This result is supported by Ongo Nkoa, (2016); Grekou and Owoundi (2020) and Wang et al., (2021).

The negative effects of migrant remittances and official development assistance on urbanisation in EMCCA can be explained in several ways. In particular, as far as remittances are concerned, these effects manifest themselves in three main ways. On the one hand, they can lead to an increase in the price of property and consumer goods due to rapid migration to urban areas, which can make life more expensive for low-income residents. On the other hand, as far as official development assistance is concerned, several explanations are put forward, notably that it encourages dependence on foreign aid rather than promoting internal investment and sustainable economic

development. These results run counter to those found by Sylvester (2008) and Rahman et al (2021), but are consistent with those found by Grekou and Owoundi (2020).
Our control variables all have a positive impact on urbanisation in the EMCCA zone. Specifically, an increase of 10 in per capita income growth increases the urbanisation rate from 0.3 to 0.6. The explanation lies in the fact that, in general, people with higher incomes tend to live in denser and more expensive urban areas, while people with lower incomes are often forced to live in less dense and less expensive areas on the outskirts of cities. This can lead to increased urbanisation in urban areas with high economic growth, while contributing to gentrification and socio-economic segregation in cities. This result is consistent with research by Brückner (2012) and Ebeke and Etoundi (2017). When energy increases by 10, it generates a 0.07 to 0.2 increase in the urbanisation rate in the EMCCA zone. Electricity can enable the development of industry, infrastructure and services in urban areas, which can attract more people to these areas. In addition, electricity can also facilitate the quality of daily life by enabling public lighting, public transport and the use of household appliances (Song et al., 2023). A 10-point shock to inflation improves the urbanisation rate by 0.1 points. There are several reasons for this, including the fact that it may make cities more attractive to workers because of higher wages. This can lead to increased migration to urban areas, which in turn can contribute to increased urbanisation. This result is consistent with that supported by Tripathi (2021).

4.2. Robustness of results

Several analyses are used to validate the robustness of our results. On the one hand, we take into account alternative measures of urbanisation. Secondly, we take account of institutional quality as an important factor.

- ***Consideration of alternative urban development measures***

Table 4 presents the consideration of alternative measures of urbanisation, including the population of the largest city, CO2 emissions from manufacturing and the value added of the service sector, drawing on existing literature, specifically Ebeke and Etoundi (2017) and Grekou and Owoundi, (2020). The use of alternative measures does not drastically change the direction of the relationship. The sign remains robust for the population of the largest city and CO2 emissions. In other words, when foreign direct investment (FDI) and gross fixed capital formation (GFCF) significantly improve urbanisation in the EMCCA zone. In other words, when FDI and GFCF increase by 10, an increase of 3 is noted in the population size of the largest city and in the CO2 emissions produced by manufacturing. While remittances and official development assistance significantly reduce urbanisation. That is, when remittances and official development assistance increase by 10, there is a 1 to 3 reduction in the population size of the largest city and in CO2 emissions from manufacturing. All external financing significantly increases the value added of services except GFCF, which reduces the value added of the services sector.

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Table 4: Robustness when alternative urbanisation measures are taken into account

	Technical estimate: Ordinary Least Square											
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)
Variables	Population in the largest city				CO2 emissions from manufacturing				Services value added of GDP			
FDI	0.30**				0.37*				0.13*			
	(0.11)				(0.21)				(0.07)			
GFCF		0.34***				0.35**				-0.14**		
		(0.06)				(0.14)				(0.06)		
Remittances			-0.12***				-0.30***				0.20***	
			(0.03)				(0.03)				(0.03)	
ODA				-0.10***				-0.24*				0.07***
				(0.03)				(0.12)				(0.02)
GDPpc	-0.29***	-0.36***	-0.17	-0.35***	-0.61*	-0.52	-0.20	-0.37	-0.42***	-0.38***	-0.43***	-0.18
	(0.09)	(0.13)	(0.18)	(0.12)	(0.35)	(0.41)	(0.23)	(0.29)	(0.10)	(0.10)	(0.14)	(0.14)
Energy	-0.08***	-0.10***	-0.06**	-0.16***	0.59***	0.64***	0.54***	0.52***	0.13	0.12	-0.02	0.08**
	(0.02)	(0.02)	(0.03)	(0.03)	(0.08)	(0.08)	(0.05)	(0.06)	(0.10)	(0.10)	(0.03)	(0.03)
Inflation	0.10	0.19**	0.09	0.15*	0.11	0.17*	0.02	0.15	-0.12**	-0.16***	-0.20***	-0.20**
	(0.07)	(0.09)	(0.10)	(0.09)	(0.09)	(0.09)	(0.07)	(0.09)	(0.06)	(0.06)	(0.07)	(0.08)
Constant	42.77***	36.37***	45.35***	51.25***	-33.36***	-45.37***	-18.27***	-24.09***	33.84***	36.80***	35.11***	31.98***
	(1.39)	(1.79)	(1.96)	(3.02)	(6.58)	(8.82)	(3.80)	(4.14)	(3.53)	(3.65)	(1.73)	(2.06)
Country effects	No	No	No	No	No	No	No	No	Yes	Yes	No	No
Countries	6	6	6	6	6	6	6	6	6	6	6	6
Observations	132	127	113	127	45	45	45	45	117	117	108	117
R-squared	0.15	0.25	0.16	0.16	0.63	0.67	0.83	0.67	0.55	0.56	0.43	0.16
r2_adj	0.123	0.226	0.130	0.129	0.588	0.632	0.812	0.638	0.514	0.525	0.406	0.128
F-stat	5.784	11.18	10.90	6.008	22.47	23.24	57.51	27.95	14.62	15.22	30.45	6.460

