

Supplementary Document 4

Shift-Share Analysis: Maryland, 2005 - 2018

**Prepared for the Appalachian Regional Commission by the
West Virginia University Regional Research Institute**

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Chapter 1. Allegany County, Maryland

Employment in Allegany County, Maryland, declined from 30,943 in 2005 to 29,036 in 2018, for a change of -1,907, or -6.16%. Readers should compare the employment values in the tables below to total county employment.

The first table shows the referent region share (NS), the Total Share (TS), Industry Mix (IM), and Regional Shift (RS) job values for the county. The summary values shown represent sums of individual industry component values for all county industries. To be clear, the SSA components always refer to the county that is being compared to the referent region, and the NS label always refers to the county growth that would have taken place had it matched overall average growth in the referent region, which can be the United States, the Appalachian Region, or the county and its neighbors. The largest and smallest NS components in the summary table correspond to the fastest and slowest growing referent regions.

Summary Results for Allegany County, Maryland

County Summary	NS	TS	IM	RS
vs. U.S.	3,486	-5,391	-518	-4,873
vs. Appalachia	99	-2,012	324	-2,336
vs. Neighbors	-1,005	-904	513	-1,417

The next table displays the group membership categories for industries belonging to any of the first three categories (signifying a positive total share value) for the Appalachian Region or the county relative to the United States — i.e., A, B, C, I, II, or III — and for the county relative to the Appalachian Region or its neighboring counties — i.e., a, b, c, i, ii, or iii. These are the industries that have passed the first screening step, as they have proven to be positive contributors to either the Appalachian Region in comparison to the United States as a whole, or to Allegany County, Maryland, in comparison to at least one of the three referent regions.

Chapter 1. Allegany County, Maryland

Industry Group Membership for Allegany County, Maryland

Industry	Name	Group Membership	Type A or B or C	Type I or II or III	Type a or b or c	Type i or ii or iii
18	Furniture and related ...	F III c i	no	yes	yes	yes
28	Wholesale trade	F III c i	no	yes	yes	yes
29	Motor vehicle and parts ...	F III a iii	no	yes	yes	yes
47	Insurance carriers and ...	F III c i	no	yes	yes	yes
53	Miscellaneous profession ...	B I a i	yes	yes	yes	yes
58	Ambulatory health care ...	B V b ii	yes	no	yes	yes
61	Social assistance	B II a i	yes	yes	yes	yes
64	Accommodation	A V b i	yes	no	yes	yes
65	Food services and drinking ...	B V b i	yes	no	yes	yes

Notes:

Groups A, B, and C are from Appalachia vs. the United States

Groups I, II, and III are from Allegany County, Maryland vs. the United States

Groups a, b, and c are from Allegany County, Maryland vs. Appalachia

Groups i, ii, and iii are from Allegany County, Maryland vs. its neighbors

Chapter 1. Allegany County, Maryland

Industry-Specific Results

Below we report the results for the three shift-share analyses comparing Allegany County, Maryland, to each of three referent regions: the United States as a whole, the Appalachian Region, and the region defined by Allegany County, Maryland, and its neighboring counties. The results for each of the three analyses are presented both visually and in tabular form.

The chart provides a visual display of the Total Share (TS), Industry Mix (IM), and Regional Shift (RS) components of change. The IM indicates the change in industry employment that would have occurred had the industry grown at a rate equal to the difference between the industry-specific growth rate in the referent region and the overall referent-region growth rate. So, a positive value here also means that the industry is growing more rapidly than the overall growth rate for the referent region. The RS component measures the actual employment change in the industry in Allegany County, Maryland, after adjusting for overall referent-region and industry-specific growth rates. A positive value here reflects better than expected industry performance, which implies that Allegany County, Maryland, might have a comparative advantage as a location for this industry. The tables also include the 2018 employment estimates for each reported industry.

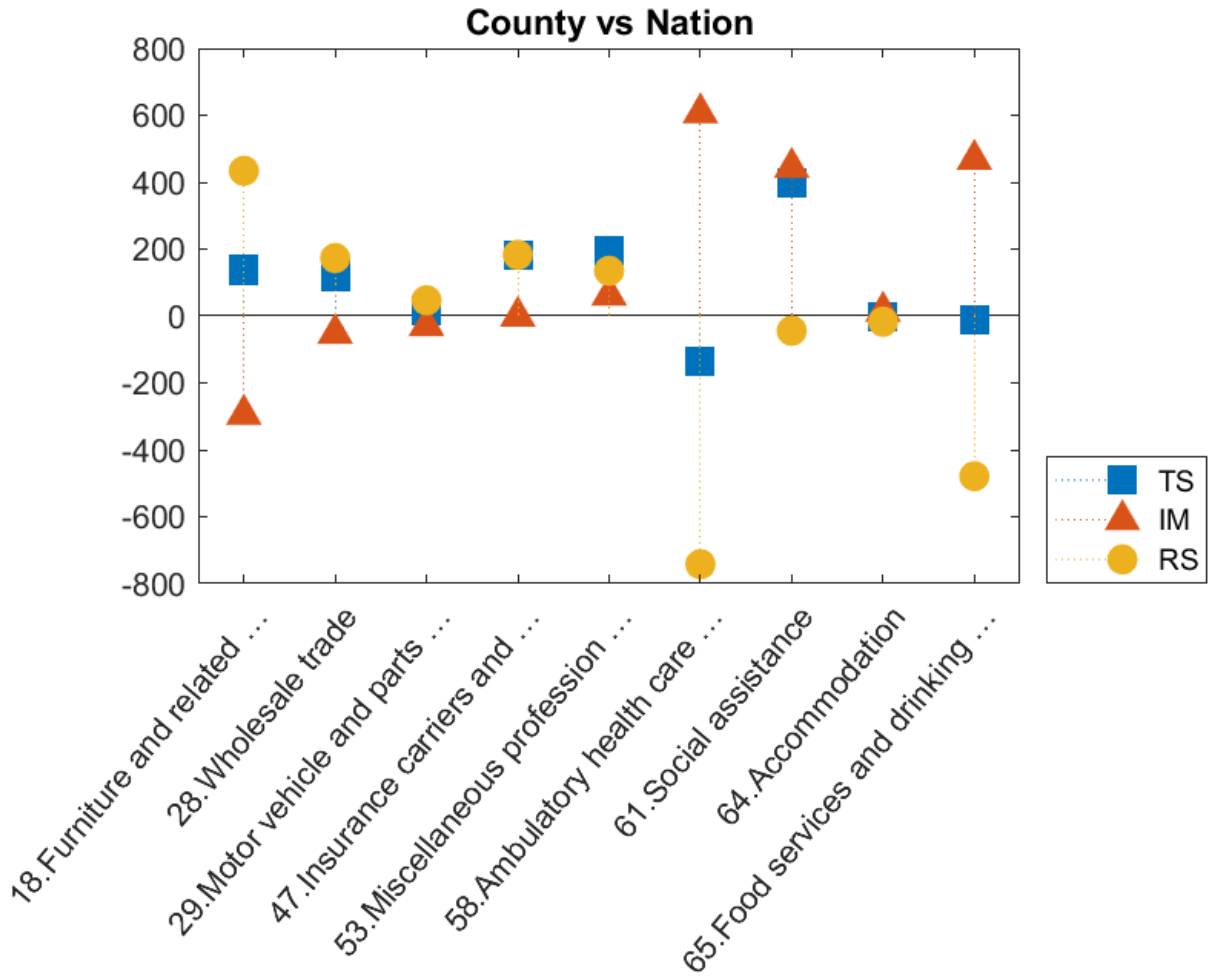
The TS component is the sum of the IM and RS components. A positive TS value also conveys a positive message, especially when both IM and RS are positive. When IM is positive but RS is negative, a positive TS indicates that although the county might not enjoy a regional comparative advantage, the industry in Allegany County, Maryland, is still growing at a faster rate than the overall referent region average. Likewise, when IM is negative and RS is positive, the implication is that the regional comparative advantage is sufficiently strong to overcome the slower than average industry growth rate.

