

KING COLLEGE

SCHOOL OF BUSINESS

KING COLLEGE REGIONAL ECONOMIC STUDIES (KCREs)

KCREs PAPER NO. 3, August 2011

Local Labor Markets: Job Loss During the 2007-09 Recession and Links to the National Economy

The percentage decline in employment associated with the 2007-09 recession was the steepest since the recession of 1945. The 2007-09 recession was so dire in terms of job loss that some have dubbed it the "Great Recession." Although the recession officially began in December 2007 and ended in June 2009, the decline in employment continued for several months beyond June. Now, two years after the recession ended, the US economy is experiencing slow growth, the unemployment rate is above 9 percent, and there is talk of possibly a 'double-dip' recession. Consequently, it may be useful to review the impacts of the Great Recession on local labor markets and to gauge the extent to which changes in the national economy, as indicated by the unemployment rate, are transmitted to the Tri – Cities and neighboring areas.

The purpose of this paper is twofold. First, we measure the impact of the 2007-09 recession on the total number of jobs and jobs by sector in Northeast Tennessee and Southwest Virginia. For the analysis we divide Northeast Tennessee into four geographic subregions and Southwest Virginia into three subregions.

The subregions within NE TN are the Kingsport – Bristol (TN) metro area, consisting of Hawkins and Sullivan counties; the Johnson City metro area, consisting of Carter, Unicoi and Washington (TN) counties; Greene County; and the Morristown metro area, consisting of Grainger, Hamblen and Jefferson counties.

The subregions within SW VA are Bristol (VA) and Washington County (VA) combined; Smyth County; and the Coalfields, consisting of the city of Norton and the counties of Buchanan, Dickenson, Lee, Russell, Scott, Tazewell and Wise. The definition of the Coalfields subregion is that used by the Virginia Coalfield Economic Development Authority (VCEDA).

The second part of the paper presents the results of a statistical analysis of the relationship between the annual unemployment rate for each subregion defined above and the national unemployment rate. This analysis attempts to answer the question: Is

the change in the national unemployment rate a good predictor of change in the subregion unemployment rate?

Data Sources

The source data for the preparation of Tables 1, 2, 2.1, 3 and 3.1 and Figures 1 – 2 is the Quarterly Workforce Indicators (QWI) database published online by the US Census Bureau. The QWI database and links to descriptive information about the QWI may be found at lehd.did.census.gov/led/datatools/qwiapp.html. The QWI are reported with about a one – year lag. The most current data is for Q2:2010. The employment count in the QWI is a count of jobs, not the number of employed persons.

The source data for the preparation of Table 4 is the Local Area Unemployment (LAU) database published online by the US Bureau of Labor Statistics. These statistics are reported monthly and track the number of persons in the labor force and the number who are unemployed and employed (www.bls.gov/lau/#data).

For a description of the 2 – digit NAICS sectors identified in Tables 3 and 3.1, please see the North American Industry Classification System at www.bls.gov/iag/.

Part One: Job Loss During the 2007-09 Recession

The 2007-09 recession began in late fourth quarter 2007 and ended in the second quarter of 2009, a duration of 18 months. Job losses continued into Q3:2009, and the initial phase of recovery from the recession was for the most part, a “jobless recovery.” For this paper, we measure job loss as the difference between the number of jobs in Q3:2007 (pre-recession) and the number of jobs in Q3:2009. We rely on the job counts reported in the QWI database to measure job losses. We should note here that some jobs are not counted in the QWI enumeration, notably the self – employed and employees of the federal government. The QWI analysts estimate that around 95% of private sector jobs are covered in the QWI database.

The pattern of job loss was uneven across Northeast Tennessee and Southwest Virginia. Job losses began with the onset of the recession in NE TN, as jobs were trimmed heavily in Q1:2008. Meanwhile, job numbers in SW VA grew during the first two quarters of the recession, peaking in Q2:2008, and, although the job loss was 3.6 percent over the course of the recession, the job loss from the peak in Q2:2008 through Q3:2009 was a much - higher 7.6 percent (Figure 1).