Source: Author. Note: Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 5a: Taking into account the quality of institutions

	Technical estimate: Ordinary Least Square											
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)
Variables	Control of Corruption				Government Effectiveness				Political Stability			
FDI	0.02				0.02**				0.01			
	(0.01)				(0.01)				(0.01)			
GFCF		0.03***				0.03***				0.02***		
		(0.01)				(0.01)				(0.01)		
Remittances			-0.01**				-0.00				-0.00	
			(0.00)				(0.00)				(0.00)	
ODA				-0.01***				-0.02***				-0.01***
				(0.00)				(0.00)				(0.00)
GDPpc	0.07***	0.04***	0.06***	0.04***	0.07***	0.04***	0.05***	0.04***	0.06***	0.04***	0.04**	0.04**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
Energy	0.02***	0.02***	0.03***	0.01***	0.03***	0.02***	0.03***	0.02***	0.01	0.01	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
Inflation	0.02**	0.02***	0.02**	0.02**	0.01*	0.02**	0.02**	0.01*	0.01*	0.02**	0.01*	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
CC	-2.15***	-1.90***	-2.28***	-1.66***								
	(0.40)	(0.35)	(0.40)	(0.37)								
GE					-1.38***	-1.03***	-1.77***	-1.58***				
					(0.42)	(0.38)	(0.52)	(0.38)				
PS									0.62***	0.45**	0.66***	0.37*
									(0.22)	(0.20)	(0.25)	(0.22)
Constant	-0.37	-0.52	-0.52	1.21*	0.25	0.35	-0.47	1.36**	3.82***	3.10***	4.05***	4.23***
	(0.57)	(0.52)	(0.58)	(0.61)	(0.71)	(0.66)	(0.93)	(0.61)	(0.52)	(0.55)	(0.60)	(0.44)
Countries	6	6	6	6	6	6	6	6	6	6	6	6
Observations	126	122	110	122	126	122	110	122	126	122	110	122
R-squared	0.51	0.49	0.46	0.46	0.44	0.40	0.36	0.45	0.43	0.39	0.34	0.38
r2_adj	0.487	0.468	0.435	0.437	0.414	0.375	0.330	0.427	0.401	0.362	0.304	0.356
F-stat	24.70	22.31	17.81	19.80	18.69	15.53	11.72	19.05	17.77	14.71	10.51	14.39

Source: Author. Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. CC, GE and PS are respectively Control of Corruption, Government Effectiveness and Political Stability.

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Table 5b: Taking into account the quality of institutions

	Technical estimate: Ordinary Least Square											
	(1a)	(2a)	(3a)	(4a)	(1b)	(2b)	(3b)	(4b)	(1c)	(2c)	(3c)	(4c)
Variables	Regulatory Quality				Rule of Law				Voice Accountability			
FDI	0.01				0.02**				0.02**			
	(0.01)				(0.01)				(0.01)			
GFCF		0.03***				0.03***				0.03***		
		(0.01)				(0.01)				(0.01)		
Remittances			-0.01				-0.01***				0.00	
			(0.00)				(0.00)				(0.00)	
ODA				-0.01***				-0.02***				-0.01***
				(0.00)				(0.00)				(0.00)
GDPpc	0.07***	0.05***	0.05***	0.04***	0.07***	0.04***	0.06***	0.04***	0.07***	0.05***	0.06***	0.05***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Energy	0.02***	0.02***	0.03***	0.01***	0.03***	0.02***	0.03***	0.02***	0.02***	0.02***	0.02***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Inflation	0.01*	0.02**	0.02**	0.01**	0.01*	0.02**	0.01*	0.01**	0.01*	0.02***	0.01**	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
RQ	-1.28***	-0.97***	-1.22***	-1.15***								
	(0.25)	(0.24)	(0.27)	(0.23)								
RL					-1.19***	-0.97***	-1.24***	-1.36***				
					(0.38)	(0.35)	(0.42)	(0.36)				
VA									-2.08***	-1.82***	-2.10***	-1.78***
									(0.23)	(0.21)	(0.25)	(0.22)
Constant	0.89**	0.82**	0.92**	2.23***	0.52	0.34	0.40	1.67***	0.04	-0.11	-0.00	1.39***
	(0.38)	(0.38)	(0.43)	(0.40)	(0.66)	(0.66)	(0.77)	(0.59)	(0.32)	(0.32)	(0.36)	(0.36)
Countries	6	6	6	6	6	6	6	6	6	6	6	6
Observations	126	122	110	122	126	122	110	122	126	122	110	122
R-squared	0.49	0.44	0.41	0.48	0.43	0.40	0.35	0.44	0.64	0.61	0.58	0.60
F-stat	23.42	18.26	14.35	21.15	18.32	15.59	11.01	18.07	42.04	36.47	28.88	35.05
r2_adj	0.473	0.416	0.380	0.454	0.409	0.376	0.315	0.414	0.621	0.594	0.561	0.585