Interpreting Different Referent Region Results

The three SSA are conducted relative to three different referent regions: (1) the United States as a whole, (2) the Appalachian Region, and (3) the region defined by the county and its neighboring counties. As such, the IM component indicates the change in industry employment that would have occurred had the industry grown at a rate equal to the difference between the industry-specific growth rate in the referent region and the overall referent-region growth rate. Likewise, the regional shift components, RS, reflect county-specific industry comparative (dis)advantages relative to those same industries in each of the three referent regions. As before, the NS label always refers to county growth that would have occurred had the county industry grown at the overall average rate of growth in the referent region.

Reporting the results for each of three referent regions enables readers to compare county performance to the United States, the Appalachian Region, and the region defined by the county and its neighboring counties. Although economic growth in Appalachia overall and by industry generally lags the rest of the United States, positive SSA components can still be useful for identifying industries that are positive contributors relative to Appalachian Region and to the more localized economy.

Selected SSA Components for Allegany County, Maryland vs the U.S.

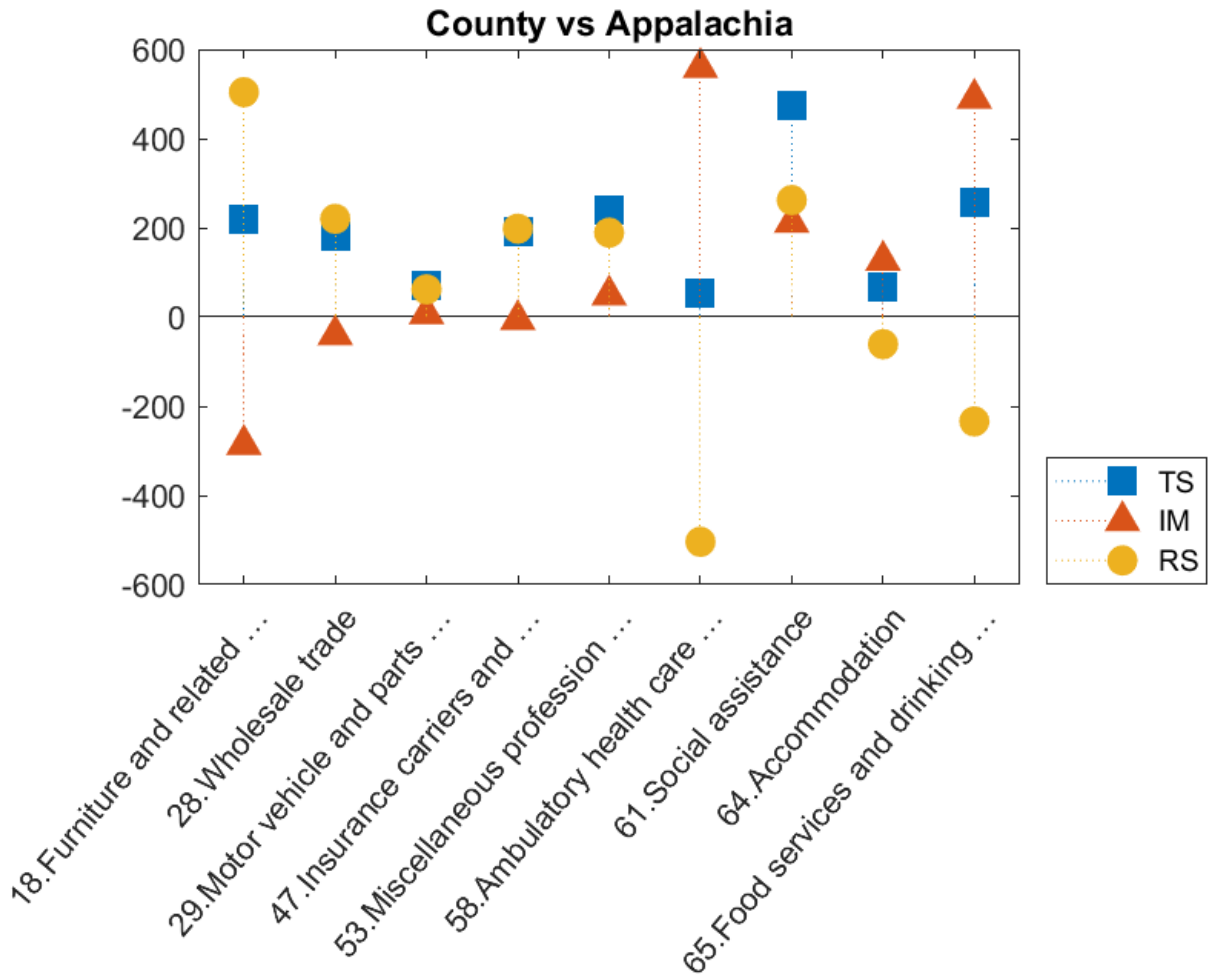


Chapter 1. Allegany County, Maryland

Allegany County, Maryland vs U.S. for Selected Industries

Industry	Name	NS	TS	IM	RS	Employment 2018
18	Furniture and related ...	80	140	-294	434	926
28	Wholesale trade	61	121	-52	173	726
29	Motor vehicle and parts ...	52	18	-29	47	535
47	Insurance carriers and ...	12	182	-1	183	296
53	Miscellaneous profession ...	41	197	62	135	607
58	Ambulatory health care ...	195	-135	607	-742	1,790
61	Social assistance	76	400	444	-44	1,154
64	Accommodation	70	-3	14	-17	692
65	Food services and drinking ...	277	-11	468	-479	2,718

