IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES
ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

# LINKAGE BETWEEN URBANIZATION AND PROVISION OF MERIT GOODS BY LOCAL GOVERNMENTS: A CASE STUDY OF NANDED WAGHALA CITY

**[1]Dr. P. E. Vibhute, [2]Dr.S.B.Pate, [3]Mr. Shashikant Pandit Panchgalle**

[1]Former Principal, Shri Havagiswami College, Udgir Dist. Latur (M.S.)
[2]Department of Economics, Sant Tukaram Mahavidyalaya, Parbhani
[3]Research Student, Swami Ramanand Teerth Marathwada University, Nanded

## Abstract

The present research explores how the urbanization affects the delivery of high-quality merit goods by local authorities, based on Nanded Waghala City. The city has seen a dramatic increase in its population, growing by 56.83 percent from 2001 to 2011, which highlights the strain that urban growth places on public services and infrastructure. The paper evaluates the trends in property growth, educational infrastructure, healthcare facilities, and water storage capacity between 2011 and 2017. The findings indicated a significant rise in all types of properties, with an average growth rate of 6.79 percent for all properties, mainly due to an increase in residential and commercial areas. The development of educational facilities has been somewhat limited, with an average growth rate of 8.3 percent, but certain areas like college and technical education have remained stagnant. Healthcare services have expanded considerably, especially in areas like Ayurvedic clinics (growth rate of 25.7 percent) and gynecology services (growth rate of 12.3 percent), showing a growing need for specialized medical care. The statistical analysis reveals a clear link ($R^2 = 0.998$) between the growth of urban areas (population and property growth) and the provision of essential services like education and healthcare, although the significance of some factors is still uncertain. Additionally, the capacity of the city's water storage facilities has been increased, meeting the growing demand for water among the population. This research highlights the difficulties local authorities encounter in balancing the growth of cities with the provision of merit goods like education, healthcare, and water supply.

**Key Words:** Merit Goods**,** Nanded Waghala City, Urbanization

## 1. Introduction

Urbanization is a critical driver of economic growth and social change, yet it also created challenges in terms of infrastructure development, service delivery of merit goods, and resource allocation. As cities expand, local governments face increasing pressure to provide essential services, including the provision of merit goods such as education, healthcare, and clean water. The provision of these goods is vital for improving the quality of life for urban residents and promoting inclusive development **(Brueckner, 2011).** Merit goods are those that are deemed socially desirable by governments, often provided at subsidized rates or free of charge to ensure equitable access **(Musgrave, 1959).** In rapidly urbanizing areas, local governments play a pivotal role in delivering these goods, yet their capacity to do so efficiently depends on several factors, including population growth, property development, and infrastructure investments **(Besley & Coate, 1991).**

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

Nanded Waghala City, a rapidly growing urban center in Maharashtra, India, presents a unique case for examining the challenges and strategies associated with urbanization and the provision of merit goods. Over the past five decades, the city has witnessed significant population growth, from 126,538 in 1971 to 550,564 in 2011, reflecting a decadal growth rate ranging from 27.82% to 56.83% during this period **(Census of India, 2011).** Such rapid urbanization has placed immense strain on the city's infrastructure, requiring the Nanded Waghala City Municipal Corporation (NWCMC) to expand its services and facilities, particularly in education, healthcare, and water supply.

In response to these challenges, the NWCMC has undertaken numerous initiatives aimed at improving urban living standards through the provision of merit goods. Between 2011 and 2017, there has been a marked increase in both educational and healthcare facilities in the city. The number of Anganwadi centers, primary, and secondary schools has grown steadily, reflecting the city's commitment to enhancing educational outcomes **(NWCMC, 2017).** Similarly, the healthcare sector has seen a proliferation of private hospitals, clinics, and specialized services, which has helped address the growing health needs of the urban population (NWCMC, 2017).

This paper explored the relationship between urbanization and the provision of merit goods in Nanded Waghala City, focusing on the impact of population growth, property development, and infrastructure expansion on the availability of educational and healthcare services. Using empirical data from the NWCMC and regression analysis, the study assessed the adequacy of merit goods provision in relation to the city's rapid urban growth.

## 2. Objectives of the Study

The main objective of this study is to analyze the impact of urbanization on the provision of merit goods by local governments in Nanded Waghala City. Specifically, the paper examines the trends in population growth, the expansion of infrastructure related to properties, healthcare, education, and water storage facilities between 2011-2017. The study also aims to assess the relationship between urbanization and the capacity of local governments to provide essential services, such as health and education, alongside the expansion of urban infrastructure.

