Using LEHD data to create a declining dynamics graph

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U.S. Census Bureau

LED State Workshop

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Disclaimer

Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the U.S. Census Bureau.

All results have been reviewed to ensure that no confidential information is disclosed.

Background

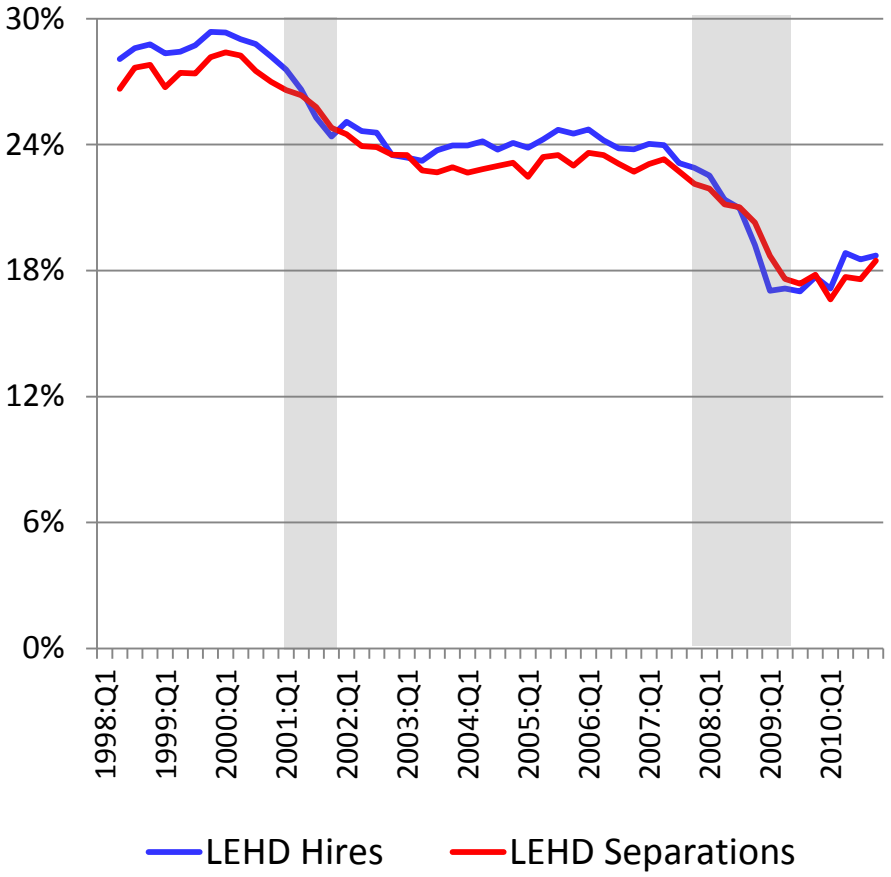
The motivation for this presentation is taken from a 2013 research paper by Hyatt and Spletzer:

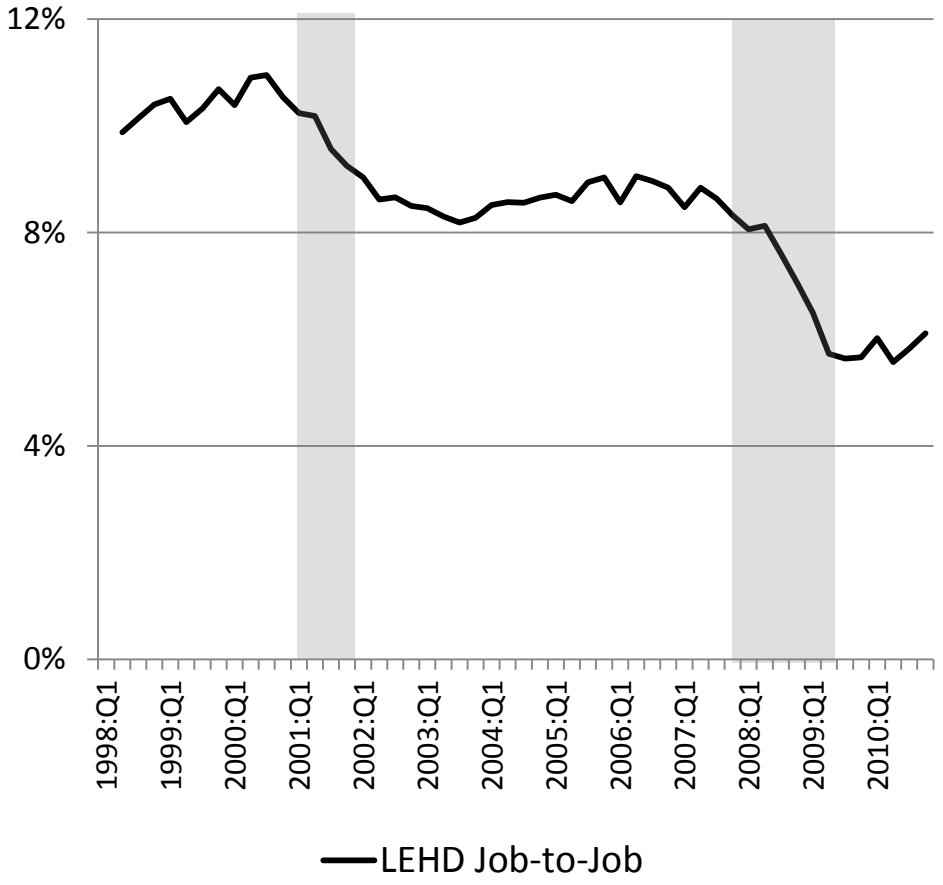
The Recent Decline in Employment Dynamics

Published in *The IZA Journal of Labor Economics*

http://www.izajole.com/content/pdf/2193-8997-2-5.pdf

Employment Dynamics





Employment Dynamics

Measure	Source	Rate in 1998	Rate in 2010	Proportionate Decline
Hires	LEHD	28.1%	18.7%	-38%
Separations	LEHD	26.6%	18.5%	-36%
Job Creation	LEHD	7.7%	5.5%	-33%
Job Destruction	LEHD	6.4%	5.1%	-23%
Job-to-Job flows	LEHD	9.9%	6.1%	-47%

Employment Dynamics

Measure	Source	Rate in 1998	Rate in 2010	Proportionate Decline
Hires	LEHD	28.1%	18.7%	-38%
	JOLTS*	14.1%	10.6%	-28%
	CPS	19.4%	17.3%	-11%
Separations	LEHD	26.6%	18.5%	-36%
	JOLTS*	14.3%	10.1%	-34%
	CPS	19.1%	17.2%	-10%
Job Creation	LEHD	7.7%	5.5%	-33%
	BED	8.3%	6.6%	-23%
Job Destruction	LEHD	6.4%	5.1%	-23%
	BED	7.6%	6.1%	-22%
Job-to-Job flows	LEHD	9.9%	6.1%	-47%
	CPS	7.9%	4.6%	-53%

Are the Declines Important?

High levels of employment dynamics are often associated with higher economic growth

-- Schumpeterian creative destruction

-- Businesses & workers seeking their most productive match

-- Much wage growth occurs at (voluntary) job change

The recent decline may be worrisome

-- declining innovation or declining labor market flexibility?

But declining dynamics can also be good

-- increased job stability due to better worker-firm matching?

Net effect on the labor market is ??? [we don't know]

Are the Declines Important?

