















**4.3 Local share (Regional shift) (RS):** that portion of the employment, change that is related to the regional advantage or competitiveness in the region is considered as the regional shift component, This share of local job growth describes the extent to which factors unique to the local area have caused growth or decline in regional employment of an industrial group. We observe that even during periods of general prosperity, some regions and still some industries grow faster than others do.

This is usually attributed to some local comparative advantage such as natural resources, linked industries, or favorable local labor situations. The local component aids in identifying a local area's economic strengths. This element of the analysis is a representation of how a region's competitive position can contribute to regional job growth. Shift-share, and the local share component in particular, can point to industries that enjoy local comparative advantage. It cannot, however identify what the actual comparative advantage is. It is important to identify what factors have contributed to the local area in outperforming the nationwide growth (Merrifield, 1983).

$$RS_{ir}^t = E_{ir}^{t-1} \times \left[ \left( \frac{E_{ir}^t}{E_{ir}^{t-1}} \right) - \left( \frac{E_{iUS}^t}{E_{iUS}^{t-1}} \right) \right]$$

Where:

t = current time period t-1 = one year ago  
 i = specific industry r = specific region

The shift share model assumes that employment growth over a specific period of time for a specific community can be explained by three things:

- The national growth over the same time
- The community's industry mix
- Employment shifts into or out of the community

This is summarized by the shift share formula:

**Actual Growth = National Growth + Industry Mix + Regional Shift**

### 5. Using the Shift-Share method:

There are a few options, or rather required inputs that are necessary for actually executing the analysis. Obviously:



- 1- first select the workforce region that you wish to examine.
- 2- The second step is to enter the base time period, or starting year and quarter to set the required initial time frame for examination.
- 3- select the terminal time period, or the ending year and quarter, for your examination.
- 4- It is very important to keep in mind that shift-share analysis is highly sensitive to the stretch of time being examined, and that the results of an analysis on a particular region can vary greatly depending upon the health of the economic environment at the particular time period.

As a general rule of thumb it is useful to select the same quarter for both the base and terminal year (BEND, 2002).

## **6. Salah al-Din Governorate, Location, and population:**

Salah al-Din governorate, located in the north of the capital Baghdad and away from Up to 165 km and is bordered by the provinces of Nineveh and Erbil from North Sulaimaniya, Kirkuk and Diyala and from the east and south of Baghdad and Anbar From the West. Enjoy Salah al-Din province, an important geographical location being Node transportation between northern and southern provinces (Iraq, 2012).

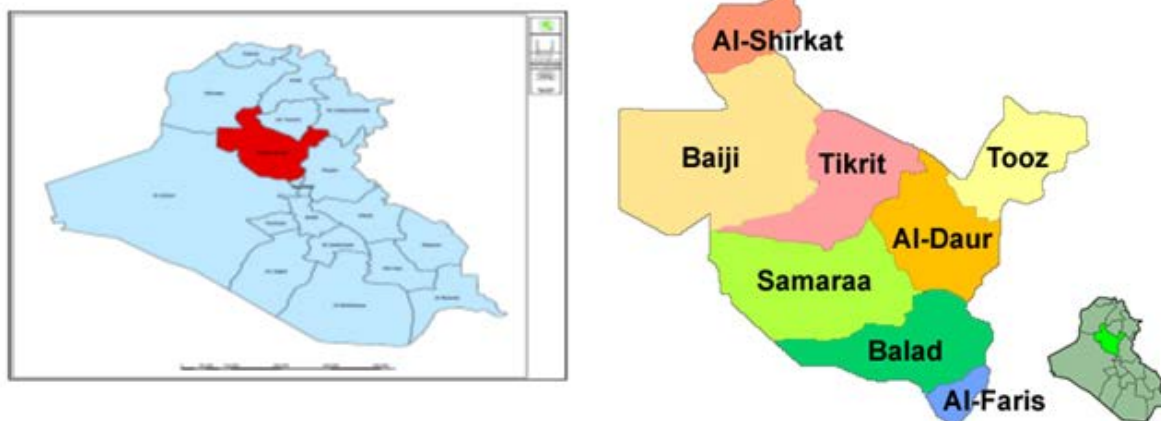
The Population of Salah al-Din governorate: 1.740 Million, Labor Force: 618,000, Area : 24,363 sq. km., Capital: Tikrit , One of the main roads leading north from Baghdad heads to Samarra and Tikrit, also passing Bayji on its way to Mosul. From Tikrit, a primary road heads northeast to Kirkuk.