## 3. Methodology

To achieve the objectives, the study utilizes secondary data collected from the Nanded Waghala City Municipal Corporation (NWCMC) and other relevant sources. The analysis begins by examining the decadal population growth from 1971 to 2011, followed by a detailed investigation of the growth in properties, educational infrastructure, and healthcare facilities between 2011-2017. The compound growth rate (CGR) for each category is calculated to identify growth trends. Furthermore, a regression analysis is conducted using predicted population growth, property expansion, healthcare, education, and water storage capacities as variables to assess the statistical relationship between urbanization and the provision of merit goods. The regression output is used to evaluate the significance of these factors in explaining

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

urban service provision trends, providing insights into the challenges and opportunities faced by local governments in rapidly urbanizing environments.

## 4. Discussion

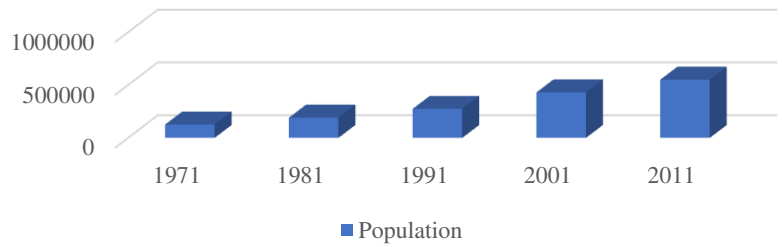
The population of Nanded Waghala City shows steady growth across decades, with the most significant increase occurring between 2001 and 2011 (56.83%).

**Table 1 Population Growth of Nanded Waghala City**

| Census | Population | Decadal Population Growth |
|---|---|---|
| 1971 | 126538 | 0 |
| 1981 | 191269 | 51.16 |
| 1991 | 274656 | 43.60 |
| 2001 | 430733 | 56.83 |
| 2011 | 550564 | 27.82 |

**Source**: Census 2011

**Figure 1 Population Growth of Nanded Waghala City**




The growth rate varies, with peaks in the 1981 (51.16%) and 2001 (56.83%) census periods, followed by a notable deceleration to 27.82% by 2011. This slowing growth rate is indicative of potential urban consolidation, or the stabilization of migration and birth rates.

The data in Table 2 and figure 2 revealed a six-year period of growth in different categories of properties in Nanded Waghala City. Residential properties have consistently accounted for the largest share, beginning at 39,252 in 2011-12 and growing to 66,042 in 2016-17, reflecting a Compound Growth Rate (CGR) of 10.97 percent. This steady increase demonstrates the expanding housing demand, likely driven by urbanization and population growth. Commercial properties, though starting from a smaller base, exhibit the most significant growth rate, with a CGR of 20.00 percent. The number of commercial properties rose from 3,069 in 2011-12 to 7,638 in 2016-17. This robust increase may indicate growing business activities and economic development in the city, which could be linked to urban planning initiatives or economic policy reforms that encourage commerce. Mixed-use properties, which include a combination of residential and commercial spaces, also saw a notable growth with a CGR of 21.41 percent, moving from 2,299 to 6,065 over the period. This category's high growth reflects the city's adaptive response to urban space constraints, where multifunctional properties become more desirable. Conversely, open plots and other property categories (e.g., industrial,

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

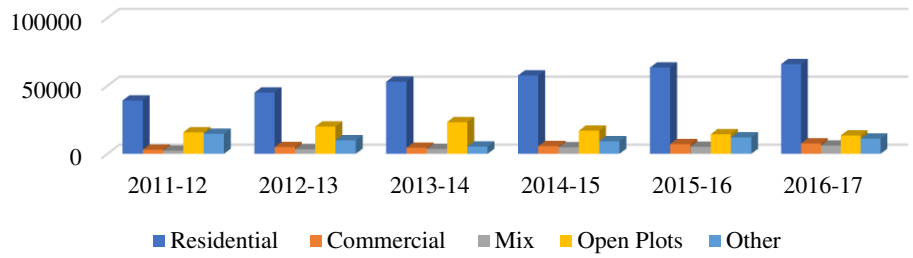
institutional) witnessed a decline. Open plots, which began at 15,894 in 2011-12, dropped to 13,584 by 2016-17, with a CGR of -3.09 percent. This decline suggests that more land is being developed for residential and commercial use, reducing the availability of vacant plots.