August 22nd speech by Fed Chair Janet Yellen:

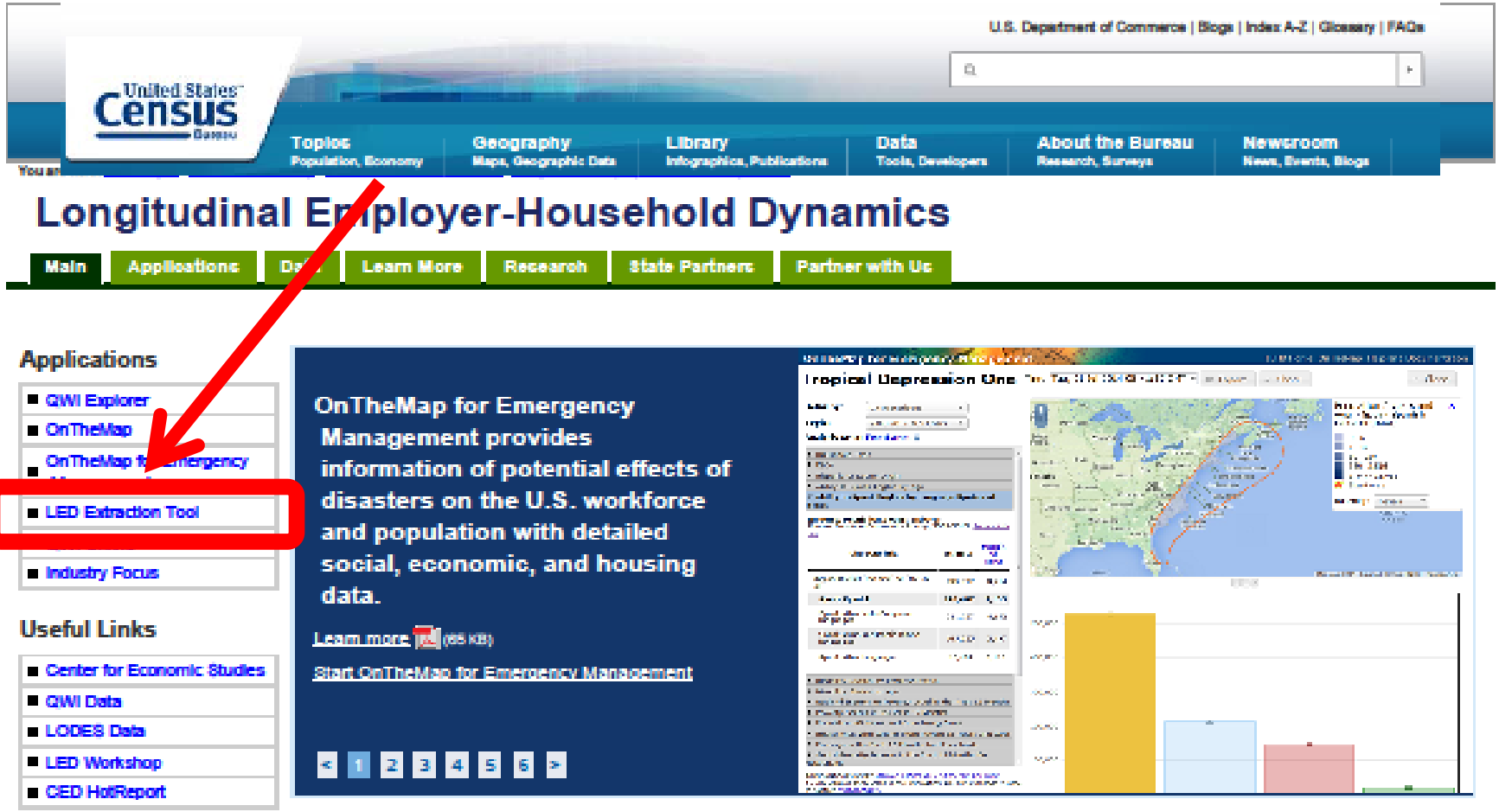
> The assessment of labor market slack is rarely simple and has been especially challenging recently. Estimates of slack necessitate difficult judgments about the magnitudes of the cyclical and structural influences affecting labor market variables, including labor force participation, the extent of part-time employment for economics reasons, and labor market flows, such as the pace of hires and quits. A considerable body of research suggests that the behavior of these and other labor market variables has changed since the Great Recession.

Goal of this Presentation

A step-by-step tutorial of how to use publicly available LEHD data to create a graph which shows the declining hires and separations rates in your State

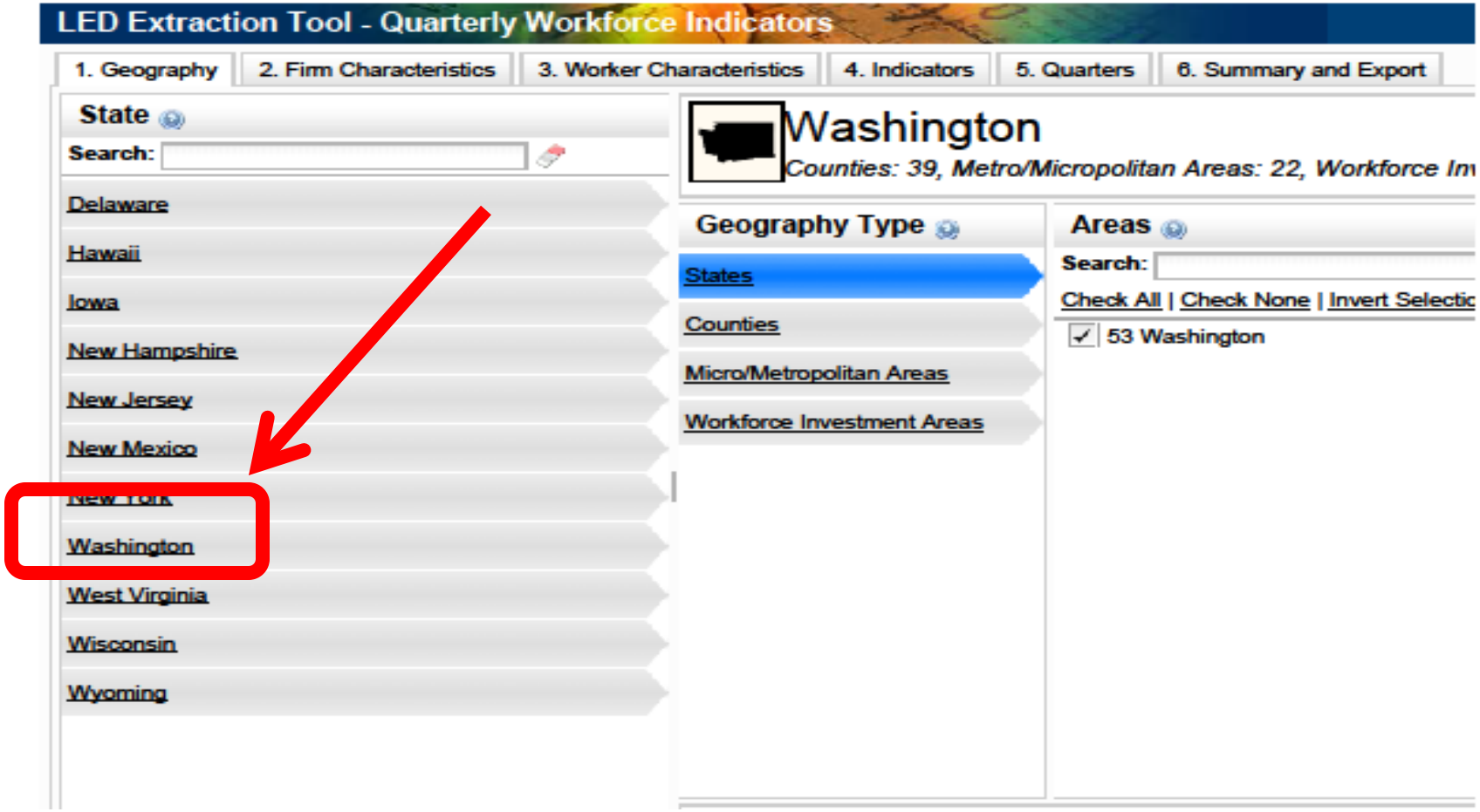
Start with LEHD website
http://lehd.ces.census.gov/

