

University as an Urban Economic Booster: A Case Study of Khon Kaen in Northeast Thailand

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Abstract

This article is concerned with the study of the relationship between public expenditure and urban economic growth while also focusing on the effect of public investment on the urban economic growth of Khon Kaen. The research questions are as follows; (1) how has the economy of Khon Kaen grown and (2) has the growth of Khon Kaen's economy resulted from public investment. If so, (3) what is the main driving force and what impact does it have. Results showed that urban growth can be divided into two periods which are pre-policy and post-policy. The northeast development policy is considered to be an important government policy which most strongly affected urban growth. Public investment has been the main driving force during the first period, causing the inflow of a considerable amount of money along with the growth in the number of workers in Khon Kaen. There was some outward movement but higher numbers moved in to take their place, leading to the overall growth of commercial and private services. During the second period, education managed through Khon Kaen University has been the main driving force leading to the growth of a large amount of the investment, and of numbers of workers and residents in Khon Kaen University. In addition, it has also led to greatly expanded consumption and more diverse commercial and private services. These multipliers at Khon Kaen University radically affected urban incomes, compared to other public investments during 2010. The research confirms that public investment continues to be the driving force of the economic growth of Khon Kaen. In regards to the results, other questions have been raised, for instance how Khon Kaen is going to grow in the near future and how Khon Kaen University, as the main driving force, will grow.

Keywords: urban economy, university, public investment

I. Background of Study

Some elements of public policy established for urban and regional development have always been concerned with the inequality of towns and regions. One of the significant problems is the imbalance of the town system due to the growth of a primate city which is considered to play a crucial role in obstructing the development of rural areas. This problem has led to a high level of migration of rural people from their native habitat to the capital city of the country as they seek improved job opportunities and incomes. As a consequence, the capital city becomes greatly expanded and fast growing which, in turn, results in a specific cluster of development and modernity only within the capital city. Therefore, this has led to long term physical and social problems including more intense congestion that could

potentially cause economic and social instability to occur in the country.

Douglas C. North has put forward a suggestion for solving regional inequality which can be categorized into two elements which are taking people to jobs and taking jobs to people. The first suggestion is to encourage investment in the developed regions and to transfer workers from the retrograde regions to the more prosperous areas, while the latter aims to promote job opportunities in the retrograde regions through the creation of industrial estates along with the building up of modern towns where there may be job pools created. This method has been improved in several ways, has been accepted and is commonly used. Urban economic growth has become the stimulator for the manufacturing economy and its regional trading as well as being able to transmit modernity to the regions (Friedmann, 1966: 39-44). The town is the vital mechanism in regional

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development as urban growth is capable of building up the growth of regions and also reducing social inequality in particular areas (Myrdal, 1957).

Perroux (1958) proposed the concept of the growth pole that while growth may not be visible, it can appear in all areas though this may not be immediate. In other words, growth will appear in specific areas or large towns. It is believed that the effect of economic growth results from the main economic units. When the main economic units have shown growth, then other economic units will follow (Moseley, 1974). It is also believed that the town is one of the large, major economic units and it can be used to disseminate progress and modernity to the regions. The town is expected to be the important implement to disperse growth to the regional level. The policy on central towns is part of the regional plan which has been modified and widely used as the foundation for the development of pro-urban policies that are able to stimulate and implement governmental intervention. The academicians have defined the above idea and policies as a growth centre which impacts by the action of public investments including public utility investments (taking jobs to people), creating job opportunities for people in retrograde regions. These policies consist of building up modern towns where there is the possibility of creating job pools that are expected to have an effect on economic growth, employment, migration, continued investment, incomes and other types of development.

In Thailand, an effort to aid the solving and reducing of the inequality of towns and regions has been made by seriously following and applying the concepts of growth pole or growth centre. Growth centre has commonly and widely been used and has become concrete during the 4th–7th developmental plans. A number of concerned organizations, in many towns, have followed the regional centre policies in order to develop their towns. However it was found that these policies are only building up public utility investments such as streets and waste water treatment systems instead of emphasizing investments of public utility development leading to higher numbers in employment. As a result, the urban economy could not be fully encouraged in the long term (Theeratayan, 1996; Glassman, 2003).

According to the 1st economic development plan of Thailand, there was a public policy stated for improving and resolving urban and regional inequality problems. It also included the town development policy, the plan to develop the northeastern region under the project known as the development of Khon Kaen municipality as the centre of the region.

According to Field Marshal Sarit Dhanarat, who was in charge of the country as prime minister during that time, Thailand has only a few towns that are suitable to be centers of development, investment and habitation so there should be a province which could possibly act as the centre for a region. Thus, the committees decided upon Khon Kaen to be the first regional centre for the northeast of Thailand. As can be seen from the above, the policy used and the project established by the government was one of governmental intervention in order to promote the economic growth by public utility investments and to make new job pools available in the regions which would in turn benefit the town in terms of urban economy, new town planning, building up of new governmental offices in the town, universities, dams, irrigation system and regional highways. The concept mentioned above is referred to by the Office of the National Economics and Social Development Board (1960) and conforms to the concept of growth pole or growth centre. Hence, Khon Kaen has become known as the first regional centre of the northeast of Thailand, in accordance with the 1st economic and social development plan of Thailand, designed to encourage Khon Kaen in becoming the centre of public services and educational administration by the setting up of regional offices in the northeast region (Pakasem, 1977), (Sternsteine, 1977), (Somrudee, 1991) and (Glassman, 2003)]. However, Khon Kaen was considered to be a small town or a large village (referred by Chalerm Kaewkangwan) where a lack of development was still apparent and the economic importance was not obviously different when compared to other towns in the region (Supatheera, 1965).