**Table 2 Growth in Properties in Nanded Waghala City**

| Year | Residential | Commercial | Mix | Open Plots | Other | Total |
|---|---|---|---|---|---|---|
| 2011-12 | 39252(52.17) | 3069(4.08) | 2299(3.06) | 15894(21.12) | 75238(19.57) | 75238(100) |
| 2012-13 | 45072(54.01) | 5001(5.99) | 3369(4.04) | 20052(24.03) | 83456(11.94) | 83456(100) |
| 2013-14 | 53089(59.01) | 4491(4.99) | 3612(4.01) | 23346(25.95) | 89963(6.03) | 89963(100) |
| 2014-15 | 57685(61.00) | 5688(6.02) | 4828(5.11) | 17052(18.03) | 94562(9.84) | 94562(100) |
| 2015-16 | 63490(62.01) | 7193(7.02) | 5210(5.09) | 14432(14.09) | 102394(11.79) | 102394(100) |
| 2016-17 | 66042(63.20) | 7638(7.31) | 6065(5.80) | 13584(13.00) | 104497(10.69) | 104497(100) |
| **CGR** | **10.97%** | **20.00%** | **21.41%** | **-3.09%** | **-5.38%** | **6.79%** |

**Source** : Town Planning, NWCMC

**Figure 2 Growth in Properties in Nanded Waghala City**




The "Other" category, which possibly includes less prominent property types, also declined with a CGR of -5.38 percent. Comparing the total properties in 2011-12 to 2016-17, the figures show an increase from 75,238 to 104,497, corresponding to a CGR of 6.79 percent. This overall growth aligns with urban expansion and the city's infrastructural development.

The data on educational infrastructure development in Nanded Waghala City from 2011-12 to 2016-17 revealed significant growth in specific areas, particularly in the provision of Anganwadi, secondary schools, and overall educational facilities. The compounded growth rate (CGR) for Anganwadi centers stands at 15.7 percent, with the number increasing from 130 in 2011-12 to 269 by 2016-17. This suggests a concerted effort to expand early childhood education services, reflecting a growing emphasis on foundational education.

Primary schools saw more modest growth, with a CGR of 3.9 percent, increasing from 210 to 254 over the same period. Secondary schools experienced substantial growth, with a CGR of 10.5 percent, rising from 65 in 2011-12 to 107 in 2016-17. This growth could be attributed to an increasing population of school-aged children and a greater demand for secondary education facilities.

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

**Table 3 Educational Infrastructure Development in Nanded Waghala City**

| | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | CGR |
|---|---|---|---|---|---|---|---|
| Anganwadi | 130 | 130 | 130 | 257 | 257 | 269 | 15.7% |
| Primary | 210 | 199 | 164 | 236 | 242 | 254 | 3.9% |
| Secondary | 65 | 87 | 74 | 95 | 100 | 107 | 10.5% |
| College | 28 | 28 | 28 | 28 | 28 | 28 | 0.0% |
| D.Ed Colleges | 10 | 10 | 10 | 10 | 10 | 10 | 0.0% |
| B.Ed. Colleges | 9 | 9 | 8 | 9 | 9 | 9 | 0.0% |
| Law Colleges | 2 | 2 | 3 | 3 | 3 | 3 | 8.4% |
| Medical Colleges | 2 | 2 | 2 | 2 | 2 | 2 | 0.0% |
| I.T.I. | 2 | 2 | 2 | 2 | 2 | 2 | 0.0% |
| Engineering Colleges | 1 | 1 | 1 | 1 | 1 | 1 | 0.0% |
| **Total** | **459** | **470** | **422** | **643** | **654** | **685** | **8.3%** |

**Source:** Education department of NWCMC

In contrast, higher education institutions like colleges, D.Ed. colleges, B.Ed. colleges, medical colleges, and engineering colleges remained stagnant, indicating limited investment or demand in expanding tertiary education. Notably, law colleges grew by 8.4%, though starting from a small base of two institutions.

Overall, the total number of educational institutions increased from 459 in 2011-12 to 685 in 2016-17, with a CGR of 8.3 percent. This reflects a moderate but consistent expansion in the city's educational infrastructure, though higher education remains relatively unchanged. The disparity between primary, secondary, and tertiary educational growth highlights potential areas for policy intervention, particularly in fostering more balanced educational development.

The growth in healthcare facilities in Nanded Waghala City from 2011-12 to 2016-17 highlights a dynamic landscape in the provision of health services, with a total increase from 459 to 662 facilities, reflecting a compounded growth rate (CGR) of 7.6%. The number of private hospitals saw a steady increase from 243 to 333, yielding a CGR of 6.5%, indicating a growing reliance on private healthcare options by residents.