Click on “LED Extraction Tool”

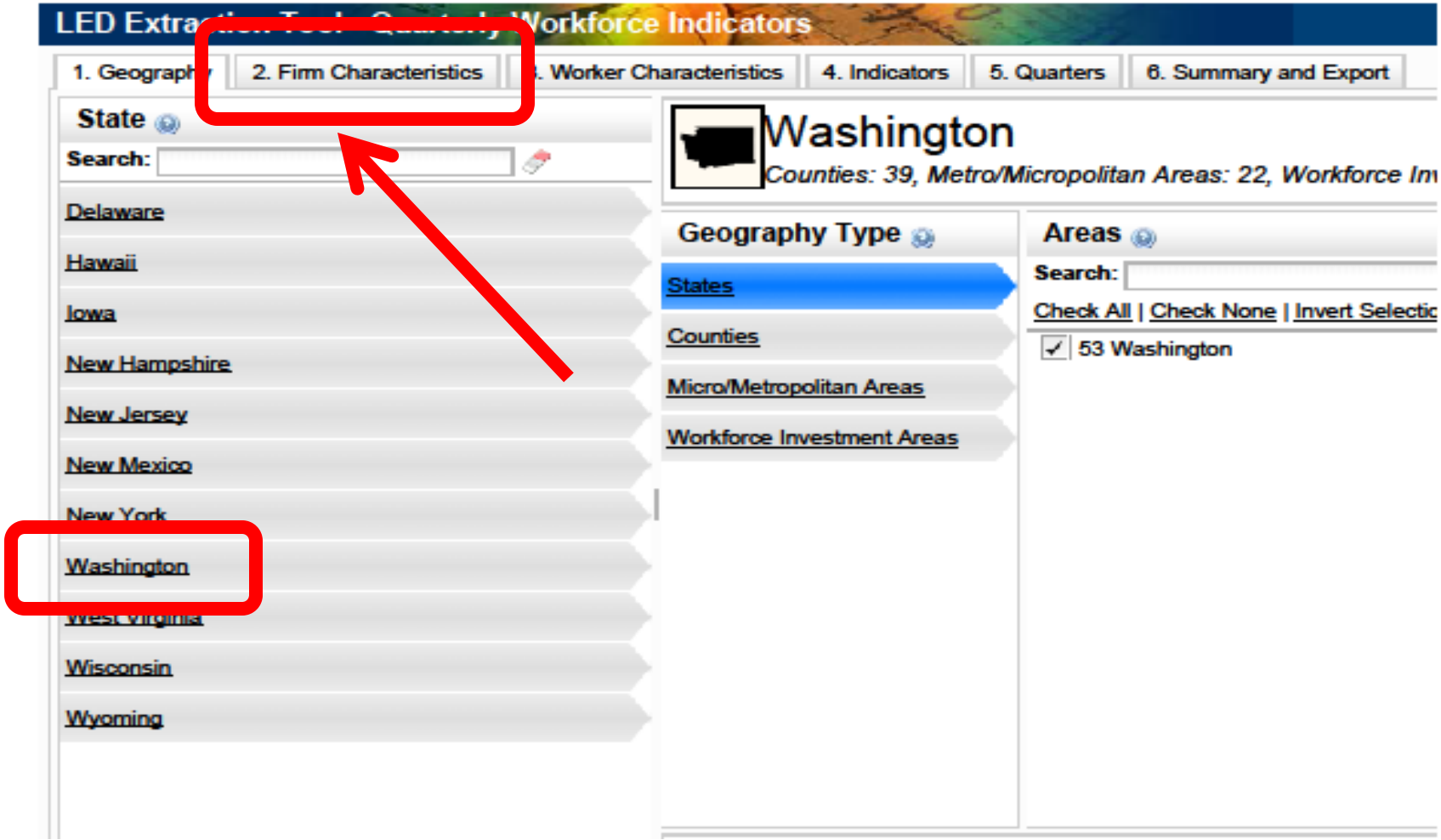


Choose a State (today: WA)

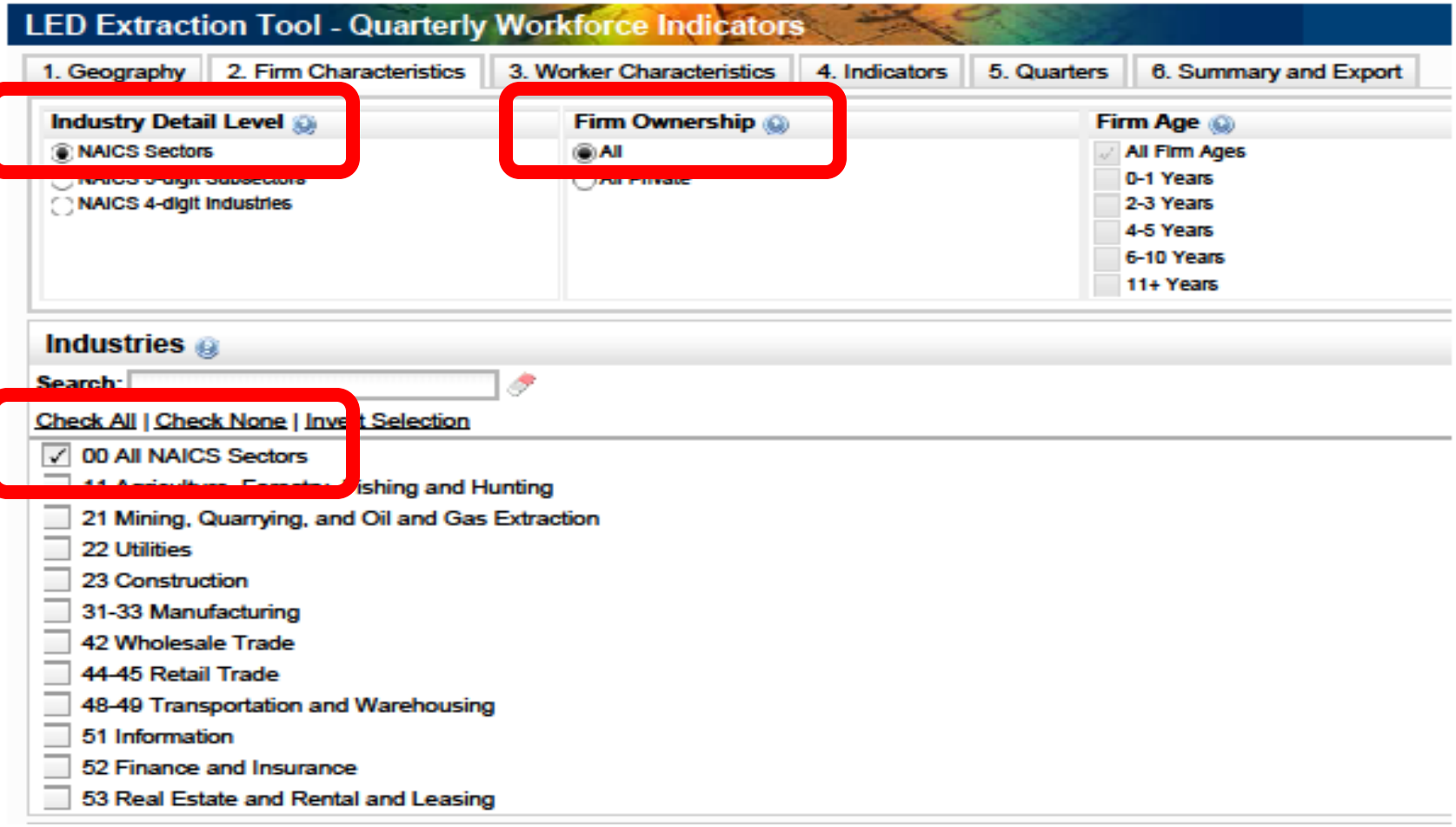
WA is 1 of 4 states {IL, MD, WA, WI} whose data starts in 1990:Q1