II. Literature Review

With regard to the level of problems, we know that investment by governmental intervention has occurred in Khon Kaen which follows the concept of growth pole established by Perroux (1985) or the growth centre idea of Darwent (1969) in order to grow the urban economy. The research question is whether public investment has had an effect on the economic growth of the town. Myrdal (1957) constructed a theory termed cumulative causation that can explain the economic growth of towns that have been influenced by governmental investment. It explains that a large change in economic activities, for example industry, migrations and trading in a particular area at a particular time will benefit the urban economics in terms of employment, migration and local economic growth as well as incomes

and these factors are also able to attract and connect with each other and become the cumulative causation by which the income of the locality is improved. Moseley (1974) then offered the cumulative causation theory in urban growth saying that when new organizations have been founded in the town, there are three effects, for instance 1) Increase of population and of employment opportunities; 2) The stimulation and attraction of other organizations that are encouraged by the success of those new organizations that have been founded in the production and service sectors; 3) Higher incomes and associated tax yields for the locality. Those three effects have an impact on urban economic growth and they can bring more organizations to the particular area (Moseley, 1974).

When these two concepts constructed by Myrdal (1957) and Moseley (1974) are taken into consideration, public investment that results in economic growth in terms of employment, migration, local economic growth and urban income is the key variable which can indicate the growth of Khon Kaen's economy within the scope of this study.

In order to investigate the economic branch that acts as the driving force of urban economic growth in Khon Kaen, we need to rely on a concept to estimate urban economic growth as outlined by Tiebout (1962). Tiebout suggested an export base-urban economic growth theory and believed that the urban economy would grow by export. When export takes place, money will flow-in and result in higher urban income. Export is considered to be the vital driving force of the urban economy by which it can be related to other types of employment, consequently export-related employment is basic whereas other types of emoluments are non-basic. (Craig, 1990) suggested how to define the export sector or the basic sector by using the location quotient. The formula for the location quotient is below:

$$LQ I = (e_i/e) / (E_i/E) \quad (\text{Peerapan, 2011})$$

The study of the multiplier has been fascinating and has attracted the interest of Albert O. Hirschman who studied the effects of the export of employment multiplier on urban growth. The employment multiplier is the measure of total employment whereas Bunchorn Tavakul (1976) and also Ladavalaya and Siripool (1988) studied the effects on Chiang Mai economic growth development by measuring the factory multiplier. Kaothien (1991) studied the cluster of the public service sector in Chonburi, Thailand in which the variables in the research included the budget of expenditure as cash and the budget supported by the central government known

as the government multiplier. Kaothien's study suggested that there were greater effects caused by the service multiplier or public investment than those caused by industry. Moreover, the research on the university multiplier was instigated by the studies carried out by Caffrey and Isaacs H (1971), Booth and Jarett (1976), Brown and Heaney (1997) and Segarra I Blasco (2003), and their research questions were concerned with how universities had an important effect on economic growth and how much income was created. However, Parsons and Griffiths (2003) had a keen interest in the effects of the demand side impact of the university whereas Stokes and Coomes (1998) were fascinated in studying the effect of the supply side impact in terms of producing new innovation which is more important than income.

III. Research Framework

During almost half a decade, there is no other town that has had policies and governmental intervention for a longer time than Khon Kaen (Somrudee, 1991); (Glassman, 2003). Khon Kaen has continually changed and developed. The economic growth of Khon Kaen has been expanding more than prior to the policy being validated. However, it still remains questionable how public investment and economic growth are related, if the economic growth of Khon Kaen has resulted from the public investment, whether the government is the driving force of the economy and if so, what the main driving force of the investment is and in what way it impacts. Moreover, it is yet to be clarified how the growth of Khon Kaen has been impacted by and conforms to the theoretical concept of development as mentioned above. The above issues and effects on the development and growth of the town have not been studied, thus the researcher is interested to study this topic. Accordingly the author set focus on the following questions.

- a) How has Khon Kaen grown?
- b) What is the basis of the economy in Khon Kaen and has economic growth been caused by public investment?
- c) What type of public investment is the main driver of the economic growth and what is the cost of public investment at present?

This is a case study of the research of Thomas (2011) which aims to specify the effect of public investment in the economic growth of Khon Kaen, at a particular time by investigating variables and methods for the case study.

Time frame of the study can be divided into three

phases namely pre-policy in the years 1787–1960, policy (6 years) in the years 1960–1966 and post-policy (50 years) in the years 1961–2010. Six periods of time were stated in which the pre-policy can be referred to the value obtained in 1960 and post-policy means those values derived in 1970, 1980, 1990, 2000 and 2010. Geographical boundary of “Khon Kaen” in this research refers to Khon Kaen Province and Khon Kaen Municipality, the latter accounting for an area of 42 square kilometers located in the northeast of Thailand.

IV. Historical Overview of Khon Kaen City and its Economic Growth

1. Small town period

Khon Kaen was founded according to central policy (Bangkok) in 1787. As can be seen in the north-eastern annals written by Phraya Kattiyawongsa (Lao Na Roi-et), Khon Kaen is now 223 years old but in its first 170 years, the town was not different from other large villages under the control of major towns such as Nakorn Ratchasima, Mueng Nong-Kai and Mueng Udon. Following administrative reform, Khon Kaen was appointed to become a province of Thailand. After that the central government designated Khon Kaen as a small business rural town. The economic growth of Khon Kaen was generally increasing, although economic diversity did not appear and Khon Kaen town was not at all different from other towns.