Selected SSA Components for Allegany County, Maryland vs the Appalachian Region

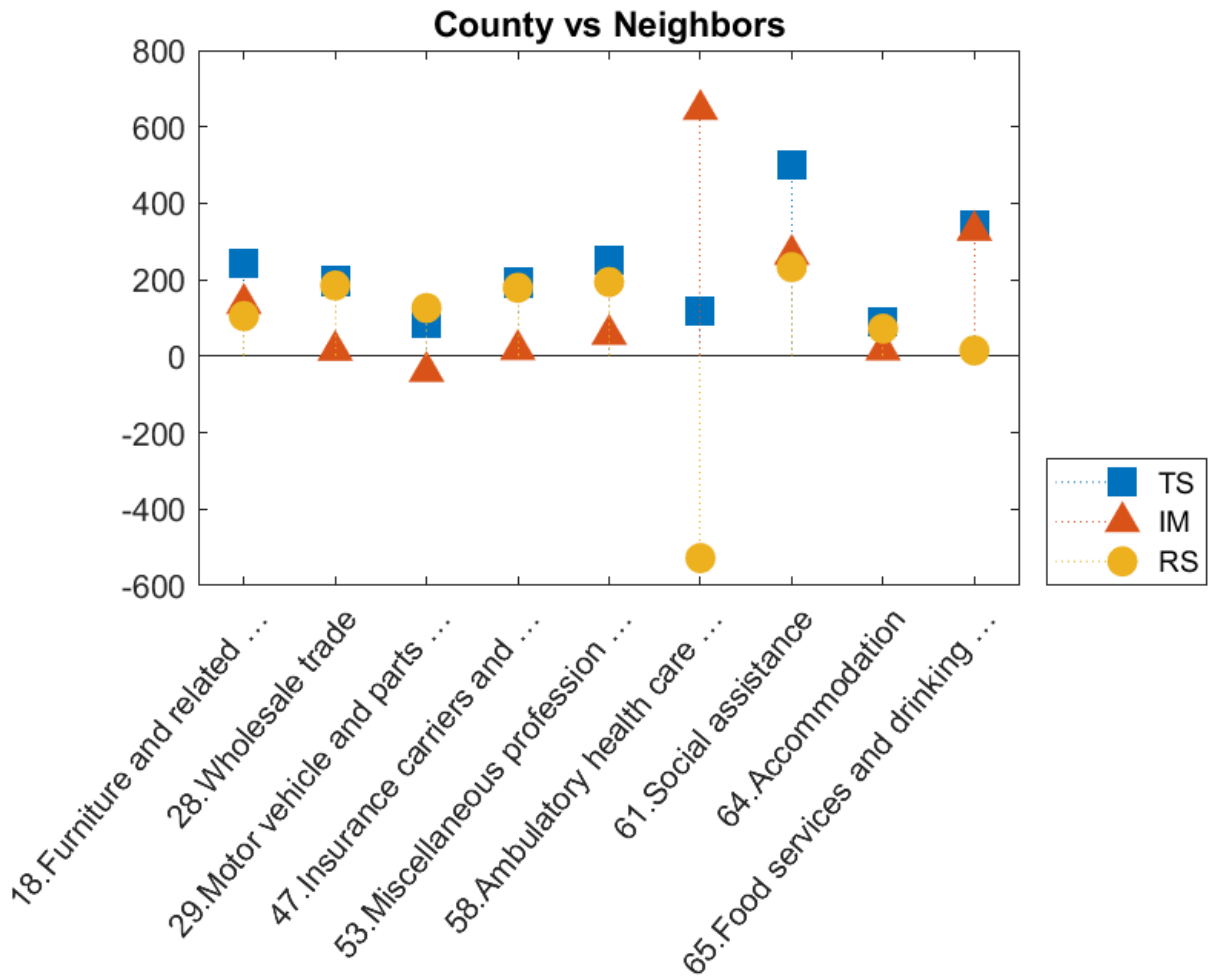


Chapter 1. Allegany County, Maryland

Selected SSA Components for Allegany County, Maryland vs the Appalachian Region

Industry	Name	NS	TS	IM	RS	Employment 2018
18	Furniture and related ...	2	218	-286	504	926
28	Wholesale trade	2	180	-40	220	726
29	Motor vehicle and parts ...	2	69	7	62	535
47	Insurance carriers and ...	0	192	-6	198	296
53	Miscellaneous profession ...	1	238	49	189	607
58	Ambulatory health care ...	6	55	559	-504	1,790
61	Social assistance	2	474	212	262	1,154
64	Accommodation	2	66	127	-61	692
65	Food services and drinking ...	8	256	490	-234	2,718

Selected SSA Components for Allegany County, Maryland vs Neighbors



Chapter 1. Allegany County, Maryland

Selected SSA Components for Allegany County, Maryland vs Neighbors for Selected Industries

Industry	Name	NS	TS	IM	RS	Employment 2018
18	Furniture and related ...	-23	243	138	105	926
28	Wholesale trade	-18	200	15	185	726
29	Motor vehicle and parts ...	-15	86	-40	126	535
47	Insurance carriers and ...	-3	196	17	179	296
53	Miscellaneous profession ...	-12	251	57	194	607
58	Ambulatory health care ...	-56	117	645	-528	1,790
61	Social assistance	-22	499	266	233	1,154
64	Accommodation	-20	88	16	72	692
65	Food services and drinking ...	-80	344	329	15	2,718

Chapter 2. Garrett County, Maryland

Employment in Garrett County, Maryland, declined from 12,359 in 2005 to 11,831 in 2018, for a change of -528, or -4.27%. Readers should compare the employment values in the tables below to total county employment.

The first table shows the referent region share (NS), the Total Share (TS), Industry Mix (IM), and Regional Shift (RS) job values for the county. The summary values shown represent sums of individual industry component values for all county industries. To be clear, the SSA components always refer to the county that is being compared to the referent region, and the NS label always refers to the county growth that would have taken place had it matched overall average growth in the referent region, which can be the United States, the Appalachian Region, or the county and its neighbors. The largest and smallest NS components in the summary table correspond to the fastest and slowest growing referent regions.

Summary Results for Garrett County, Maryland

County Summary	NS	TS	IM	RS
vs. U.S.	1,389	-1,927	-370	-1,557
vs. Appalachia	36	-569	-262	-307
vs. Neighbors	-742	219	-210	429

The next table displays the group membership categories for industries belonging to any of the first three categories (signifying a positive total share value) for the Appalachian Region or the county relative to the United States — i.e., A, B, C, I, II, or III — and for the county relative to the Appalachian Region or its neighboring counties — i.e., a, b, c, i, ii, or iii. These are the industries that have passed the first screening step, as they have proven to be positive contributors to either the Appalachian Region in comparison to the United States as a whole, or to Garrett County, Maryland, in comparison to at least one of the three referent regions.