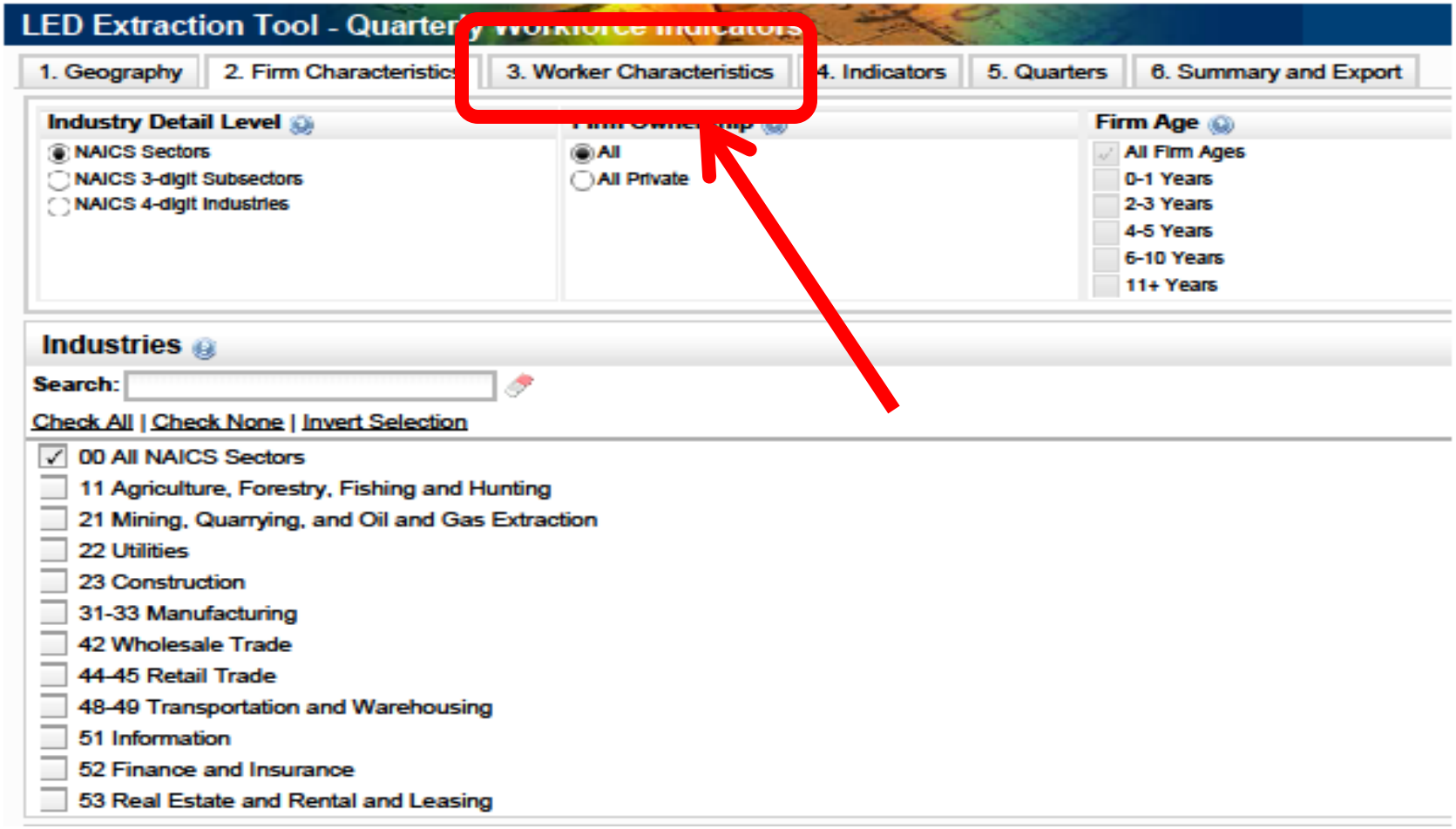
Move onto Step 2



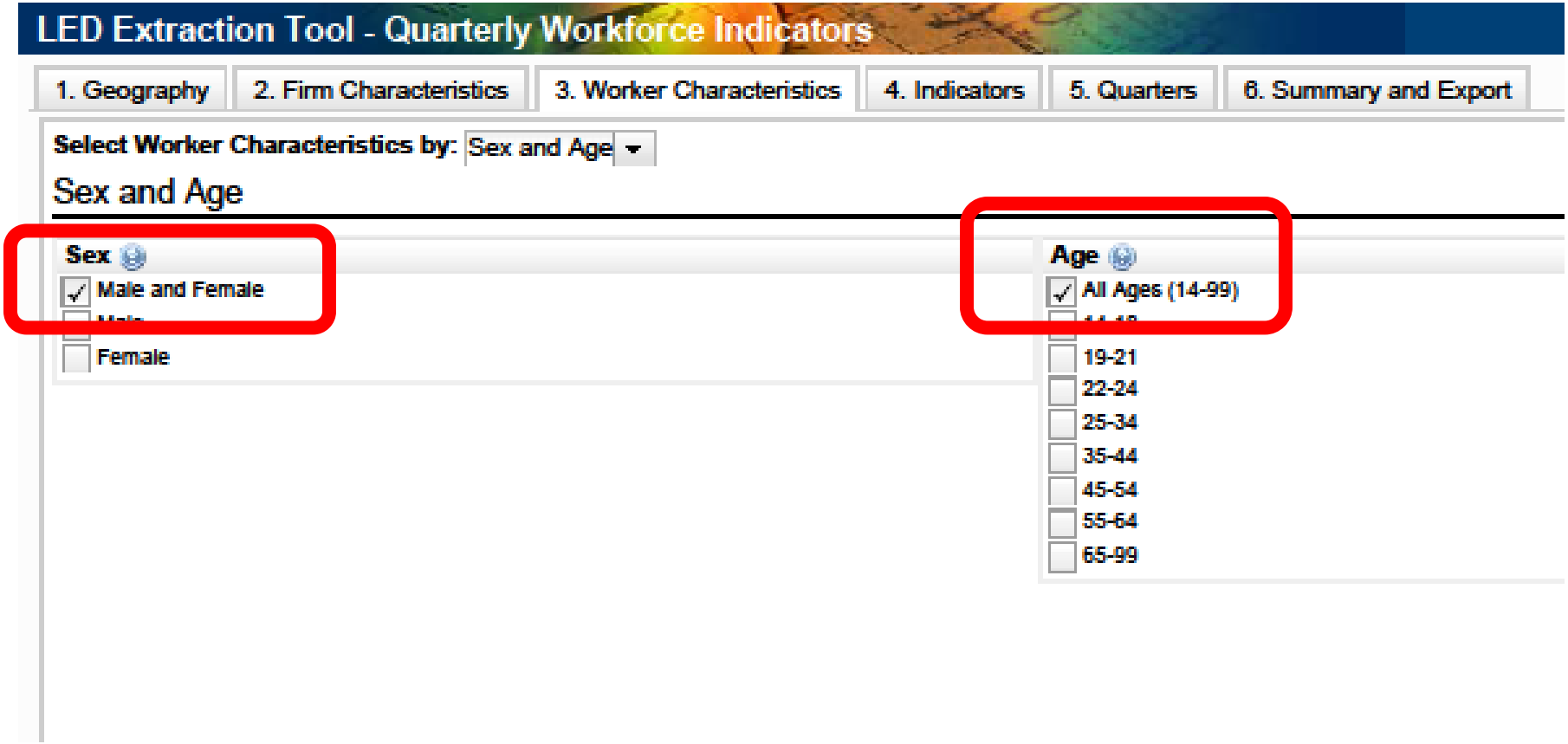
For today, stick with defaults