Source: Author. Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

- ***Taking account of institutional quality factors***

Table 5 (a and b) takes into account additional variables to capture the effects of institutional quality on urbanisation in the EMCCA. The results found previously remain robust to the addition of additional variables. Regarding the role of institutional quality on urbanisation in the EMCCA zone. Two observations stand out in Tables 3a and 3b. On the one hand, the quality of institutions captured by political stability significantly increases urbanisation. In other words, when political stability increases by 10, urbanisation increases by 4 to 7 points. On the other hand, certain dimensions of institutional quality work against urbanisation in the EMCCA zone, notably the control of corruption, the effectiveness of government, the quality of regulation, the rule of law and voice and accountability. In other words, when institutional quality increases by 10, this produces a reduction in urbanisation from 9.7 to 22.8. This suggests that the quality of institutions has a major and significant role to play in determining the rate of urbanisation in the EMCCA zone. This is explained by the fact that stable and democratic institutions can encourage investment and the confidence of economic players, which in turn can encourage urbanisation and urban development. On the other hand, excessive bureaucratic institutions can slow down decision-making processes and hinder rapid and effective urban development. Also, a lack of transparency in institutions can create a climate of uncertainty and mistrust, discouraging the investment needed for urbanisation. These findings are validated by previous studies by Ebeke and Etoundi (2017) and Grekou and Owoundi, (2020).

5. Conclusion and policy suggestions

The aim of this article was to examine the impact of ICT financing on urbanisation in the EMCCA zone. Two observations helped to refine our problem. Firstly, the diversity and inventiveness of rapid, variable-geometry urbanisation, combined with unprecedented demographic growth, is fascinating economic development in Africa. Secondly, the increasing availability of internal and external sources of finance over the last two decades in the EMCCA zone. These aspects have led us to focus our reasoning on the theories of urbanisation, in particular the theory of modernisation, the theory of concentric zones, which sees urbanisation as a driver of development, criticised by the theory of dependence and the theory of urban bias, which associate urbanisation with underdevelopment and the impoverishment of rural areas.

The paper has contributed to the literature on the externalities of financing sources to the urbanisation process. We have mobilised theoretical and empirical developments to investigate econometrically several variants of models estimated by Ordinary Least Squares and Least Squares from a sample of 6 African countries over the period 2000 to 2021. The results show that FDI and gross fixed capital formation fuel rapid urbanisation, which worsens living conditions. In contrast, migrant remittances and official development assistance reduce the rate of urbanisation. These results are robust to a variety of tests and take account of the quality of institutions. In addition, one of the main results of the study is the essential role played by the quality of governance. We have shown that in the EMCCA countries, the quality of institutions has for the most part reduced urbanisation, apart from the case of political stability, which plays a decisive role in urban concentration.

Rapid urbanisation in EMCCA poses huge financial challenges and opportunities. Migration from rural to urban areas is a challenge for urban planners, as it is crucial to extend basic services to prevent water-related diseases. The political implications are clear. There is a need to create a broad and inclusive growth process in EMCCA countries, particularly those with weak institutions, in order to reduce regional disparities and stem the rapid rural exodus. As rapid urbanisation often occurs in an unplanned way due to labour reallocation, it is crucial that policies are targeted to enable better socio-economic integration of people in urban areas..

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Appendix 1: Definitions of variables and data sources

Short Def	**Long Definition**	
Energy	Access to electricity, urban (% of urban population)	WDI (2022)
Urbanisation rate	Urban population growth (annual %)	
GFCF	Gross fixed capital formation (% of GDP)	
GDppc	GDP per capita growth (annual %)	
FDI	Foreign direct investment, net inflows (% of GDP)	
Remittances	Personal remittances, received (% of GDP)	
Inflation	Inflation, GDP deflator (annual %)	
ODA	Net ODA received (% of gross capital formation)	
Pop	Population in the largest city (% of urban population)	
CO2 emiss	CO2 emissions from manufacturing industries and construction (% of total fuel combustion)	
Services v.a.	Services, value added (% of GDP)	

Source: Author.