Chapter 2. Garrett County, Maryland

Industry Group Membership for Garrett County, Maryland

Industry	Name	Group Membership	Type A or B or C	Type I or II or III	Type a or b or c	Type i or ii or iii
18	Furniture and related ...	F III c i	no	yes	yes	yes
44	Data processing, internet ...	E I c i	no	yes	yes	yes
49	Real estate	F III a i	no	yes	yes	yes
53	Miscellaneous profession ...	B I a i	yes	yes	yes	yes
54	Management of companies ...	A I a i	yes	yes	yes	yes
55	Administrative and ...	A I a i	yes	yes	yes	yes
58	Ambulatory health care ...	B I a i	yes	yes	yes	yes
60	Nursing and residential ...	E II a i	no	yes	yes	yes
61	Social assistance	B I a i	yes	yes	yes	yes
65	Food services and drinking ...	B I a i	yes	yes	yes	yes
68	Government	F III a i	no	yes	yes	yes

Notes:

Groups A, B, and C are from Appalachia vs. the United States

Groups I, II, and III are from Garrett County, Maryland vs. the United States

Groups a, b, and c are from Garrett County, Maryland vs. Appalachia

Groups i, ii, and iii are from Garrett County, Maryland vs. its neighbors

Chapter 2. Garrett County, Maryland

Industry-Specific Results

Below we report the results for the three shift-share analyses comparing Garrett County, Maryland, to each of three referent regions: the United States as a whole, the Appalachian Region, and the region defined by Garrett County, Maryland, and its neighboring counties. The results for each of the three analyses are presented both visually and in tabular form.

The chart provides a visual display of the Total Share (TS), Industry Mix (IM), and Regional Shift (RS) components of change. The IM indicates the change in industry employment that would have occurred had the industry grown at a rate equal to the difference between the industry-specific growth rate in the referent region and the overall referent-region growth rate. So, a positive value here also means that the industry is growing more rapidly than the overall growth rate for the referent region. The RS component measures the actual employment change in the industry in Garrett County, Maryland, after adjusting for overall referent-region and industry-specific growth rates. A positive value here reflects better than expected industry performance, which implies that Garrett County, Maryland, might have a comparative advantage as a location for this industry. The tables also include the 2018 employment estimates for each reported industry.

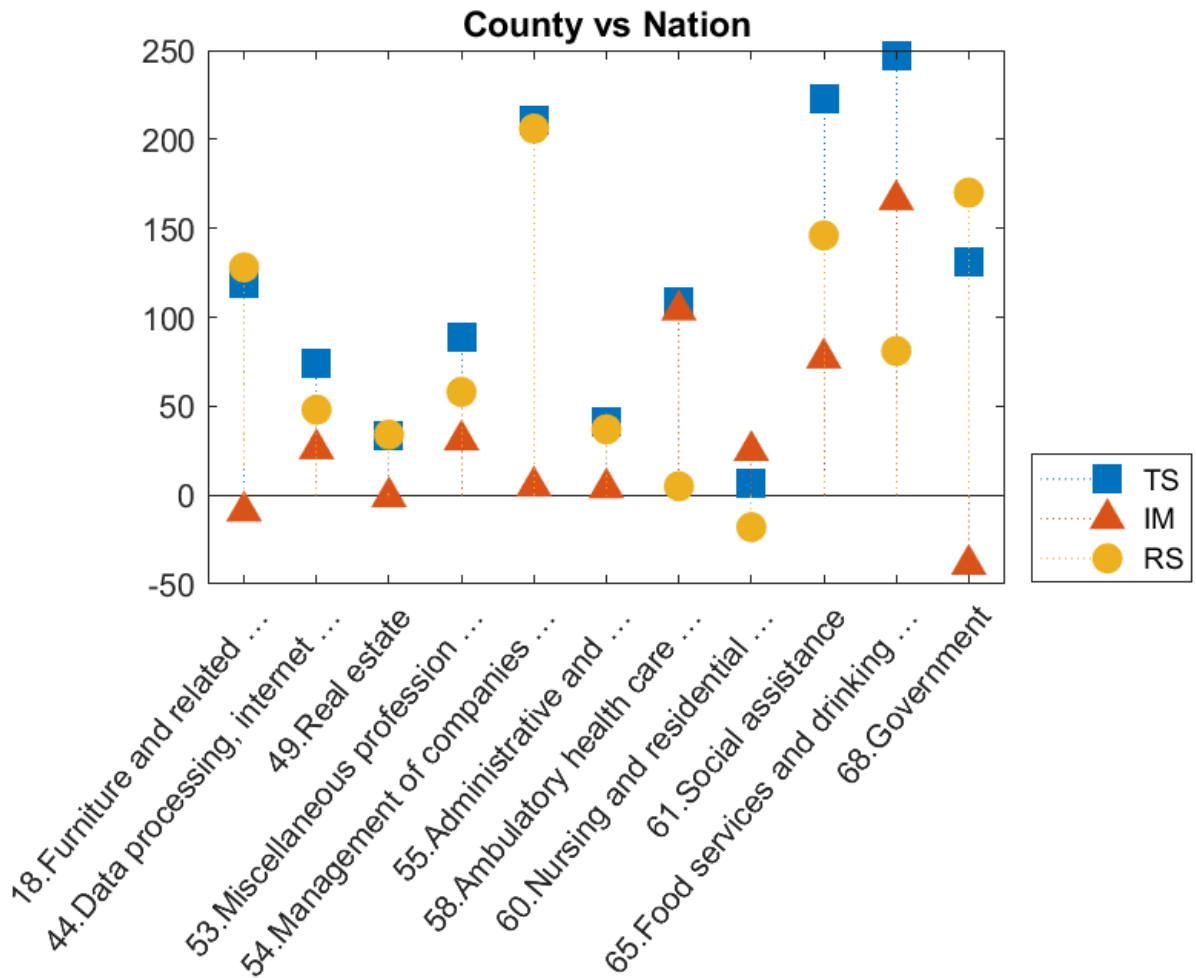
The TS component is the sum of the IM and RS components. A positive TS value also conveys a positive message, especially when both IM and RS are positive. When IM is positive but RS is negative, a positive TS indicates that although the county might not enjoy a regional comparative advantage, the industry in Garrett County, Maryland, is still growing at a faster rate than the overall referent region average. Likewise, when IM is negative and RS is positive, the implication is that the regional comparative advantage is sufficiently strong to overcome the slower than average industry growth rate.