**Table 4 Growth in Healthcare Facilities in Nanded Waghala City**

| Health care facilities | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | CGR |
|---|---|---|---|---|---|---|---|
| No. of Private Hospitals | 243 | 252 | 270 | 289 | 310 | 333 | 6.5% |
| Ayurvedic Clinics | 7 | 8 | 15 | 19 | 20 | 22 | 25.7% |
| Homeopathy Clinics | 16 | 19 | 22 | 24 | 25 | 28 | 11.8% |
| Bachelor of Dental Surgery | 56 | 64 | 67 | 72 | 74 | 78 | 6.9% |
| Pediatricians | 22 | 24 | 24 | 26 | 26 | 26 | 3.4% |
| Gynecologists | 69 | 74 | 89 | 102 | 112 | 123 | 12.3% |

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NWCMC Hospitals | 4 | 4 | 4 | 4 | 4 | 4 | 0.0% |
| Private Nursing Homes | 42 | 43 | 48 | 48 | 48 | 48 | 2.7% |
| **Total** | **459** | **488** | **539** | **584** | **619** | **662** | **7.6%** |

**Source**: Healthcare Department NWCMC

Notably, Ayurvedic clinics demonstrated remarkable growth, with a CGR of 25.7%, rising from 7 to 22 clinics, suggesting a heightened interest in alternative medicine and holistic health practices among the population. Homeopathy clinics also saw significant growth, increasing from 16 to 28, with a CGR of 11.8%. This trend reflects a broader shift in healthcare preferences and a diversification of health service offerings.

In contrast, the number of pediatricians showed minimal growth, remaining stagnant at 26 after initially rising from 22 to 26, which raises concerns about pediatric healthcare access for the city's children. Gynecologists experienced healthy growth, increasing from 69 to 123 with a CGR of 12.3%, highlighting a strengthening of reproductive health services.

However, certain sectors exhibited no growth, such as the NWCMC hospitals, which remained constant at 4 facilities. This stagnation, coupled with the limited growth in private nursing homes (remaining constant at 48), suggests a potential gap in institutional care capacity, particularly in public healthcare services.

Table 5 indicates the data on urbanization and provision of merit goods. It indicated a significant relationship between population growth and the provision of essential services such as health and education. The predicted population increased from 550,564 in 2011-12 to 629,014 by 2016-17, reflecting a steady growth trend that aligns with urbanization patterns in the region. This increase in population necessitates a corresponding expansion in public goods and services to meet the growing demands of the urban populace.

**Table 5 Urbanization and provision of Merit Goods**

| | **Urbanization** | | **Provision of Merit Goods** | | |
|---|---|---|---|---|---|
| **Year** | **Predicted Population** | **Growth in Property** | **Health** | **Education** | **Capacities of the Elevated Storage Reservoirs (Million Liters)** |
| 2011-12 | 550564 | 75238 | 459 | 459 | 48.52 |
| 2012-13 | 565429 | 83456 | 488 | 470 | 56.61 |
| 2013-14 | 580696 | 89963 | 539 | 422 | 58.31 |
| 2014-15 | 596375 | 94562 | 584 | 643 | 58.31 |
| 2015-16 | 612477 | 102394 | 619 | 654 | 60.74 |
| 2016-17 | 629014 | 104497 | 662 | 685 | 65.44 |

**Source**: Documents of NWCMC 2016-17

The provision of merit goods such as healthcare and education demonstrates varying trends over this period. Healthcare facilities grew from 459 in 2011-12 to 662 by 2016-17, marking a substantial increase and highlighting a compounded growth rate (CGR) in healthcare access. In contrast, the number of educational institutions saw a more modest increase, from 459

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

to 685, indicating a CGR of 8.3 percent. This discrepancy suggests that while the healthcare system is expanding at a healthy pace, educational infrastructure may not be keeping up with the rising population, potentially leading to future challenges in education quality and accessibility. The capacities of the elevated storage reservoirs, which serve a critical function in urban water supply, also increased from 48.52 million liters in 2011-12 to 65.44 million liters in 2016-17. This growth reflects an effort to enhance water supply infrastructure, which is crucial for sustaining an increasing urban population.