Northeast Tennessee

- There were 18,845 fewer jobs in NE TN in Q3:2009 than in Q3:2007, a decline of 7.8 percent. The percentage decline in jobs was greater in NE TN than the 6.9 – percent decline in the remainder of the State (Table 1).
- In percentages terms, the largest job losses were in Greene County (14.6%) and the Morristown metro area (12.8%). The Kingsport – Bristol (TN) and Johnson City metro areas experienced job losses of 4.3% and 5.8%, respectively (Table 1).

- Job losses in the Manufacturing sector accounted for 54% of the job loss in NE TN. The decline in manufacturing jobs was 19.4%, compared to a loss of 4.5 percent in the nonmanufacturing sectors combined. The loss of manufacturing jobs was especially acute in Greene County (30.7%) and the Morristown metro area (23.4%). Greene County and the Morristown metro area have the largest concentration of manufacturing jobs (manufacturing jobs as a percentage of total jobs) in NE TN. This explains why these two areas were the hardest hit in terms of the percentage decline in total jobs (Tables 1, 2 and 2.1).
- There are two important consequences of the sharp loss of manufacturing jobs. First, manufacturing output and employment have significant spillover (multiplier) effects on other sectors of the economy (see KCRES Paper No. 1, *Economic Impact Multipliers for the Mountain Empire Region*, December, 2010, www.kcres.king.edu). It is no surprise that Greene County and the Morristown metro area, localities in which manufacturing suffered steep declines, also had the largest percentage declines in nonmanufacturing jobs in NE TN (Tables 2 and 2.1). Second, average monthly earnings are higher for the Manufacturing sector than the average for all sectors of the local economy; in some localities, manufacturing earnings are significantly higher than the overall average (Figure 2).
- Job losses in the Construction sector, a traditionally cyclical sector, were severe, with a decline of 23.7% in NE TN. Prior to the recession, construction related to the booming housing market had been a source of job growth in the economy. The second largest percentage loss of jobs among the sectors listed in Table 3 was in the sector, Administrative & Support & Waste Management & Remediation Services. This array of services, typically performed in – house by firms in many sectors of the economy, experienced a 20.6 - percent loss in job numbers.
- Job growth in the Health Care & Social Assistance sector, the Retail Trade sector and the Educational Services sector slowed during the recession, but there were marginal increases in the number of jobs in each sector. Combined, these three sectors which normally provide stable employment accounted for 35% of the jobs in NE TN prior to the recession and nearly 39% post-recession (Table 3).
- The NAICS sectors listed in Table 3 accounted for 76% of the jobs in NE TN in Q3:2007. Each of the sectors listed accounted for 10,000 or more jobs.

Southwest Virginia

- There were 4,247 fewer jobs in SW VA in Q3:2009 than in Q3:2007, a decline of 3.6 percent. This was less than the 5.7 – percent drop in job numbers in the remainder of the Commonwealth. The percentage job loss in SW VA was less than half the loss in NE TN (Table 1).
- In percentage terms, job loss was greatest in Smyth County (15.7%). Job loss in the Coalfields was 3.6% while the Bristol (VA) – Washington County (VA) saw a 1.5 – percent gain in jobs. Smyth County has the largest concentration of manufacturing jobs in SW VA, comparable to the Greene County and the Morristown metro area in Tennessee. The loss of manufacturing jobs in Smyth

County alone represented more than one – third of the total job loss in SW VA (Tables 2 and 2.1).