Interpreting Different Referent Region Results

The three SSA are conducted relative to three different referent regions: (1) the United States as a whole, (2) the Appalachian Region, and (3) the region defined by the county and its neighboring counties. As such, the IM component indicates the change in industry employment that would have occurred had the industry grown at a rate equal to the difference between the industry-specific growth rate in the referent region and the overall referent-region growth rate. Likewise, the regional shift components, RS, reflect county-specific industry comparative (dis)advantages relative to those same industries in each of the three referent regions. As before, the NS label always refers to county growth that would have occurred had the county industry grown at the overall average rate of growth in the referent region.

Reporting the results for each of three referent regions enables readers to compare county performance to the United States, the Appalachian Region, and the region defined by the county and its neighboring counties. Although economic growth in Appalachia overall and by industry generally lags the rest of the United States, positive SSA components can still be useful for identifying industries that are positive contributors relative to Appalachian Region and to the more localized economy.

Selected SSA Components for Garrett County, Maryland vs the U.S.

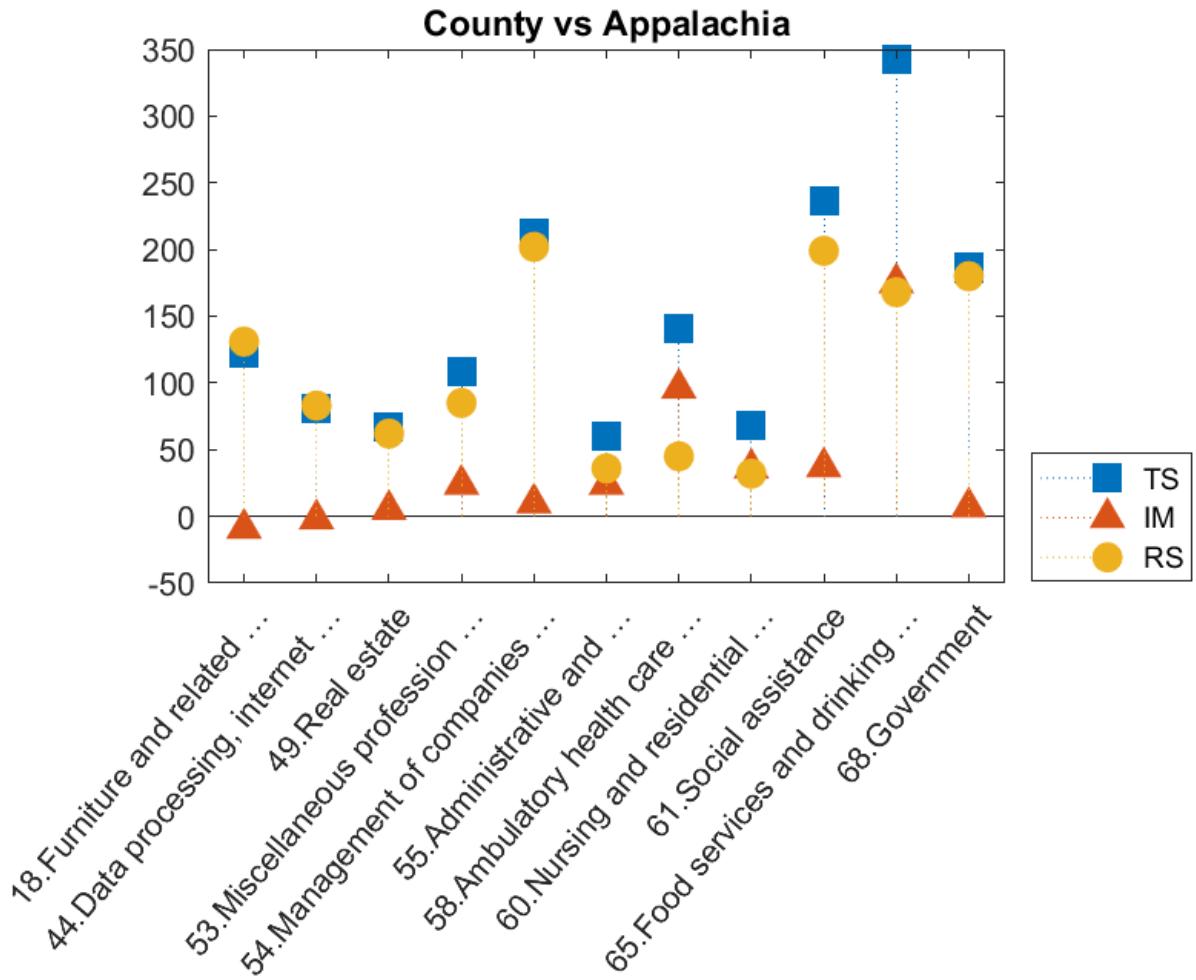


Chapter 2. Garrett County, Maryland

Garrett County, Maryland vs U.S. for Selected Industries

Industry	Name	NS	TS	IM	RS	Employment 2018
18	Furniture and related ...	2	119	-9	128	144
44	Data processing, internet ...	7	74	26	48	140
49	Real estate	34	33	-1	34	373
53	Miscellaneous profession ...	21	89	31	58	292
54	Management of companies ...	2	211	5	206	233
55	Administrative and ...	20	41	4	37	239
58	Ambulatory health care ...	33	109	104	5	438
60	Nursing and residential ...	63	7	25	-18	628
61	Social assistance	13	223	77	146	354
65	Food services and drinking ...	98	247	166	81	1,219
68	Government	58	131	-39	170	706