2. Sarit Nakorn period

In 1961, the Royal Thai Government under the

leadership of Field Marshal Sarit Dhanarat created the 1st national economic development plan whose purpose was to improve the retrograde regions, especially the northeast. Hence, the government managed to set up a policy which aimed to develop the northeast of Thailand (1962–1966), emphasizing the development of Mueng Khon Kaen with regard to the preface of Field Marshal Sarit Dhanarat on January 5th, 1962.

3. Khon Kaen development period

The development plan for the northeast region was a vitally important policy and it was also the first regional development plan in Thailand that worked in parallel with the 1st economic development plan. It was considered to be the connecting plan between national development and northeastern development which was mainly focused on the development of Khon Kaen.

The prominent project in the developmental policy was the one that expected to develop Khon Kaen and transform it to become the capital city of the northeast region. Other projects concerned with other types of development intended to make Khon Kaen systematic and substantial. These projects will be described as below.

- 1) Khon Kaen town planning project (1982) aimed to develop a comprehensive plan. This was also the first regional town plan implemented in order to prepare the appropriate utilities to support the transformation of Khon Kaen to become a larger town (Chalerm Kaewkangwan, interview in August 2010: Department of Public Works and Town &

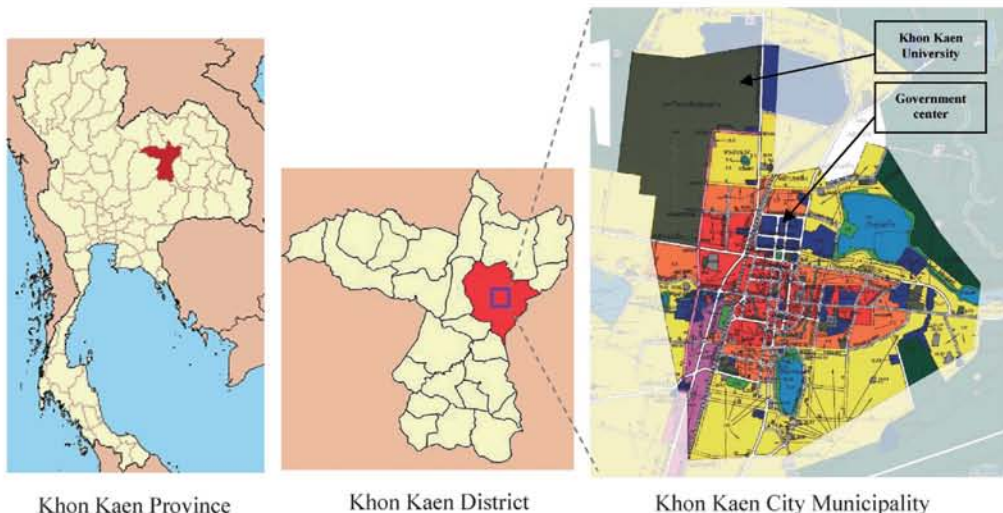


Fig. 1. Location of Khon Kaen Province and City

- Country Planning, Ministry of Interior, 1962).
- 2) The government service together with the administration service set up a project in 1982 to follow the progress of Khon Kaen's development and transformation to become the capital city of the northeast. This was also the initial governmental service office in Thailand that brought about the reallocation of organizations, public workers and the in-flow of money to Khon Kaen that highly impacted the beginning of the Khon Kaen development plan.
 - 3) The Khon Kaen University establishment project resulted from the northeast development plan (1962–1966) which was part of the project that was designed to transform Khon Kaen to become the centre of the northeast of Thailand.
 - 4) Ubonrat dam hydro-electricity project.
 - 5) Nong-Wai irrigation project
 - 6) Mittraphab road project aimed to change and develop Khon Kaen to become the heart of the region.

The results demonstrated that the northeast development plan of 1962 substantially affected Khon Kaen in a number of ways, for example, the effect on the performance and growth of the urban economy including the transformation of Khon Kaen to be the centre of the region (1962), town planning (1962), government service office establishment (1964) and Khon Kaen University establishment (1964).

These effects were the result of the development plan bringing public investment and the economic growth-related effects that followed. As can be seen from these results, Khon Kaen has been grown by public investment with the northeast development plan being partly responsible for transforming Khon Kaen into the capital city of the northeast region (1962). This also served as the prototype which linked other development plans in Khon Kaen to become systematic and substantial, as shown in the studies by Pakasem (1997), Sternstein (1997), Somrudee (1992), Theeratayanan (1996) and Glassman (2003).

V. Driving Force of Khon Kaen's Economic Growth

1. Urban economic growth measured by location quotient

To clarify what has driven the economy of Khon Kaen after this public investment and whether the public investment has actually been the main

driving force, it has been necessary to study the economic growth of Khon Kaen, relying on the concept of export base espoused by Tiebout (1962) and Craig (1990) who said that a simple economic growth measurement method is to calculate the location quotient which will indicate the driving force of growth in what will be called export base or basic sector.