- The gain in Bristol – Washington County was due to job growth in Washington County, in the Health Care & Social Assistance sector, the Educational Services sector and the Accommodation & Food Services sector. Gains in these sectors offset job losses elsewhere (county data not shown here).
- The decline in the Manufacturing sector accounted for 68% of the job losses in SW VA. The decline in manufacturing jobs was 18.4%, well above the 1.3 – percent decline in the nonmanufacturing sectors combined. The Manufacturing sector accounted for 13.4% of jobs in SW VA pre – recession, compared to 22% in NE TN. This is one reason that the loss of jobs was more severe in NE TN than in SW VA (Tables 2 and 2.1).
- The loss in manufacturing jobs was 29.4% in Smyth County and 19.9% in the Coalfields. The spillover effect of the decline in manufacturing caused Smyth County to experience an 8.5 – percent decline in nonmanufacturing jobs, comparable to the losses in Greene County and the Morristown area in NE TN. The Coalfields subregion has the smallest (less than 7%) concentration of manufacturing jobs in SW VA and NE TN. This relatively small manufacturing base lessened the spillover effect of the large percentage loss in manufacturing jobs in the Coalfields (Tables 2 and 2.1).
- Three sectors saw healthy job growth during the recession: Health Care & Social Assistance, Accommodation & Food Services and Educational Services. Growth in these sectors was mainly in Washington and Wise counties.
- The NAICS sectors listed in Table 3.1 accounted for 74% of jobs in SW VA in Q3:2007. Each of the sectors listed accounted for 5,000 or more jobs.

Part Two: Local Unemployment Rates Versus the US Unemployment Rate

The unemployment rate is a key indicator of economic health. The magnitude of the unemployment rate has implications for retail sales, tax revenue and social assistance needs, among other things. Forecasts of future US unemployment rates are available from private firms and from the federal government. Each January the Congressional Budget Office (CBO) publishes its forecast for the US annual unemployment rate for the current year and for 10 years in the future. Forecasts of the national unemployment rate for future years are useful to local officials, provided that a sound statistical relationship exists between the local unemployment rate and the US rate.

We acknowledge that the unemployment rate for a relatively small labor market area may be significantly affected by events unrelated to national economic conditions and the national unemployment rate, for example, events such as the beginning or ending of a major construction project or the closure of a factory. With this in mind, we estimated the relationship between the annual unemployment rate for each subregion and the US rate. These relationships were estimated using data on annual unemployment rates for the 2000 – 2010 period (Table 4). The statistical relationships are portrayed in Figures 3 – 9, and the estimated equations are presented in Table 5.

The R-square value shown in Table 5 for each subregion equation is defined as the percentage of variation in the local annual unemployment rate which is explained by the forecast equation. R-square values may range from 0 to 1, with a value of 1 being perfect correlation between the local annual unemployment rate and the US annual rate. While all the R-square values are acceptable, the very high values for the Kingsport-Bristol (TN); Johnson City; and Bristol (VA)-Washington Co. metro areas indicate the forecast equations for these areas may be particularly useful.

To illustrate the use of these equations, consider that in January 2011, the CBO forecast the US annual unemployment rate for 2012 at 8.4 percent (www.cbo.gov). We can use this information to forecast the unemployment rate for 2012 for each subregion in NE TN and SW VA. For example, the forecast 2012 unemployment rate (UR) for the Kingsport – Bristol (TN) metro area is:

$$\text{KBUR} = 0.44 + (0.91 \times 8.4) = 8.1 \text{ percent,}$$

and the forecast for the Coalfields is:

$$\text{CUR} = 1.87 + (0.66 \times 8.4) = 7.4 \text{ percent.}$$

KCRES Paper No. 3 was prepared by Dr. Sam Evans with assistance from students enrolled in his MBA course, *Quantitative and Research Methods*, which met at the King College site in Big Stone Gap, VA during June – July, 2011. The following students contributed to KCRES Paper No. 3:

Nathaniel Brooks	Caryn Johnson	Renee Roberts
William Carroll	Ricky Johnson	Jimmie Sampson
Pamela Collie	Amanda Moore	Travis Scarberry
Kevin Davis	Bryan Mullins	Charlene Schaeffer
April Huff	Wesley Mullins	Stephanie Sprinkle