Selected SSA Components for Garrett County, Maryland vs the Appalachian Region

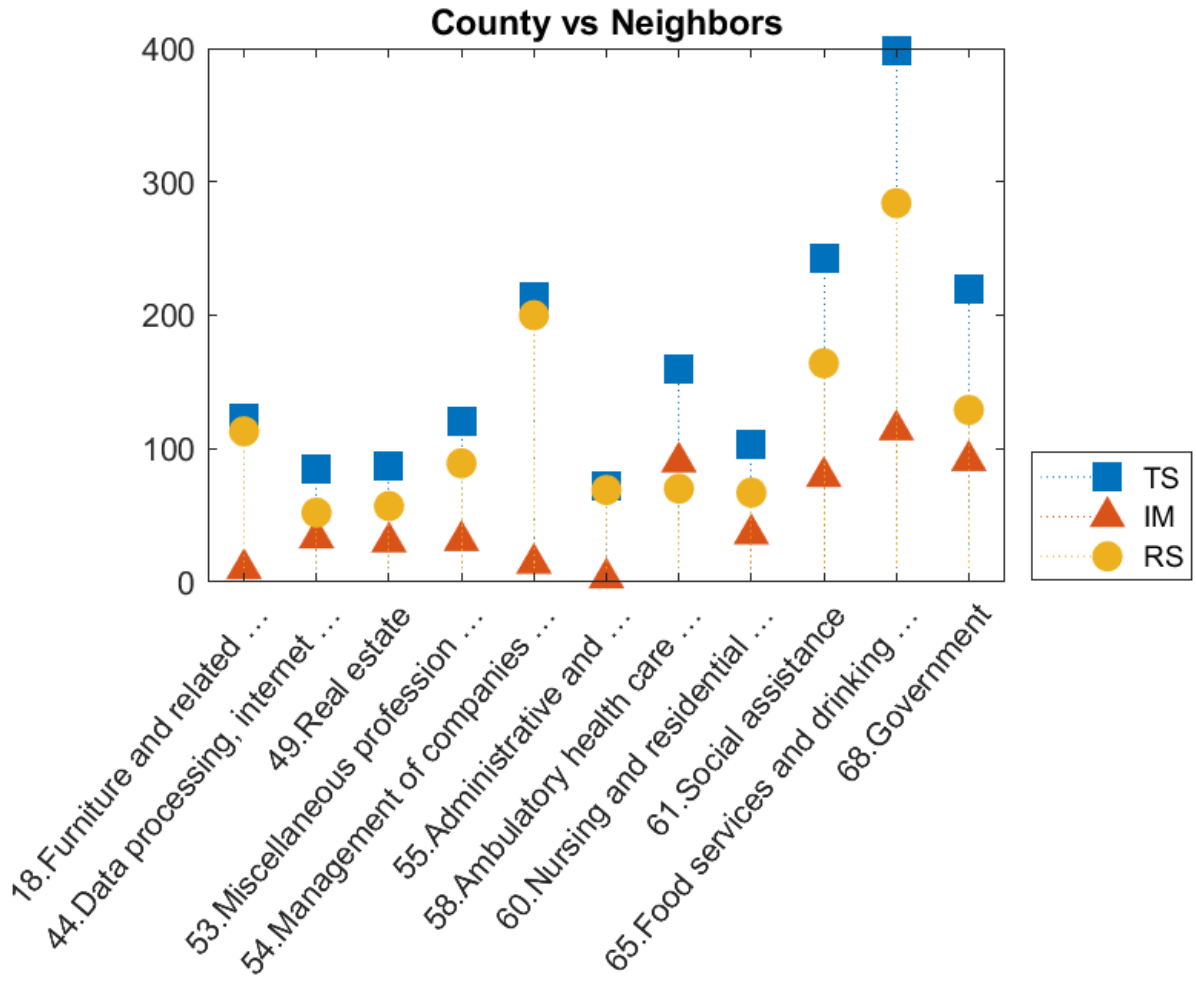


Chapter 2. Garrett County, Maryland

Selected SSA Components for Garrett County, Maryland vs the Appalachian Region

Industry	Name	NS	TS	IM	RS	Employment 2018
18	Furniture and related ...	0	122	-9	131	144
44	Data processing, internet ...	0	81	-2	83	140
49	Real estate	1	67	5	62	373
53	Miscellaneous profession ...	1	109	24	85	292
54	Management of companies ...	0	212	10	202	233
55	Administrative and ...	1	60	24	36	239
58	Ambulatory health care ...	1	141	96	45	438
60	Nursing and residential ...	2	68	36	32	628
61	Social assistance	0	236	37	199	354
65	Food services and drinking ...	3	343	175	168	1,219
68	Government	2	187	7	180	706

Selected SSA Components for Garrett County, Maryland vs Neighbors



Chapter 2. Garrett County, Maryland

Selected SSA Components for Garrett County, Maryland vs Neighbors for Selected Industries

Industry	Name	NS	TS	IM	RS	Employment 2018
18	Furniture and related ...	-1	123	10	113	144
44	Data processing, internet ...	-4	85	33	52	140
49	Real estate	-18	87	30	57	373
53	Miscellaneous profession ...	-11	120	31	89	292
54	Management of companies ...	-1	214	14	200	233
55	Administrative and ...	-11	72	3	69	239
58	Ambulatory health care ...	-18	160	90	70	438
60	Nursing and residential ...	-34	103	36	67	628
61	Social assistance	-7	243	79	164	354
65	Food services and drinking ...	-53	398	114	284	1,219
68	Government	-31	220	91	129	706

Chapter 3. Washington County, Maryland

Employment in Washington County, Maryland, declined from 65,911 in 2005 to 65,658 in 2018, for a change of -253, or -0.38%. Readers should compare the employment values in the tables below to total county employment.

The first table shows the referent region share (NS), the Total Share (TS), Industry Mix (IM), and Regional Shift (RS) job values for the county. The summary values shown represent sums of individual industry component values for all county industries. To be clear, the SSA components always refer to the county that is being compared to the referent region, and the NS label always refers to the county growth that would have taken place had it matched overall average growth in the referent region, which can be the United States, the Appalachian Region, or the county and its neighbors. The largest and smallest NS components in the summary table correspond to the fastest and slowest growing referent regions.

Summary Results for Washington County, Maryland

County Summary	NS	TS	IM	RS
vs. U.S.	7,433	-7,687	-1,400	-6,287
vs. Appalachia	222	-478	-587	109
vs. Neighbors	9,205	-9,460	77	-9,537

The next table displays the group membership categories for industries belonging to any of the first three categories (signifying a positive total share value) for the Appalachian Region or the county relative to the United States — i.e., A, B, C, I, II, or III — and for the county relative to the Appalachian Region or its neighboring counties — i.e., a, b, c, i, ii, or iii. These are the industries that have passed the first screening step, as they have proven to be positive contributors to either the Appalachian Region in comparison to the United States as a whole, or to Washington County, Maryland, in comparison to at least one of the three referent regions.

Chapter 3. Washington County, Maryland

Industry Group Membership for Washington County, Maryland

Industry	Name	Group Membership	Type A or B or C	Type I or II or III	Type a or b or c	Type i or ii or iii
39	Other transportation ...	E I c iii	no	yes	yes	yes
55	Administrative and ...	A I a i	yes	yes	yes	yes
57	Educational services	F III a ii	no	yes	yes	yes
58	Ambulatory health care ...	B II a ii	yes	yes	yes	yes
59	Hospitals	E I a i	no	yes	yes	yes
63	Amusements, gambling, ...	B V b v	yes	no	yes	no
65	Food services and drinking ...	B II b ii	yes	yes	yes	yes

Notes:

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Groups i, ii, and iii are from Washington County, Maryland vs. its neighbors

Chapter 3. Washington County, Maryland

Industry-Specific Results

Below we report the results for the three shift-share analyses comparing Washington County, Maryland, to each of three referent regions: the United States as a whole, the Appalachian Region, and the region defined by Washington County, Maryland, and its neighboring counties. The results for each of the three analyses are presented both visually and in tabular form.