According to the location quotient calculations, there was no export in 1960 (location quotient < 1). In 1970, the calculated value for the economy was greater than 1; public investments = 1.94 divided into trading and service = 1.28 and industry = 1.65. In 1980, the location quotient of public investments dramatically increased to 4.91, divided into education, public health, trading and service, and industry and their location quotients were 3.98, 2.92, 3.43 and 4.00, respectively. In 1990, the public investment leveled out to remain constant at 5.01, divided into education, trading and service and industry as 5.30, 5.38 and 11.75, respectively. In 2000, public investment began to decrease (4.39) which can be divided into education (5.79), trading and service (5.03) and industry (11.53) and until the end of 2010, economic growth in terms of public investment dropped to 4.33. However, when considered in detail, education increased (6.56) whereas trading and service slightly decreased (4.92) and industry significantly dropped, accounting for 8.22 (Table 1). Industrial growth was the result of two factors, the total gross national products such as dams and power stations and the intervention policy in 1990 which encouraged the province to establish Industrial estates. The results explaining the economic mechanism of driving force which has moved the economy of Khon Kaen forwards can be divided into two periods (Fig. 2).

2. Period 1: Growth Driven by Public Investment

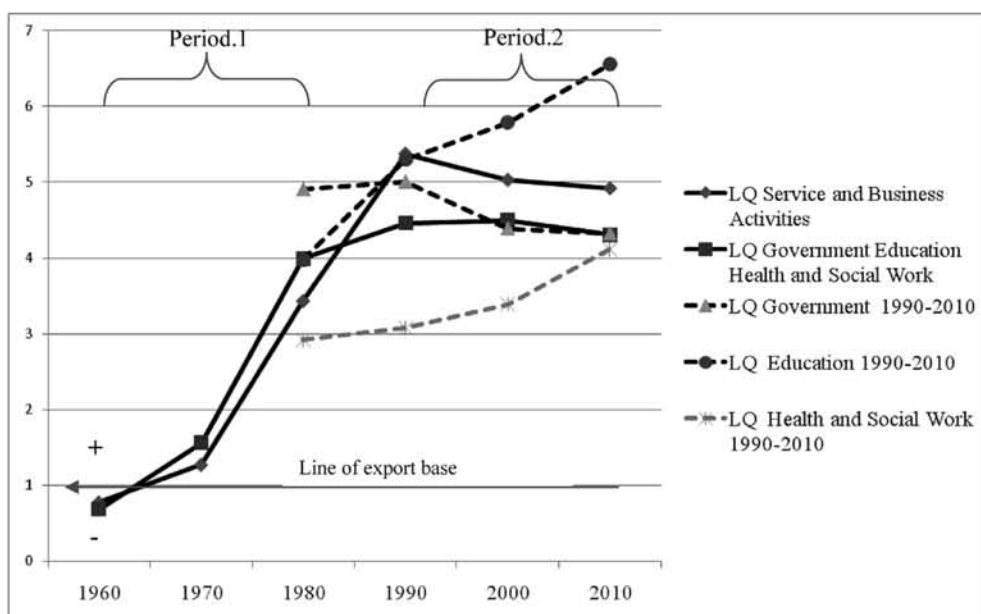
1) Increase of public workers

An indication of the effect on the urban economic growth caused by public investment through private workers, Khon Kaen had shared public workers accounting for 9.82% but the shared private workers accounted for 90.81% during the pre-policy phase. Therefore, shared public workers significantly increased, accounting for 27% and then 35.70% whereas shared private workers slightly decrease (73% and 64.3%) during the post-policy period. However, the numbers of public workers dropped (27.96%) but the numbers of private workers increased (72.04%) in 1990 (Table 2).

Table 1. Export base

	1960	1970	1980	1990	2000	2010
LQ Government Education Health and Social Work	0.68	1.94	4.91	5.01	4.39	4.33
LQ Education 1990–2010			3.98	5.30	5.79	6.56
LQ Health and Social Work 1990–2010			2.92	3.08	3.39	4.11
LQ Service and Business Activities	0.78	1.28	3.43	5.38	5.03	4.92
LQ Agriculture	0.85	1.21	3.30	3.24	4.44	4.05
LQ Manufacturing	0.71	1.65	4.00	11.75	11.53	8.22

Source of Data: National Economic and Social Development Board (NESDB) 1960–2010, Northeast Region Gross Regional Product and Khon Kaen Gross Provincial Product year 1960, 1970, 1980, 1990, 2000, 2010. Govt. of Thailand

**Fig. 2. Change of location quotients on export base****Table 2. Population in municipal areas**

	1960	1970	1980	1990	2000	2010
Percentage of current labour force in population aged 15 years and over	38.03	30.56	57.55	64.38	69.30	72.28
Percentage of labour force engaged in private sector	90.18	73.00	64.30	72.04	73.15	73.09
Percentage of labour force engaged in public sector	9.82	27.00	35.70	27.96	26.85	26.91
Percentage of labour force engaged in KK University	na	2.44	7.68	7.00	7.48	13.98

Source of Data: National Statistical Office of Thailand (NSO) 1960, 1970, 1980, 1990, 2000, 2010 Population and Housing Census Khon Kaen Province