Tables and Figures

Table 1	Numbers of Jobs		
	2007:Q3	2009:Q3	Change; (%)
NE TN Total:	238,281	219,796	-18,485; (-7.8)
Kingsport-Bristol	83,627	80,013	-3,614; (-4.3)
Johnson City	77,286	72,841	-4,445; (-5.8)
Greene Co.	28,092	23,979	-4,113; (-14.6)
Morristown	49,276	42,963	-6,313; (-12.8)
TN, excl. NE TN	2,449,234	2,280,225	-169,009; (-6.9)
SW VA Total:	118,367	114,120	-4,247; (-3.6)
Bristol-Wash. Co.	34,439	34,969	530; (1.5)
Coalfields	69,221	66,748	-2,473; (-3.6)
Smyth Co.	14,707	12,403	-2,304; (-15.7)
VA, excl. SW VA	3,436,262	3,241,830	-194,432; (-5.7)

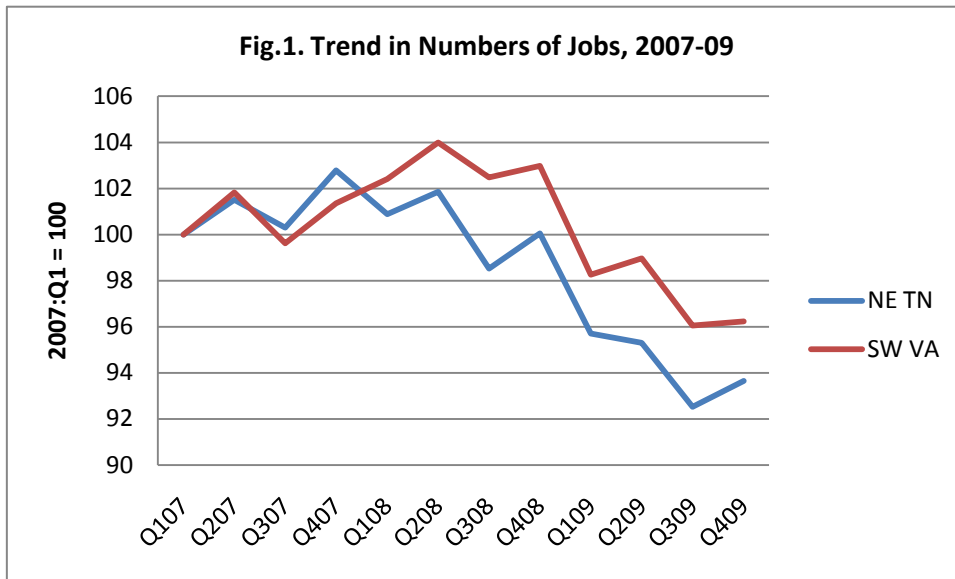


Table 2	Manufacturing Jobs		
	2007:Q3	2009:Q3	Change; (%)
NE TN Total:	52,399	42,256	-10,143; (-19.4)
Kingsport-Bristol	18,361	15,964	-2,397; (-13.1)
Johnson City	10,328	8,731	-1,597; (-15.5)
Greene Co.	7,473	5,180	-2,293; (-30.7)
Morristown	16,237	12,381	-3,856; (-23.4)
SW VA Total:	15,880	12,977	-2,903; (-18.3)
Bristol-Wash. Co.	6,104	5,622	-482; (-7.9)
Coalfields	4,729	3,790	-939; (-19.9)
Smyth Co.	5,047	3,565	-1,482; (-29.4)
Table 2.1	Nonmanufacturing Jobs		
	2007:Q3	2009:Q3	Change; (%)
NE TN Total:	185,882	177,540	-8,342; (-4.5)
Kingsport-Bristol	65,266	64,049	-1,217; (-1.9)
Johnson City	66,958	64,110	-2,848; (-4.3)
Greene Co.	20,619	18,799	-1,820; (-9.0)
Morristown	33,039	30,582	-2,457; (-7.4)
SW VA Total:	102,487	101,143	-1,344 (-1.3)
Bristol-Wash. Co.	28,335	29,347	1,012; (3.6)
Coalfields	64,492	62,958	-1,534; (-2.4)
Smyth Co.	9,660	8,838	-822; (-8.5)