A main road also crosses the province at Bayji, running northeast to Kirkuk and southwest to Haditha in Al Anbar province and on the Al-Qaim border crossing with Syria. Iraq's major north-south rail line passes through Salah al-Din, with service from Baghdad to Mosul via Tikrit (Iraq, 2012).55% of the governorate's workforce is employed in the agricultural sector, the highest percentage among all 18 governorates. The governorate has a huge number of grape vines, apple trees and citrus trees under cultivation.

## **7.The location of Tikrit City:**

Tikrit city is the capital of Salah Al-Din governorate. It lies on the west bank of the Tigris, about 100 miles (160 km) northwest of Baghdad. Tikrit is a modern city with population of (190, 220) , (1011184) urban , represent 17% of the urban population ,and ( 88979) rural , represent 12% of rural population in Salah al-Din governorate ( Planning, 1992).

The city of Tikrit is famous for its various economic activities, most notably trade, agriculture, and public jobs, and Tikrit University is one of the most prominent cultural monuments in it (Mahmud, 2020).



Source: www. Maps of cities in Iraq

## 8. Data Analysis:

To analyze the dynamics of the total and sectoral employment in the Tikrit city during the period 1987–2011, we used the the shift-share analysis. The data employed are obtained from the Central Bureau of Statistics in the Ministry of Planning in Iraq. The shift-share analysis enables to identify the driving forces of employment growth.

From our analysis of Salah al-Din Governorate and Tikrit city , we can observe that certain sectors display the greatest employment potential. Other sectors display positive growth and may exhibit some local potential comparative advantage, but not quite as high as industries in the first group. Still other sectors are less promising in terms of employment growth, they display negative employment growth, or they display no definite growth pattern at all.

The first step is to identify those sectors with very large positive or negative absolute changes. It is important to remember that if any sector is declining nationally, the local sector could still show a positive local share effect if it was declining at a slower rate than the sector nationally. Ideally, we should identify those sectors with both a positive industry mix effect and a positive local share. These will be our sectors with the greatest likelihood for potential job opportunities.

Secondly, we should look at the local share column. This column will give the first indication as to whether the local area is performing well or poorly and will help identify sectors in which the local area may have comparative advantage. Where the local share is larger than the industrial mix, and both

figures are positive, this is an indication that the local area may have some comparative advantage.

As mentioned previously, it is necessary to research the actual cause of the local comparative advantage. we will also want to identify what factors the local area may not be taking advantage of that allow an industry nationwide to outperform the local area.

Similarly, where the local area shows a positive local share and a negative industry mix, we would want to identify why the local area industry was able to prosper despite poor national industry performance.

The shift-share analysis results compiled in this study are for evaluating employment change in Tikrit employment growth over 1987-2011. They pinpoint important differences between the sectors compositions of employment growth locally versus growth in the Salah al-Din Governorate at large. The results shown in the tables below are explained in the brief discussion that follows.

The change in the employment is the result of comparing the total Employment or a specific activity between two time periods to learn about the growth or decline of this activity, to show the strengths and to diagnose weaknesses to address them, find the size of the change in the employment for economic activities that occurs between the years 1987-2011.

The rate of change in the total Employment between 1987 and 2011 was (-18931) and this change indicates a loss of (18931) jobs at the governorate level. As for the size of the change in the labor force for economic activities in the governorate, it is an increase in the Employment in industrial activity at a rate of (11919) jobs. decreased in the agricultural employment by losing (-24912) jobs. As for the rest of the economic activities, we find that the volume of change in the employment is an increase (wholesale trade 38380, financing and insurance 617, electricity and gas 2881) jobs , while other economic activities decreased by losing (services -32331, transportation and communication -6962, construction and building -14953, all other -8327) jobs. as Table 1 and 2 indicate.