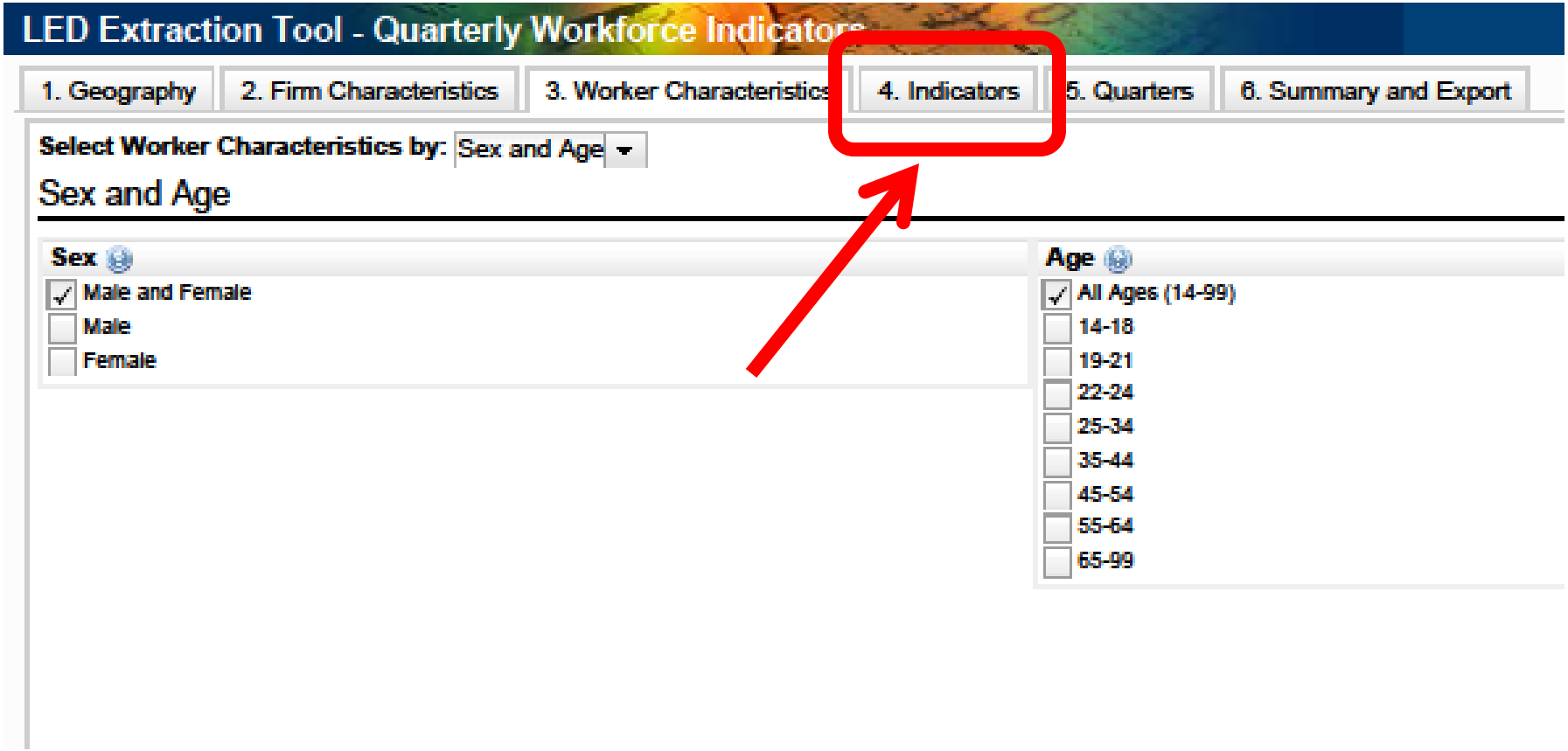
Move onto step 3



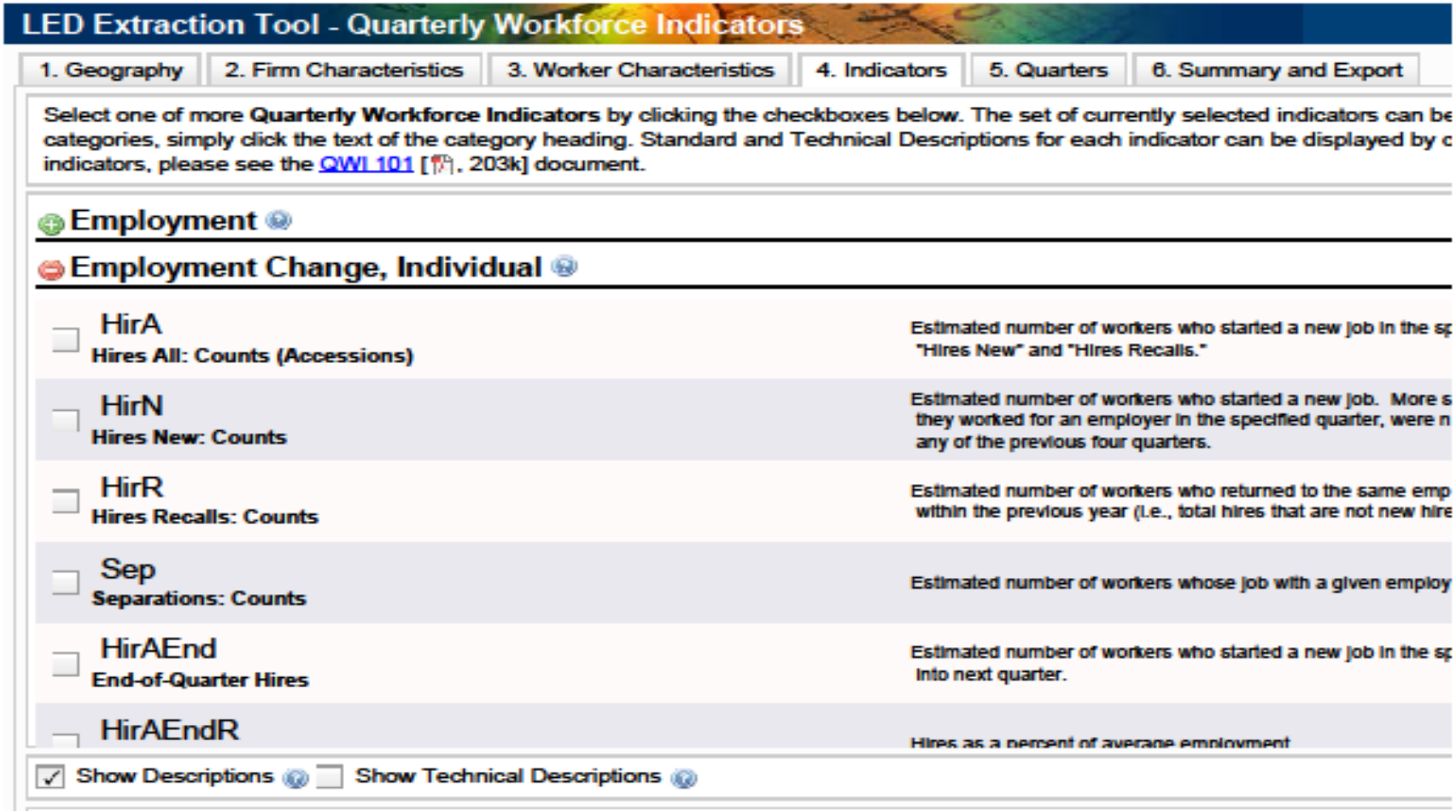
For today, stick with defaults