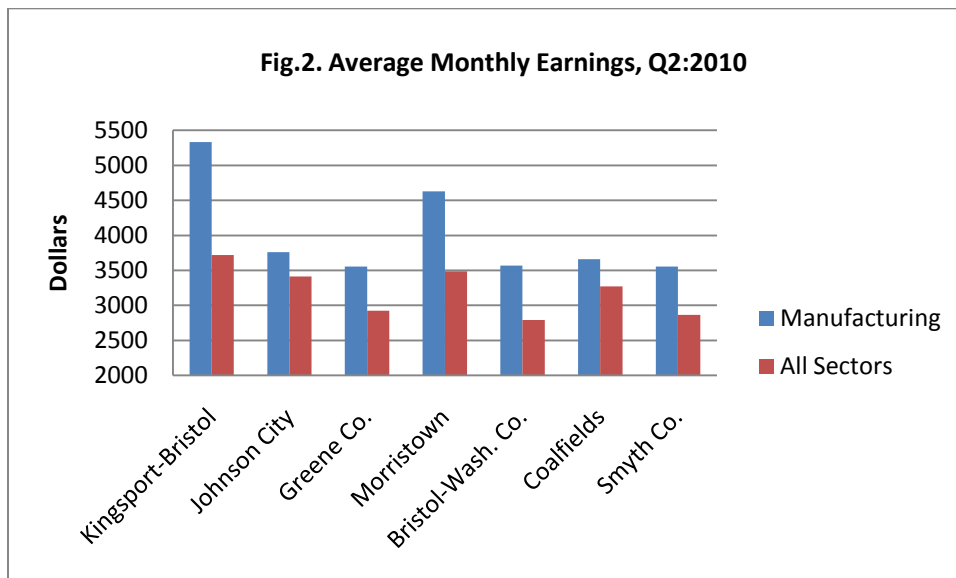


Table 3	NE TN, Jobs by Sector			
NAICS Sector (Code):	2007:Q3	2009:Q3	Change	% Change
Construction (23)	13,928	10,773	-3,155	-23.7
Manufacturing (31-33)	52,399	42,256	-10,143	-19.4
Retail Trade (44-45)	30,928	31,102	174	0.6
Administrative & Support & Waste Mgmt. & Remediation Services (56)	11,776	9,353	-2,423	-20.6
Educational Services (61)	17,003	17,061	58	0.3
Health Care & Social Assistance (62)	36,310	36,641	331	0.9
Accommodation & Food Services (72)	19,341	18,977	-364	-1.9
Total of Above	181,685	166,163	-15,522	-8.5

Table 3.1	SW VA, Jobs by Sector			
NAICS Sector (Code):	2007:Q3	2009:Q3	Change	% Change
Mining, Quarrying, & Oil & Gas Extraction (21)	6,210	5,653	-557	-9.0
Construction (23)	5,827	5,613	-214	-3.7
Manufacturing (31-33)	15,880	12,977	-2,903	-18.3
Retail Trade (44-45)	19,574	19,366	-208	-1.1
Educational Services (61) ¹	9,842	10,109	267	2.7
Health Care & Social Assistance (62)	14,546	15,449	903	6.2
Accommodation & Food Services (72)	8,485	9,018	533	6.3
Public Administration (92)	7,541	7,362	-179	-2.4
Total of Above	87,905	85,547	-2,358	-2.7

¹ Educational Services employment is not available for the counties of Lee and Dickenson and the city of Norton.