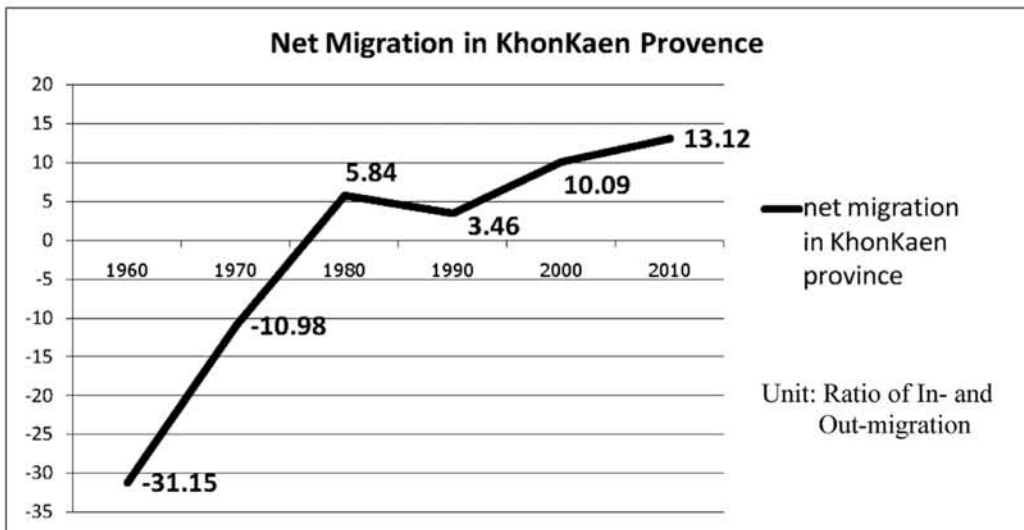


Fig. 3. Net-migration to Khon Kaen Province

2) Change of migration to Khon Kaen

The results showed that the periods of public investment which were the main driving force, and their effects on the urban economic growth and migrations, conformed to each other. During the pre-policy period, there was a clear move-in attraction. Early pre-policy, the move-in value was -31.5 until 1970 when the negative value significantly decreased (-10.98) and in 1980 it became positive at $+6$ clearly showing the ability of the town to attract move-in workers. The results mentioned above conform to the fact that Khon Kaen was ranked 13th within the northeast with regard to migrations during the pre-policy period. Consequently, since 1980, it has risen to 6th which indicates urban economic growth and greater levels of employment (Fig. 3).

3) Effect of public investment

According to results obtained from the study on gross national product, the gross national product of public investment increased compared to that of the pre-policy period, accounting for 1.27%. During post-policy in 1970, it increased to 8.64% and then to 10.17%. The above results conformed to the values of the gross provincial product having increased from 25.94% to 40.46% and 59.51%. When the percentage of shared public expenditure was compared to the gross national product, it was found that the shared public expenditure in Khon Kaen was notably increased during the post-policy period: for example, the shared public expenditure in Khon

Kaen accounted for 4.33% in 1960 whereas in 1970, it was raised to 23.67%. This is considered a huge increase when compared to the gross national product of trading and services (59.18%) (Table 3).

This means that large amounts of money, given by the government, flowed into the urban economy even when there was no economic diversity and economic base. It was considered vital stimulation in order to drive the urban and private economy. In 1980, the amount of money spent on public expenditure was still high, accounting for 28.97% per GPP and 49.10% per GPP of the commercial and services streams. Therefore, during the first period, public expenditure had a large impact on Khon Kaen's income and it was the vital driving force that led to urban consumption and also private economic growth. In regards to the business registration document, there were only 205 businesses in 1960. The number of business in Khon Kaen however increased to 1208 in 1970 followed by 2249 and 3836 businesses in 1980 and 1990, respectively. Overall, the effect of public investment during the first period was the main driving force. It was likewise the growth foundation that stimulated the internal consumption of the town which would lead to the huge private economic growth later on.