**Linkage between Urbanization and Provision of Merit Goods**

The regression analysis presented reveals a high correlation between the independent variables (growth in property, health, education, and capacities of elevated storage reservoirs) and the dependent variable, indicated by a multiple R value of 0.999. This suggests an almost perfect linear relationship, and the R Square value of 0.998 indicates that approximately 99.8% of the variability in the dependent variable can be explained by the model, demonstrating a strong fit. However, despite the strong overall correlation, the individual coefficients and their significance levels suggest varied impacts of the predictors. The intercept is statistically significant (p-value = 0.03), indicating a meaningful baseline value when all independent variables are zero, approximately 365,096. This figure provides a reference point for understanding the dependent variable's behavior in the absence of the predictors.

| *Regression Statistics* | |
|---|---|
| Multiple R | 0.999 |
| R Square | 0.998 |
| Adjusted R Square | 0.992 |
| Standard Error | 2647.221 |
| Observations | 6 |

ANOVA

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| Regression | 4 | 4301436397 | 1075359099 | 153.4522 | 0.060462 |
| Residual | 1 | 7007779.195 | 7007779.195 | | |
| Total | 5 | 4308444176 | | | |

| | *Coefficients* | *Standard Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* |
|---|---|---|---|---|---|---|---|---|
| Intercept | 365095.65 | 14589.78 | 25.02 | 0.03 | 179714.96 | 550476.34 | 179714.96 | 550476.34 |
| Growth in Property | 0.13 | 0.73 | 0.17 | 0.89 | -9.17 | 9.43 | -9.17 | 9.43 |
| Health | 293.91 | 107.01 | 2.75 | 0.22 | -1065.85 | 1653.66 | -1065.85 | 1653.66 |

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Education | 14.90 | 24.85 | 0.60 | 0.66 | -300.81 | 330.62 | -300.81 | 330.62 |
| Capacities of the Elevated Storage Reservoirs (Million Liters) | 690.75 | 702.95 | 0.98 | 0.51 | -8241.12 | 9622.63 | -8241.12 | 9622.63 |

Looking at the independent variables, the coefficient for growth in property is 0.13, but with a high p-value of 0.89, indicating that this variable does not have a statistically significant impact on the dependent variable. The same holds true for education, with a coefficient of 14.90 and a p-value of 0.66, suggesting it also lacks significant influence in this model. The health variable exhibits a coefficient of 293.91 and a t-statistic of 2.75, but the p-value of 0.22 indicates it is not statistically significant at conventional levels. This suggests that while health shows some positive association with the dependent variable, the evidence is not strong enough to conclude it is a reliable predictor.

The capacities of the elevated storage reservoirs show a coefficient of 690.75, but a p-value of 0.51 suggests it does not significantly influence the dependent variable either. The ANOVA results show a significance F value of 0.060462, which is slightly above the conventional threshold of 0.05, implying that while the regression model explains a large amount of variability, the overall model fit may not be statistically significant at the standard level.

In conclusion, while the model demonstrates a strong explanatory power in aggregate, the individual predictors largely fail to reach statistical significance. This indicates that, while there may be associations present, further investigation is needed to determine the specific contributions of these variables to the dependent outcome. Future studies could benefit from increasing the sample size or incorporating additional variables to enhance the robustness and interpretability of the findings.

## 5.Conclusions

The rapid urbanization in Nanded Waghala City has been convoyed by significant increases in both property development and the provision of merit goods like healthcare and education. However, the pace of population growth is outstripped by property growth, suggesting that urban development has shifted focus toward infrastructure expansion rather than accommodating new residents. Healthcare and educational services have expanded substantially, but the stable growth in higher education and public healthcare indicates space for policy improvements. The deceleration of population growth in the last decade also suggested a potential transition in migration patterns or socio-economic dynamics.

## 6. Summary

Nanded Waghala City has undergone substantial population growth and urbanization over the last few decades. This is reflected in the increase in properties, healthcare, and educational infrastructure. However, there are concerns regarding stagnant growth in higher education and public healthcare facilities, while private and alternative healthcare services

ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed ( Group -I) Journal Volume 12, Iss 04, 2023

flourish. The city's infrastructure, particularly in water storage, has expanded, but there is room for improvement in the provision of higher education and vocational training to support long-term human capital development.

## References

1. Besley, T., & Coate, S. (1991). Public provision of private goods and the redistribution of income. *The American Economic Review, 81*(4), 979-984.
2. Brueckner, J. K. (2011). Lectures on Urban Economics. MIT Press.
3. Census of India. (2011). *Provisional population totals: Maharashtra*. Government of India.
4. Musgrave, R. A. (1959). *The theory of public finance: A study in public economy*. McGraw-Hill.
5. Nanded Waghala City Municipal Corporation (NWCMC). (2017). *Town planning and healthcare department reports*. NWCMC.