Table 4	Annual Unemployment Rate , Pct.			
Year:	US	Bristol (VA) – Wash. Co.(VA)	Coalfields	Smyth Co.
2000	4.0	3.5	4.8	4.3
2001	4.7	4.8	5.3	6.3
2002	5.8	5.8	6.1	8.0
2003	6.0	5.6	6.5	7.5
2004	5.5	5.0	5.3	5.1
2005	5.1	4.7	5.1	4.6
2006	4.6	4.3	4.7	4.6
2007	4.6	4.7	4.5	5.4
2008	5.8	5.1	5.0	6.1
2009	9.3	9.0	8.2	11.3
2010	9.6	9.0	8.0	10.5

Table 4 Cont.	Annual Unemployment Rate, Pct.			
Year:	Kingsport – Bristol (TN) Metro	Johnson City Metro	Morristown Metro	Greene Co.
2000	3.9	4.6	6.7	5.9
2001	4.6	5.0	5.8	7.7
2002	5.4	5.9	6.4	6.7
2003	6.0	5.7	6.4	7.6
2004	5.7	5.5	5.9	7.8
2005	5.5	5.3	5.9	8.6
2006	4.9	4.8	5.8	7.9
2007	4.3	4.6	5.2	7.2
2008	5.7	6.1	7.3	9.3
2009	9.4	9.4	12.8	15.7
2010	8.7	8.9	11.6	13.2

Table 5	Forecast Equation	R –square
NE TN		
Kingsport- Bristol Metro	$KBUR = 0.44 + (0.91 \times USUR)$	0.97
Johnson City Metro	$JCUR = 0.8 + (0.88 \times USUR)$	0.98
Greene Co.	$GUR = 0.24 + (1.46 \times USUR)$	0.87
Morristown Metro	$MUR = -0.27 + (1.27 \times USUR)$	0.88
SW VA		
Bristol-Wash. Co.	$BWUR = -0.05 + (0.95 \times USUR)$	0.98
Coalfields	$CUR = 1.87 + (0.66 \times USUR)$	0.90
Smyth Co.	$SUR = -0.40 + (1.20 \times USUR)$	0.85