3. Period 2: Growth driven by Khon Kaen University activity

1) University and town of Khon Kaen

Khon Kaen University was founded because of

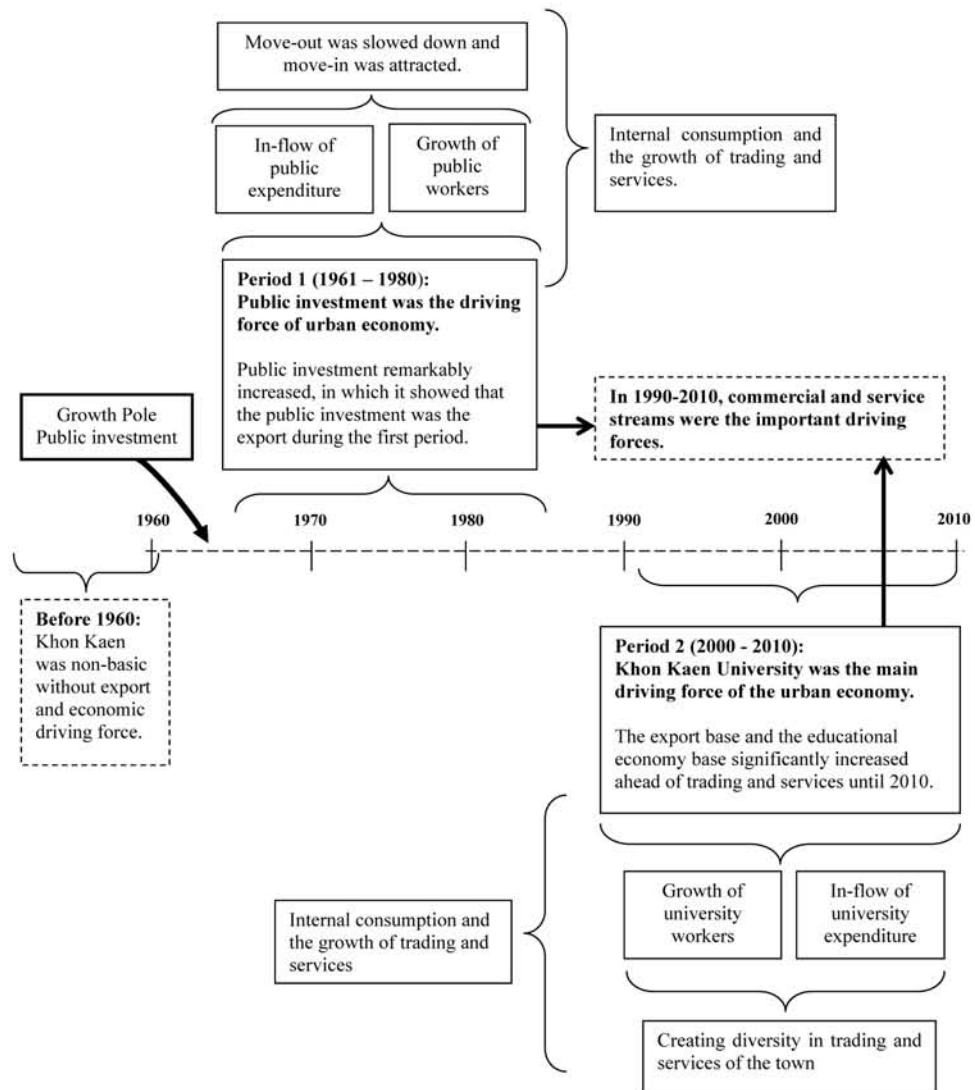


Fig. 4. Time line of development driving force and its impact on Khon Kaen urban economics

Table 3. Shares of GPP by economic sector

	1960	1970	1980	1990	2000	2010
Public Administration and Defense, Education, Health and Social Work	1.27	8.64	10.17	6.50	19.10	17.79
Public Administration and Defense	na	na	na	1.25	5.90	5.21
Education	na	na	na	3.91	9.54	10.13
Health and Social Work	na	na	na	1.34	3.66	2.45
Service	25.94	40.46	59.51	58.47	45.69	36.14
Agriculture	68.07	43.99	2187	17.30	12.65	10.95
Manufacturing	5.26	7.01	9.27	17.75	25.55	34.83

the development of Khon Kaen as the growth centre of the region as part of the northeast development plan in 1962. Khon Kaen University was first founded in 1969, located 4 kilometers away from the town centre. It covers the area of 5 square kilometers or one third of the town (Kitisarn, 1975). At first, it was expected to be a university that specialized in agriculture and engineering. It has further grown and now is able to offer a number of study programs. In addition, a large regional hospital for Khon Kaen University was constructed during 1980–1990. Tan Dhanasarit (1979) suggested that Khon Kaen University does not only have physical growth but it has also been part of the urban economic system since 1969. Areesamarn (1980) mentioned that Khon Kaen University was dependent on the town in 1970. On the other hand, the town has relied on Khon Kaen University since 1980 and this has become even more obvious in the period between 2000 and 2010 because of new organization establishments, higher numbers of student enrollments and self-funding income. Nowadays, the university has 14,679 government officers, 40,455 students, 39 faculty-equivalent organizations and 371 department-equivalent organizations. Furthermore, its expenditure accounts for approximately 10,132 million baht that can be divided into public investment (47.15%) and self-funding revenue (52.85%). With regard to the financial report of the university in 2010, workers employed by Khon Kaen University accounted for 13.98% of employment within the town and it has been shown to be largely responsible for the increase of the population, largely due to education (Table 2).

Khon Kaen has exported education during the second period. According to the export base during 2000–2010, education continually grew in 1990 and accounted for 5.30, lower than trading and services. However, it reached a peak (5.79) in 2000 but has become even higher in 2010, accounting for 6.56. This indicates that education has been the economic driving force since 2000, conforming to its GPP in which the GPP of education in 1990 was 3.91%, increasing to 9.54% and 10.13% in 2000 and 2010, respectively (Table 3).

2) Economic aspects of Khon Kaen and its effects on the private sector

When comparing Khon Kaen University expenditure to the public expenditure of the Ministry of Education, there are averages categorized into five periods as follows: the ratio 63.87% (1970), 70.09% (1980), 63.13% (1990), 70.98% (2000) and 108.83% (2010). The value greater than 100 refers to the total

expenditure of the Ministry of Education, excluding Khon Kaen University which amounts to 9,186 million baht whereas the public revenue given to Khon Kaen University amounts to 3,246.59 million baht and self-investment is 6,885.40 million baht, 10,132.45 million baht which is a total expenditure much higher than the expenditure of the ministry at 8.3% (Figure 5).

Another set of results obtained from this study showed the relationship between the growth of Khon Kaen University and the growth of urban trading and services. Both growth and diversity of urban trading and services has become increasingly apparent between 2000 and 2010 in both quantity and diversity. In 1990, urban business registration accounted for 3,836 businesses, most of them were retail businesses and other types accounted for 1,221 businesses. Later and in contrast, the number of registered urban businesses increased to 9,620 which can be divided into 4076 retailers and 5543 other businesses. In 2010, the number of registered businesses increased again to 23,980 businesses. Its growth was 149.262%, sub-divided into 11,145 retailers and 12,834 other businesses (Figure 6). This figure is a clear indicator of the diversity of trading and services, conforming to the growth of Khon Kaen University during 2000–2010. It has thus been found that public investment for educational institutes such as universities allows for continual growth, self-expansion and self-funding in a way which differs from other general public organizations.