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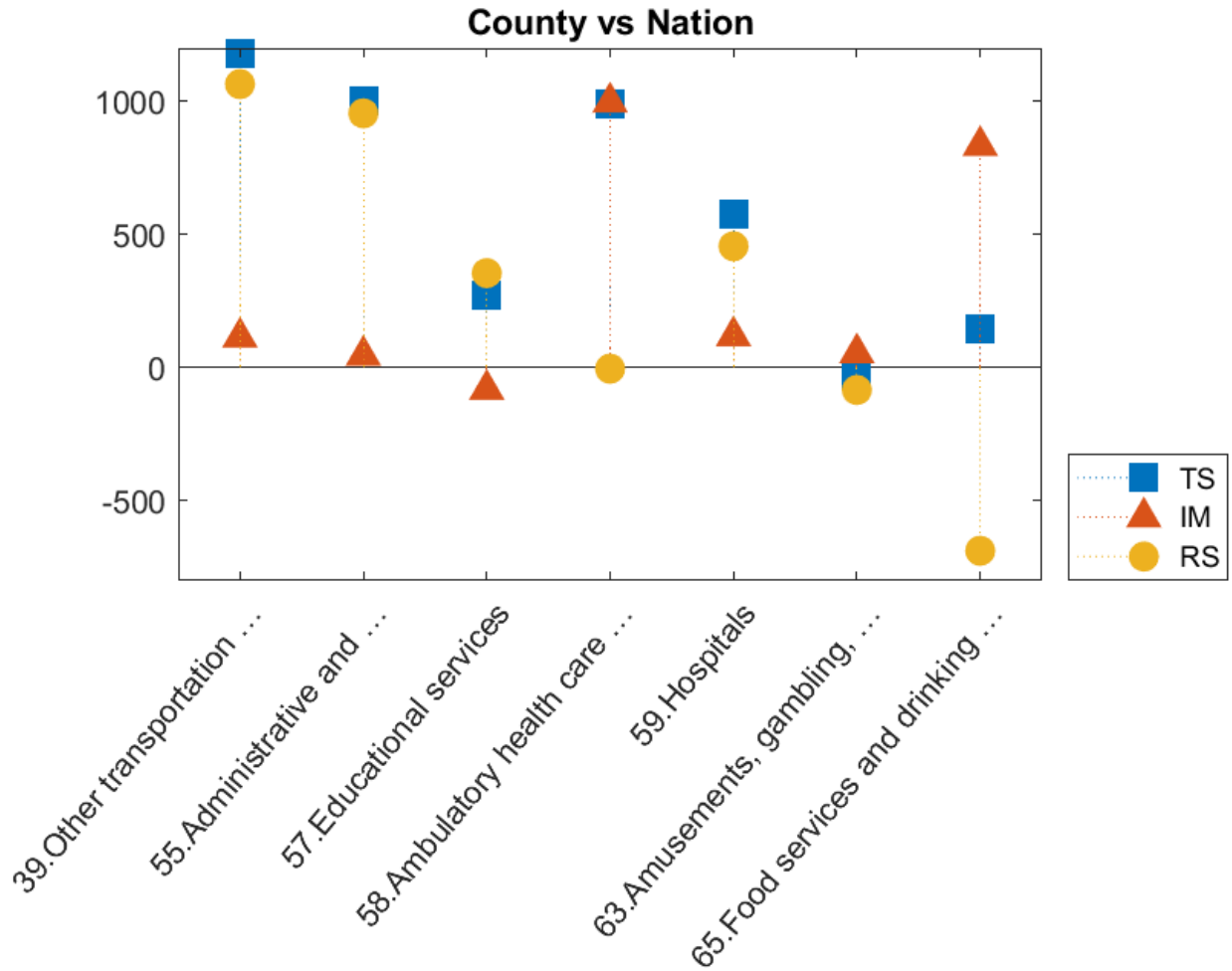
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Interpreting Different Referent Region Results

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Selected SSA Components for Washington County, Maryland vs the U.S.