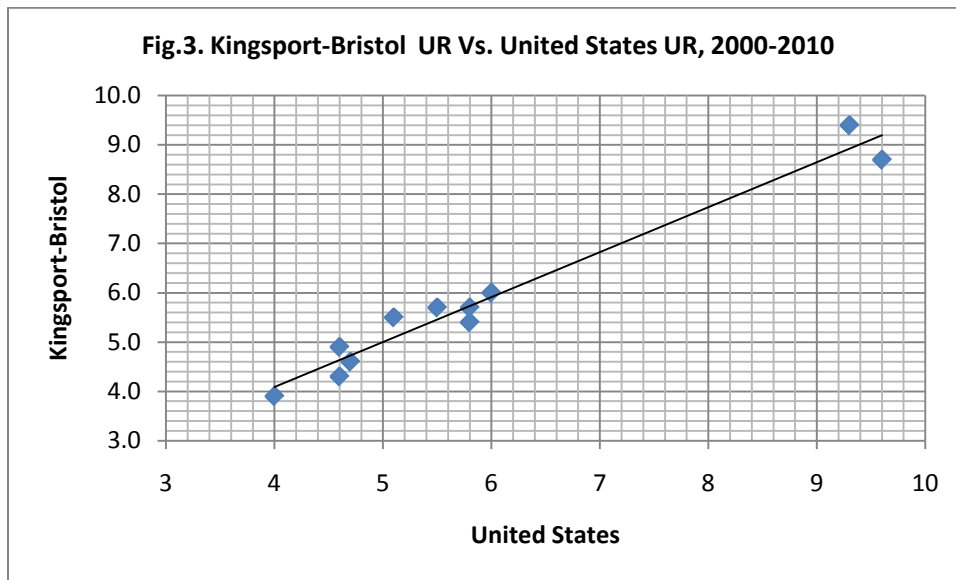


Fig.4. Johnson City UR Vs. United States UR, 2000-2010

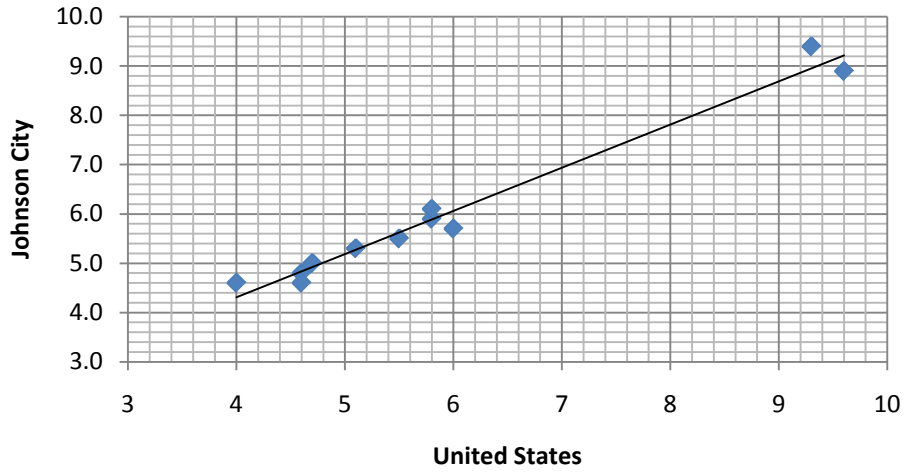


Fig.5. Greene Co. UR Vs. United States UR, 2000-2010

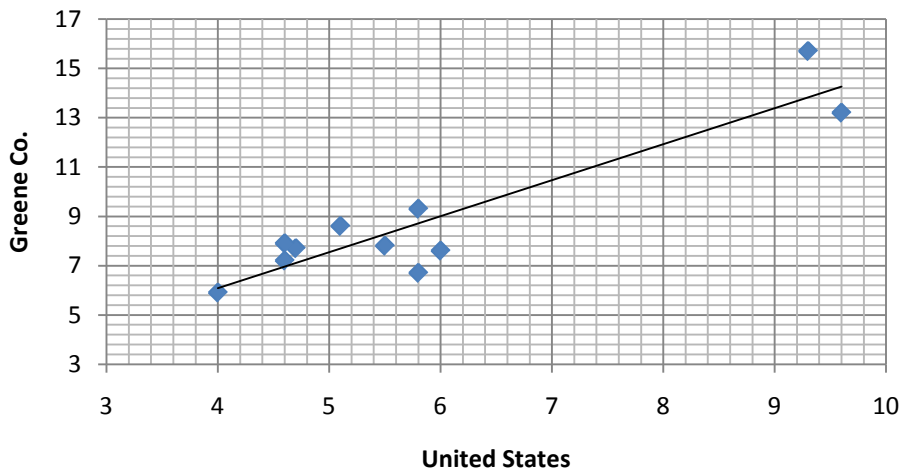


Fig.6. Morristown UR Vs. United States UR, 2000-2010