4. Recent activity at Khon Kaen University and its multiplier effect on the urban economy

In 2010 when the growth of Khon Kaen University had lead to it being a leading university, it offered 102 study programs for bachelor's degree, 132 study programs for master's degree, 68 study programs for doctoral degree and 22 programs to diploma level. In addition, 53 institutes and 24 specialized research centers have been founded. There are 2,120 lecturers who can be categorized by degree qualification as follows, 1,102 lecturers who have achieved PhD, 1,002 lecturers who achieved master's degree and 75 lecturers who achieved bachelor's degree. Moreover, there are 2,854 medical officers. This means that the total number of workers who have been employed by Khon Kaen University is 14,679 people or 13.98% of the population in Khon Kaen. The number of students in Khon Kaen University is 40,455 with 2,224 house units, 2,012 flat units, and 4,798 room units in the dormitory for the university residents.

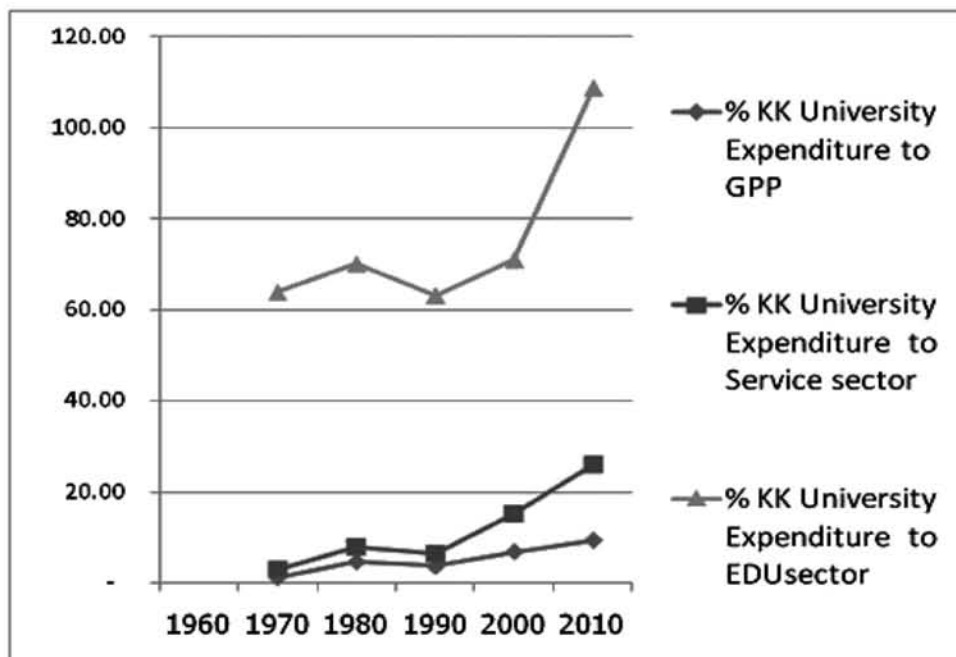


Fig. 5. Ratio of Khon Kaen University's expenditure

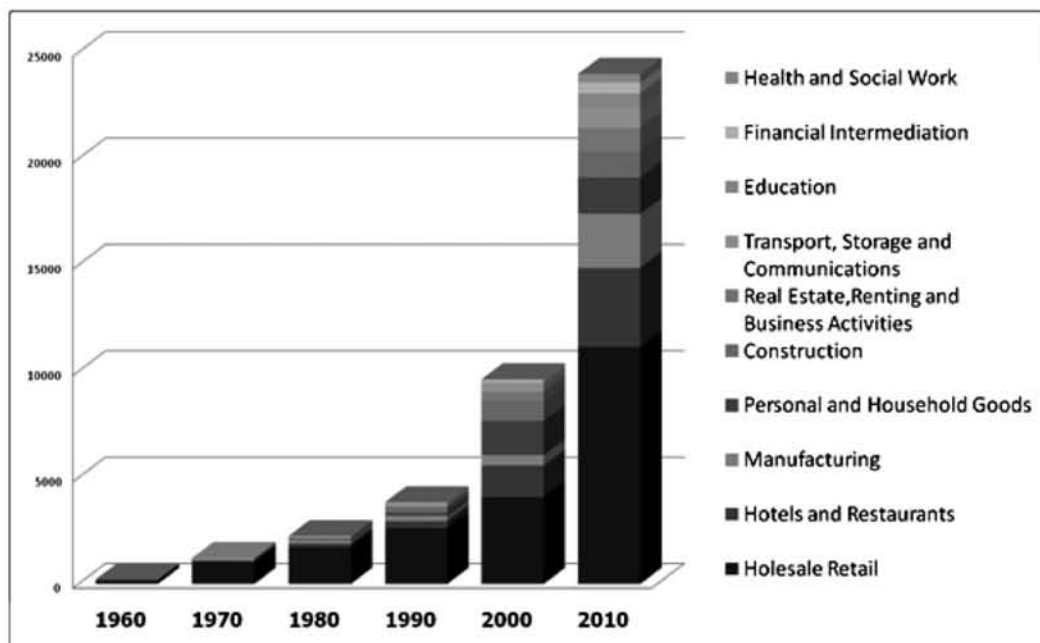


Fig. 6. Registered numbers of businesses and services in Khon Kaen

This means that only 10,370 students are residents of the university leaving the majority to stay outside the university and this leads to high accommodation demands. The total population within Khon Kaen University amounts to 55,134 people or 25.32% of the Khon Kaen municipal population.