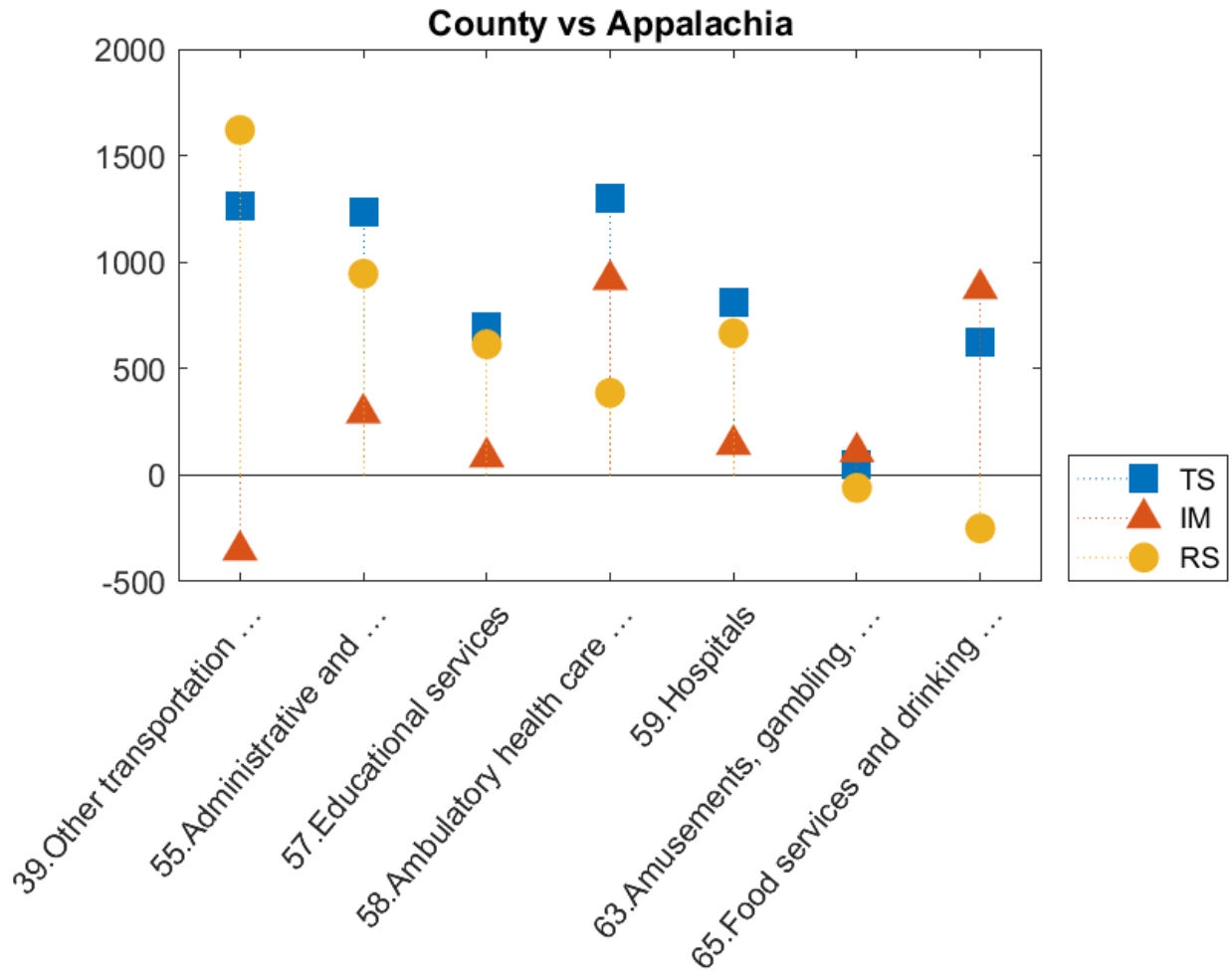


Chapter 3. Washington County, Maryland

Washington County, Maryland vs U.S. for Selected Industries

Industry	Name	NS	TS	IM	RS	Employment 2018
39	Other transportation ...	92	1,179	114	1,065	2,082
55	Administrative and ...	241	1,001	46	955	3,382
57	Educational services	439	273	-82	355	4,608
58	Ambulatory health care ...	320	993	997	-4	4,154
59	Hospitals	242	575	119	456	2,959
63	Amusements, gambling, ...	79	-29	55	-84	751
65	Food services and drinking ...	494	146	834	-688	5,017

Selected SSA Components for Washington County, Maryland vs the Appalachian Region

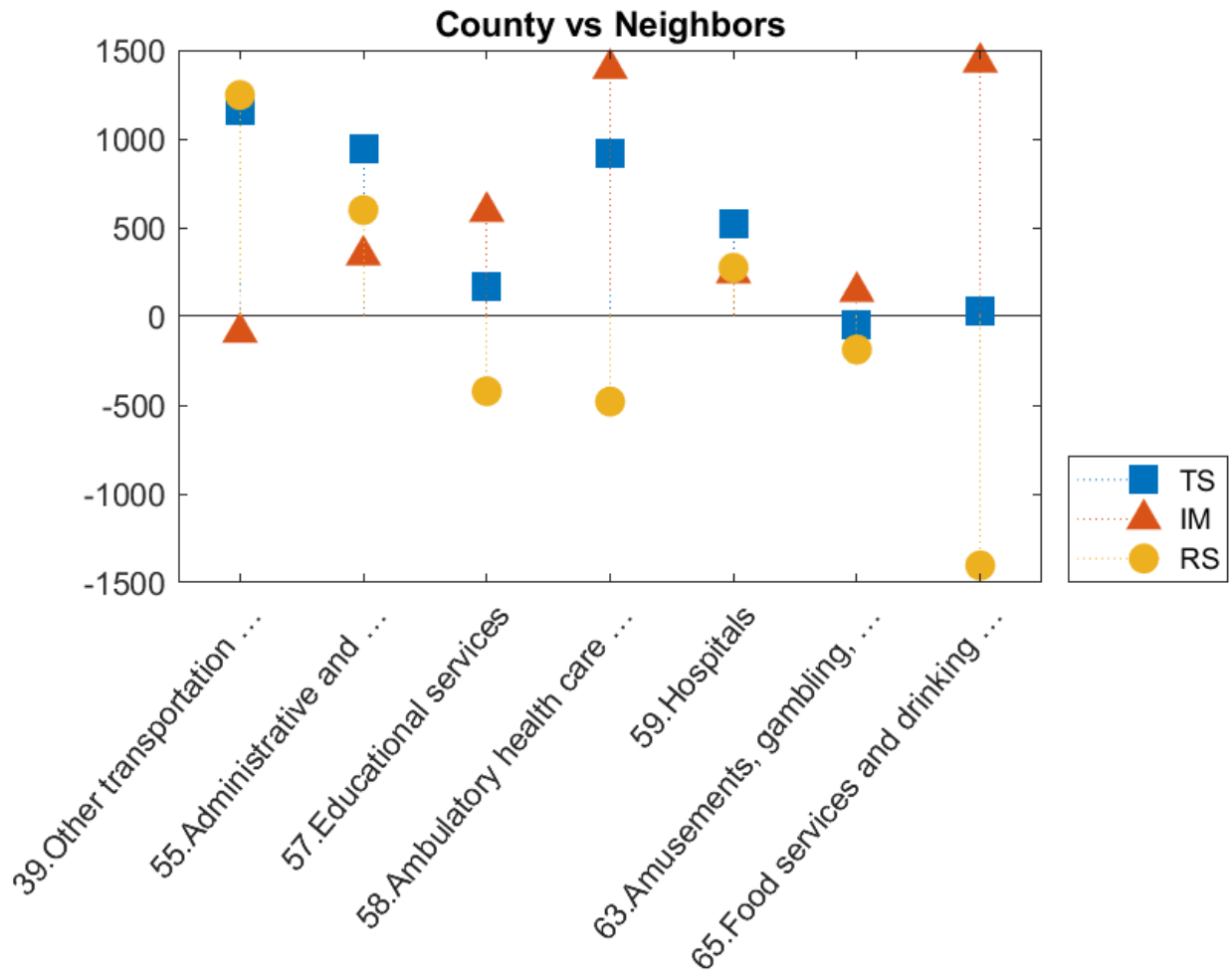


Chapter 3. Washington County, Maryland

Selected SSA Components for Washington County, Maryland vs the Appalachian Region

Industry	Name	NS	TS	IM	RS	Employment 2018
39	Other transportation ...	3	1,267	-353	1,620	2,082
55	Administrative and ...	7	1,236	291	945	3,382
57	Educational services	13	699	85	614	4,608
58	Ambulatory health care ...	10	1,303	917	386	4,154
59	Hospitals	7	809	143	666	2,959
63	Amusements, gambling, ...	2	48	108	-60	751
65	Food services and drinking ...	15	625	875	-250	5,017

Selected SSA Components for Washington County, Maryland vs Neighbors



Chapter 3. Washington County, Maryland

Selected SSA Components for Washington County, Maryland vs Neighbors for Selected Industries

Industry	Name	NS	TS	IM	RS	Employment 2018
39	Other transportation ...	113	1,157	-90	1,247	2,082
55	Administrative and ...	299	944	345	599	3,382
57	Educational services	544	168	590	-422	4,608
58	Ambulatory health care ...	397	916	1,396	-480	4,154
59	Hospitals	299	518	244	274	2,959
63	Amusements, gambling, ...	98	-48	139	-187	751
65	Food services and drinking ...	611	28	1,431	-1,403	5,017