Table 1. Employment growth in Salah al-Din Governorate ,1987 to 2011

Salah al-Din Governorate	Employment 1987	Employment 2011	Change in jobs
The total Employment	177191	158260	-18931
Industry	6664	18583	11919
Agriculture	43745	18833	-24912
Services	76008	43677	-32331
Wholesale trade	5856	44236	38380
Transportation	8296	1334	-6962
Financing and insurance	329	946	617
Construction and building	16075	1122	-14953
Electricity and gas	1424	4305	2881
All other	8406	79	-8327

(Central Bureau of Statistics 2011)

Table 2. Percentage change of employment in each sector from 1987 to 2011 in Salah al-Din Governorate

Salah al-Din Governorate	Employment 1987	Employment 2011	Change in jobs	percentage change
The total Employment	177191	158260	-18931	-10.6%
Industry	6664	18583	11919	178.85%
Agriculture	43745	18833	-24912	-56.94%
Services	76008	43677	-32331	-42.53%
Wholesale trade	5856	44236	38380	655.39%
Transportation	8296	1334	-6962	-83.91%
Financing and insurance	329	946	617	187.53%
Construction and building	16075	1122	-14953	-93.02%
Electricity and gas	1424	4305	2881	202.31%
All other	8406	79	-8327	-99.06%

(Central Bureau of Statistics 2011)

The size of the change in the employment of the city of Tikrit for the years 1987-2011 reached to (7237) jobs, and this indicates good and tangible progress if compared to the size of the change in the employment at the governorate level, as this indicator reflects the percentage of change and growth of the total employment in the city of Tikrit at a rate of (27.84%).

As for the size of the change in the employment of the industrial sector between these two periods, it increased by (1342) jobs, and by a change rate of (358). 82%). in the agricultural activity, it decreased by (-5450) jobs, and this decline in the volume of change was reflected in the rate of change at a low rate

of (-77.15%). in the services sector, the volume of change reached (1536) , while the percentage of change was (13.77%). as Table 3 and 4 indicate.

Table 3 .Employment growth in Tikrit city ,1987 to 2011

Tikrit city	Employment 1987	Employment 2011	Change in jobs
The total employment	25990	33227	7237
Industry	374	1716	1342
Agriculture	7064	1614	-5450
Services	11147	12683	1536

(Central Bureau of Statistics 2011)

Table 4 . Percentage change of employment in each sector from 1987 to 2011 in Tikrit City

Tikrit city	Employment 1987	Employment 2011	Change in jobs	percentage change
The total Employment	25990	33227	7237	27.84%
Industry	374	1716	1342	358.82%
Agriculture	7064	1614	5450	-77.15%
Services	11147	12683	1536	13.77%

(Central Bureau of Statistics 2011)

### 8.1 National growth share :

This factor describes the change that would be expected simply by virtue of the fact that the local area is part of a changing national economy. In the analysis, we first examine the national growth share, or the number of jobs lost or gained in a region if total employment in the region had changed at the same rate as overall total national employment.

The total employment growth rate at the governorate level was (-10.6%) and according to the assumption of the shift share model, the same rate is at the local level in the city of Tikrit, so the total employment in Tikrit will be (-1983), this meaning that the city loses (- 1983) Jobs during the period 1987-2011, and this is called a **national share**.

That is, this indicator measures the decline in the employment for the economic activities of the city of Tikrit amounting to -1983 due to the decrease in the total employment of the governorate by (-10.6%) jobs. To calculate the national share and for each sector the following equation is used:

$$\text{Ex: } 374 * ((158260/177191) - 1) = 39-$$

Table 5 . National share

Industry	Tikrit Employment 1987	Salah al-Din growth rate	National share
Industry	374	-10.6%	-39
Agriculture	7064	-10.6%	-754
Services	11147	-10.6%	-1190
Tikrit national growth share			-1983

(Central Bureau of Statistics 2011)

## 8.2 Industry Mix:

The share of local job growth that can be attributed to the region's mix of industries being analyzed. This second factor is the change in a local industry that would be attributable to the growth or decline of the industry nationally. some sectors have grown faster or slower than others. It represents the contribution that a specific sector nationally has made to the change in the number of jobs in the city.