The growth of both the private and public educational economy in Khon Kaen has been connected to Khon Kaen University in two ways. Firstly the attraction of private education is clustered, causing a large educational market and secondly, a connection by which they can be supported and ask for help in terms of resources, personnel, innovations and buildings from Khon Kaen University. During 2000–2010, 13 universities have been established in Khon Kaen, categorized into 7 public universities and 6 private universities. In addition, there have been 10 occupational colleges and 29 primary and secondary education establishments. Moreover, more than 95 private university-preparatory schools have been founded. These all indicate the nature of Khon Kaen University or Khon Kaen as being a town with a large education market. It was estimated that there are 25,000 graduates and 15,000 occupational college graduates who migrated to the town for accommodation and business purposes. Furthermore, Khon Kaen University is also an examination centre for government officers and the venue for academic conferences. Therefore, Khon Kaen University has clearly become closely related to the educational system of Khon Kaen.

Khon Kaen University consists of 65.34% of officers who have been academically qualified up to or above bachelor's degree, 11.74% with a doctoral degree, 17.01% with a master's degree and 36.45% with bachelor's degree. As can be seen above, only 28.23% or 9,591 people have achieved a higher level degree qualification, calculated to be 5.43% of the population of Khon Kaen municipality, and the members of this group have high purchase demand levels. These people have medium to high rates of salary and are people who can afford to purchase expensive goods and services in the town. By comparison, the 40,455 students or 71.34% undergraduates, 25.87% master's degree students and 2.45% doctoral degree students are considered to be important customers for businesses in the town. According to the results obtained from the questionnaires (given to 360 shops randomly distributed around the town) to find the trading and service relationship between the merchants and Khon Kaen University, 39.12% of shop owners mentioned Khon Kaen University as a main factor for them to open their business and is their main customer base, 25.80% of busi-

ness owners stated that the nature of Khon Kaen as a governmental town is the main factor for them to establish their business while another 35.08% of respondents said the economy of Khon Kaen driven by the private sector is the important factor for them to instigate their business and is the source of their main customer base.

Recent findings showed that the urban economic growth created by Khon Kaen University is the main driving force of the second period. In order to answer the question as to how urban income is affected, we need to investigate the value of the multipliers of both governmental organizations and Khon Kaen University by using the base multiplier, modified from the model multipliers of Sadler, Archer and Owen (1973) and Segarra I Blasco (2003). The results are as follows:

- The results demonstrated that the salary of the government officers is urban income. Khon Kaen University has generally been connected with the economy in terms of monthly wage, building construction cost, medical materials, service charges and study materials such as textbooks, whereas other governmental organizations have made the connection to the economy through building construction cost, durable goods, official expenses, utility bills, office equipment, fuel, advertising revenue and the monthly wages of employees.
- Multiplier values of Khon Kaen University were much higher than the multipliers associated with other public investments in both rounds. In the first round, 1 baht spent by Khon Kaen University resulted in an urban benefit of 2.090 baht and 1.579 baht in the second round. When both rounds are combined, 1 baht of Khon Kaen University expenditure has generated 3.699 baht for the town. By contrast, 1 baht from other governmental organizations benefited the town by 1.552 baht in the first round and also 1.552 baht in the second round making 3.467 baht in total. Hence, Khon Kaen University expenditure had a greater effect than the expenditure of other governmental organizations. When the total amount of money was taken into consideration, it showed that Khon Kaen University has benefited the town to the sum of 37,182.40 million baht per year and if combined with other public investments in Khon Kaen, the urban income amounted to approximately 129,405.09 million baht. The calculations above were carried out based on two rounds of expenditure but the amount of money supported by the government would be spent and flow in and out of the private sector resulting in the circulating of funds and the creation of further

benefits for the town.

VI. Conclusions

This study focused on the effect of public expenditure on urban economic growth in a case study of Khon Kaen, researching the effect of the phenomenon from the past to the present. This indicated that the Khon Kaen development plan has conformed to the idea of growth pole which includes both taking jobs to people and taking people to jobs. This means that the central government invested in the establishment of governmental offices, university establishments and utility creations that in turn created new job pools so as to take jobs to the people and at the same time, the central government relocated government officers and workers to the new governmental offices so as to take people to the jobs. Later there was some continuing migration to the town which was a further example of taking people to jobs. Therefore, the case study of Khon Kaen contains both patterns of the concept, taking jobs to people and taking people to jobs. The Khon Kaen development policy is also considered to be government intervention in which public investment is able to affect the growth of a town in the long term, especially educational investment, where a large university establishment can grow in parallel to the economy of the town. This is more beneficial than the investment in utilities or governmental offices because the university is not only a job pool for the local population but is also able to self-expand and develop higher incomes when compared to other governmental organizations. In combination with recent studies, we can confirm that public investment has been the driving force of Khon Kaen's economy. Even though private business has been growing extensively, urban economic growth still depends mostly on public investment. The results have led us to new challenging and fascinating questions that are as follows: how will Khon Kaen grow further, how long will the driving force of public investment last, how and for how long will Khon Kaen University remain as the main driving force for further growth and will the university still affect urban economic growth, how will the direction of town enlargement be led and encouraged, how will suggestions for developing urban economic administration be handled and how will private businesses prepare themselves for future growth. These issues are challenging and have come to the attention of researchers, local people and those people who are in charge of specifying the policy for Khon Kaen development in the future.

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