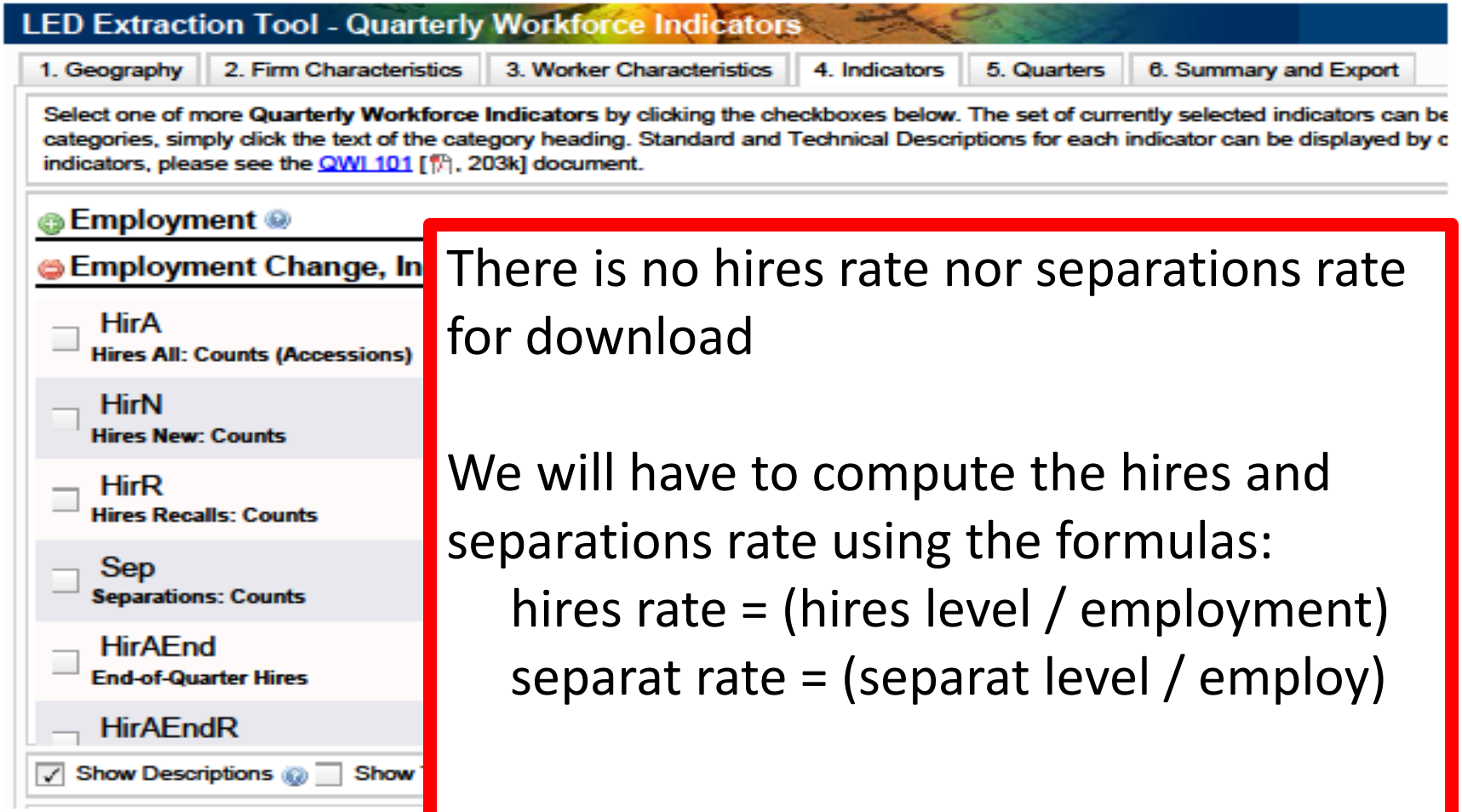
Move onto step 4



Hires & Separations Rates (1 of 6)



Hires & Separations Rates (2 of 6)