The total Employment at the governorate level is decreased (-10.6%), so the rate of total growth of sectors decreased by (-6110) jobs , while the total industrial Employment will increase (708) jobs , the agricultural sector will lose(-3268) jobs, the services sector will lose (-3550) jobs, , and this is called the industry mix. To calculate the industry mix for each sector, the following formula is used: to

$$\text{Ex: } 374 * ((18583/6664) - 1) - ((158260/177191) - 1)) = 708$$

Table 6. Industry Mix

Industry	Tikrit Employment 1987	Salah al-Din sectoral growth rate	Salah al-Din growth rate	Industry mix share
Industry	374	178.85%	-10.6%	708
Agriculture	7064	-56.94%	-10.6%	-3268
+ Services	11147	-42.53%	-10.6%	-3550
Tikrit Industry mix share				-6110

(Central Bureau of Statistics 2011)

### 8.3 The regional shift:

This share of local job growth describes the extent to which factors unique to the local area have caused growth or decline in regional employment of an industrial group or economic sectors.

The sectoral growth of industrial activity at the governorate level reached (178.85%) and at the city level it reached (358.82%), which resulted in a shift in employment opportunities at the city level by (673). This indicates a concentration of the employment in the industrial sector in favor of the city.

As for the agricultural sector, the rate of growth was negative by (-56.94%) at the governorate level and at the city level (-77.15%), which resulted in a decrease in employment opportunities at the city level by (-1427) jobs, while in the services sector the rate of growth decreased at the governorate level by (-42.53%), and at the city level it reached (13.77%). This indicates an increase in employment opportunities at a high rate at the city level by (6264) if compared to the governorate. The regional shift component shows that 5510 new jobs in Tikrit are attributable to its relative competitive position. This is primarily due to its high-growth of service employment.

To calculate the total share for each sector, the following equation is used:

$$\text{Ex: } 374 * ((1716/374) - 1) - ((18583/6664) - 1)) = 673$$

Table 7. The regional Shift

Activities	Tikrit Employment 1987	Salah Sectorial rate	al-Din growth	Tikrit sectorial growth rate	Regional shift
Industry	374	178.85%		358.82%	673
Agriculture	7064	-56.94%		-77.15%	-1427
Services	11147	-42.53%		% 1377,	6264
Tikrit local share					5510

(Central Bureau of Statistics 2011)

### 8.4 Total shift:

The total shift is extracted through the collection of the:  
national share + industry mix + regional share

$$-1983 + (6110-) + 5510 = - 2583$$

The sum of the three variables represents the actual change in employment for the region which called the total shift. The total shift indicates that the city lost -2583 jobs during the period from 1987-2011, as follows , lost -1983 jobs due to the national growth share , lost -6110 jobs due to the industry share, and the

regional share was 5510 jobs because of the region's advantages, this indicates its competitive strength.

On the other hand, we note that the Tikrit's growth level reached (27.84%), while the governorate level was (-10.6%), and there was a difference in the growth rates of the other sectors in the city than in the governorate, as some were higher than the sectorial level in the governorate.

## 9. Conclusions

Shift share analysis is a useful tool in a real estate market analysis because data is readily available and the technique is fairly simple. we can get a clear picture of overall national economic growth trends as well as the performance of individual industries at both the national and local level.

Shift-share analysis has been widely applied to the regional economic research and empirical studies have effectively confirmed it a useful tool to depict the regional change.

This study aimed to determine the dynamics of employment growth in Salah al-Din governorate and Tikrit City between 1987 and 2011. In that period most economic sectors presented a negative net component and some of them had positive share components. The shift -share analysis demonstrate that employment growth rates differ significantly within the salah al-Din governorate and Tikrit city.

- 1- **The national share** : If the Tikrit's sectors grew at the overall Governorate growth rate, new job growth would have been (-1983 ) jobs between 1987 and 2011.
- 2- **The industrial mix** : Tikrit has nearly 6100 fewer jobs than it would have had if its structure were identical to the Governorate's.
- 3- **The regional shift**: component shows that 5510 new jobs in Tikrit are attributable to its relative competitive position. This is primarily due to its high-growth of service employment.

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