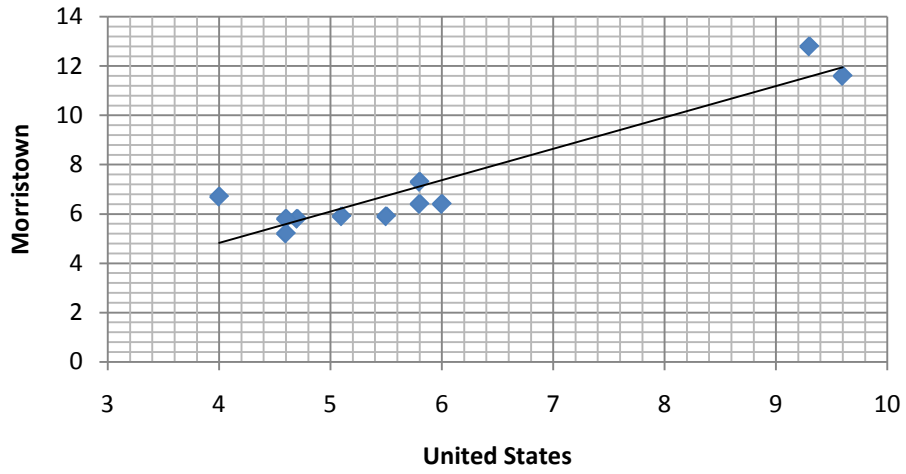


Fig.7. Bristol-Wash. Co. UR Vs. United States UR, 2000-2010

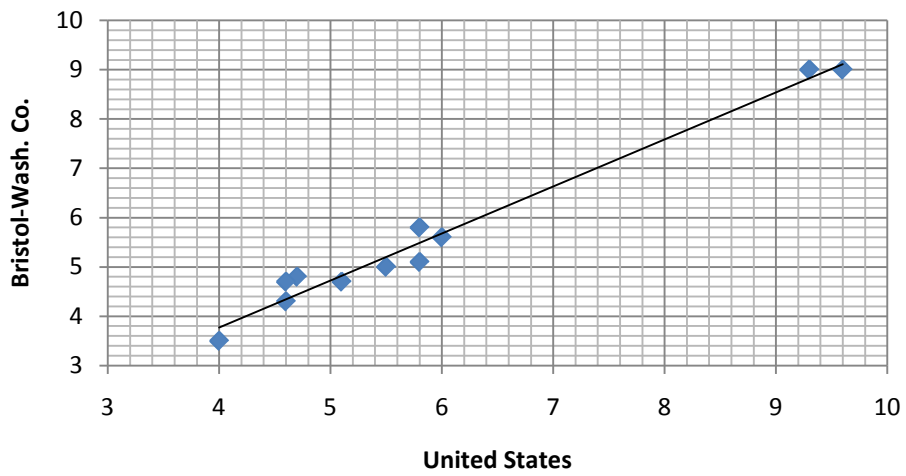


Fig. 8. Coalfields UR Vs. United States UR, 2000-2010

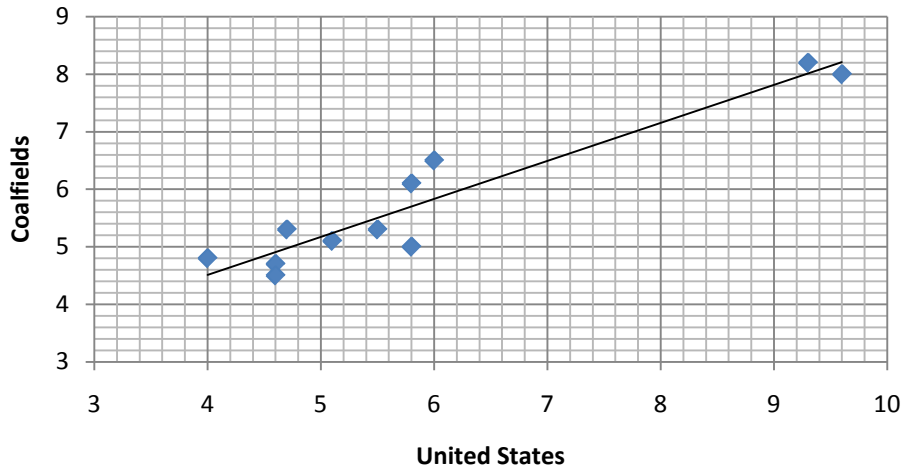


Fig.9. Smyth Co. UR Vs. United States UR, 2000-2010