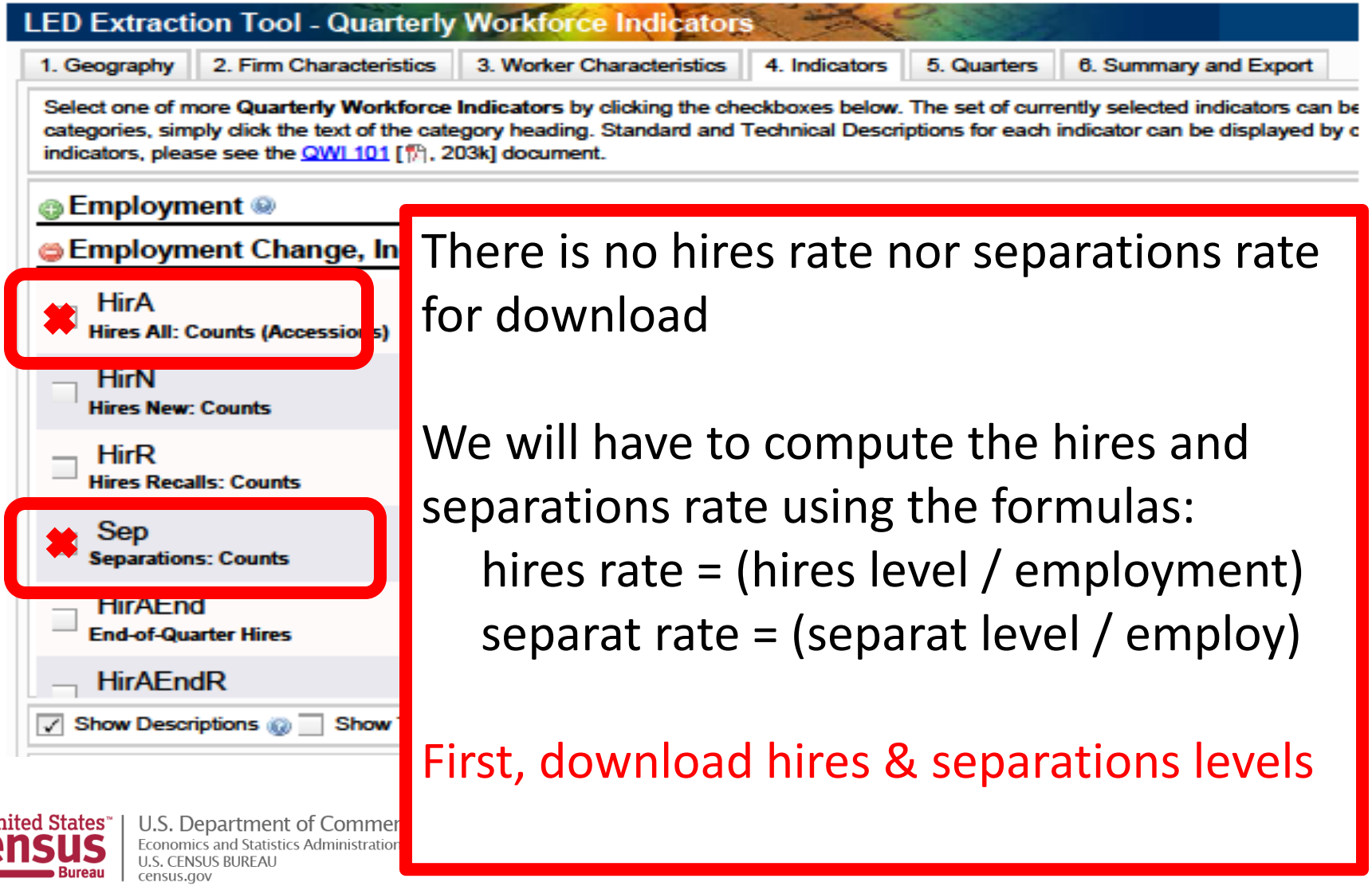
There is no hires rate nor separations rate for download

We will have to compute the hires and separations rate using the formulas:

hires rate = (hires level / employment)

separat rate = (separat level / employ)

Hires & Separations Rates (3 of 6)



There is no hires rate nor separations rate for download

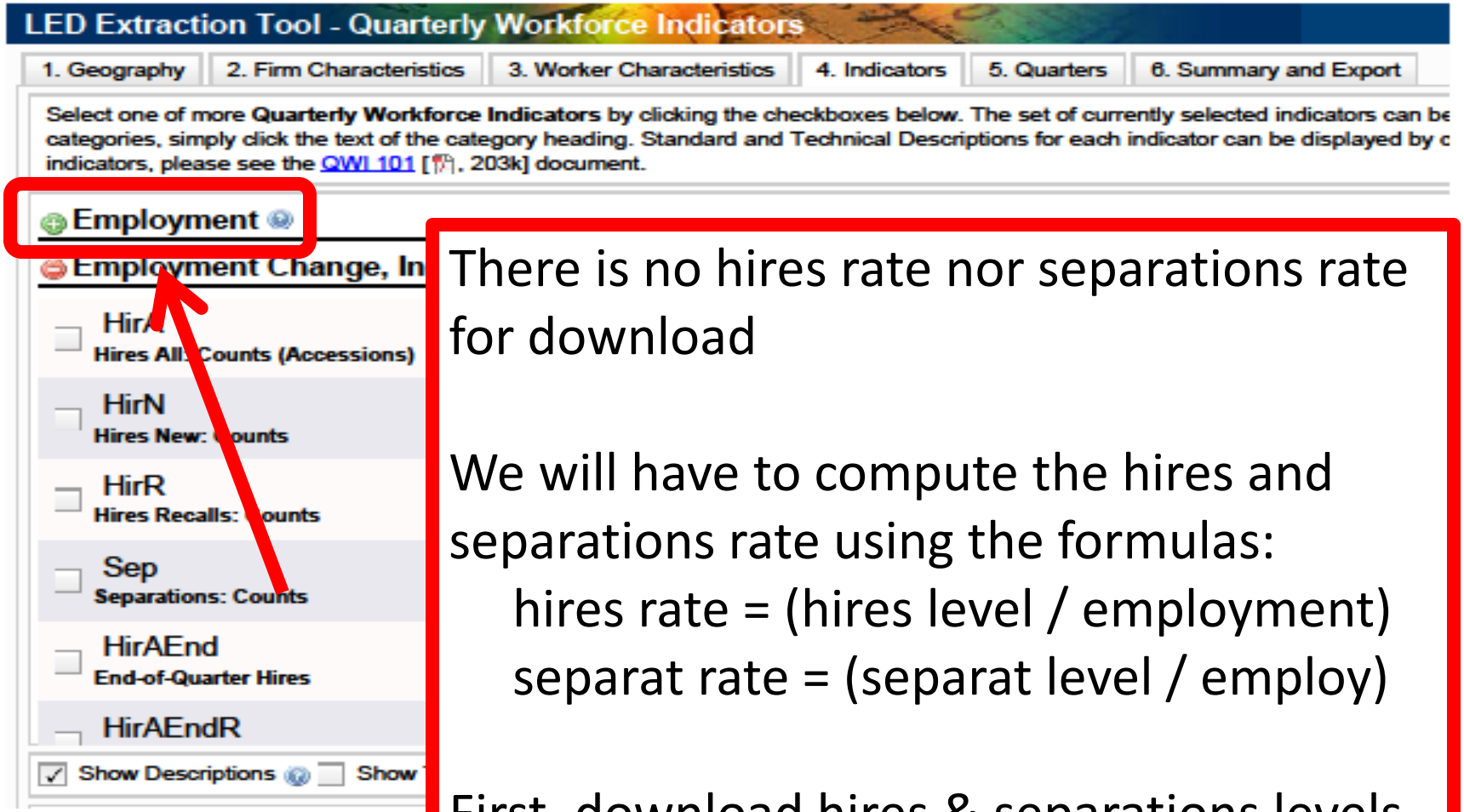
We will have to compute the hires and separations rate using the formulas:

hires rate = (hires level / employment)

separat rate = (separat level / employ)

First, download hires & separations levels

Hires & Separations Rates (4 of 6)



There is no hires rate nor separations rate for download

We will have to compute the hires and separations rate using the formulas:

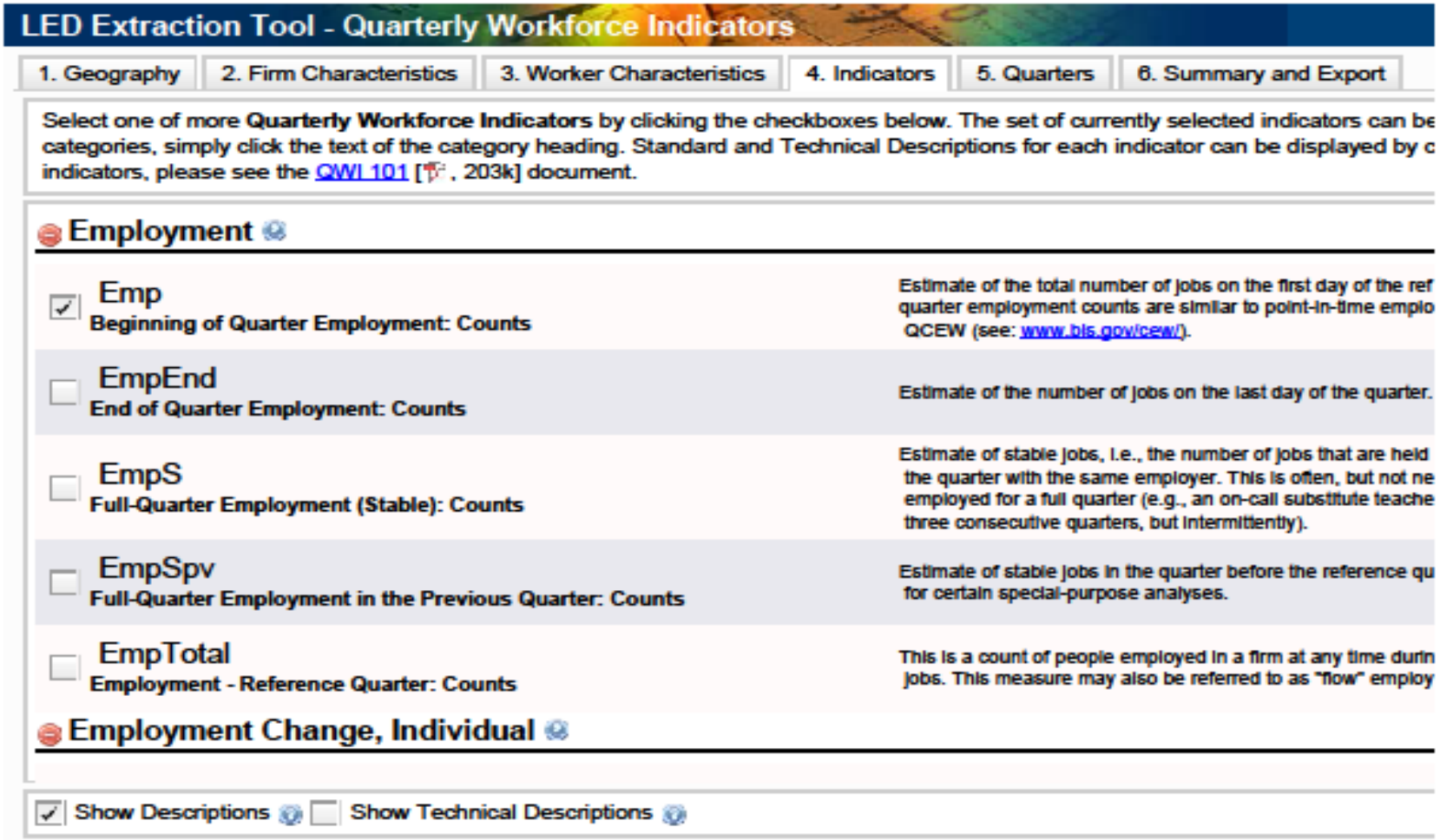
hires rate = (hires level / employment)

separat rate = (separat level / employ)

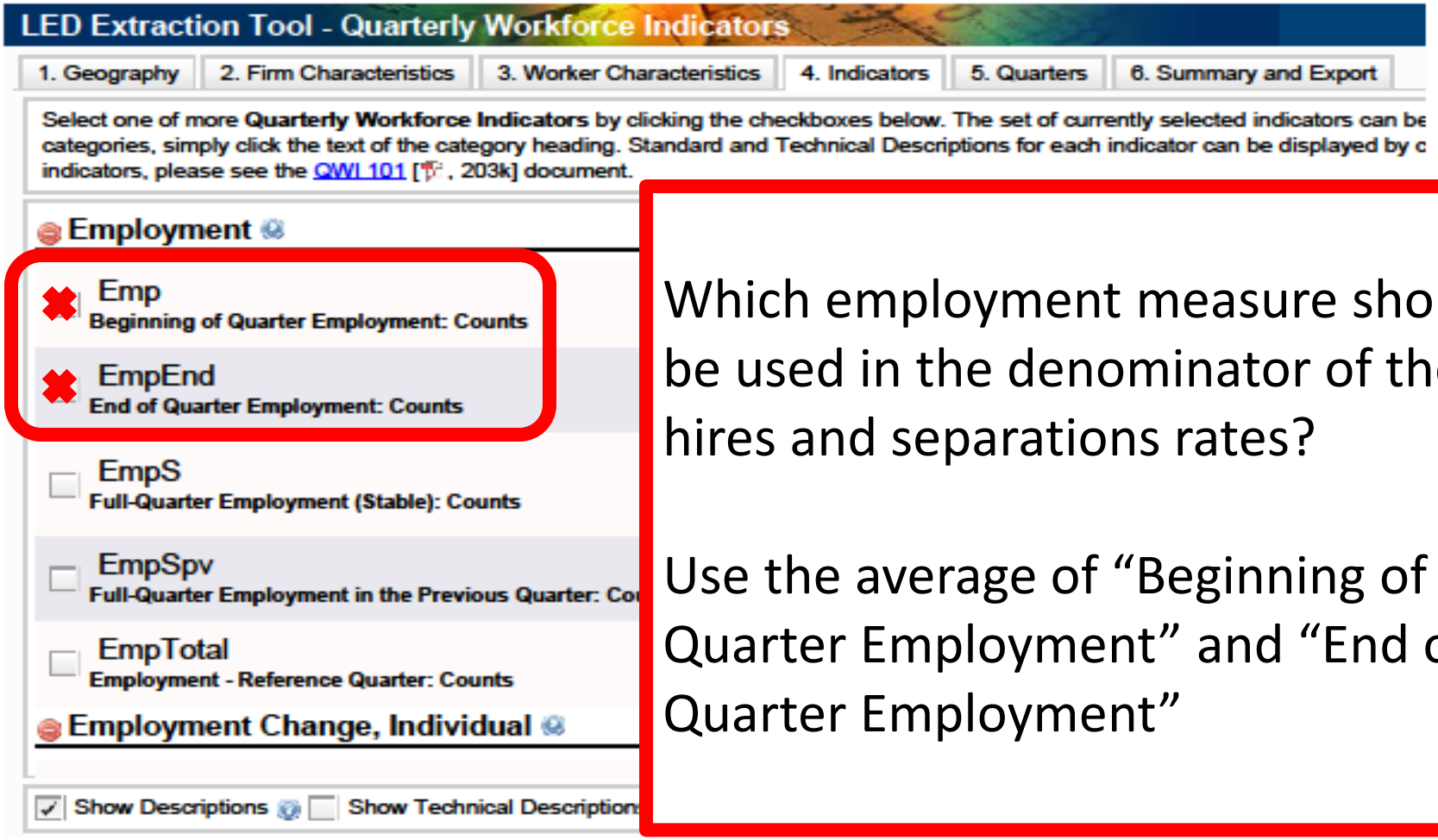
First, download hires & separations levels

Second, download employment levels

Hires & Separations Rates (5 of 6)



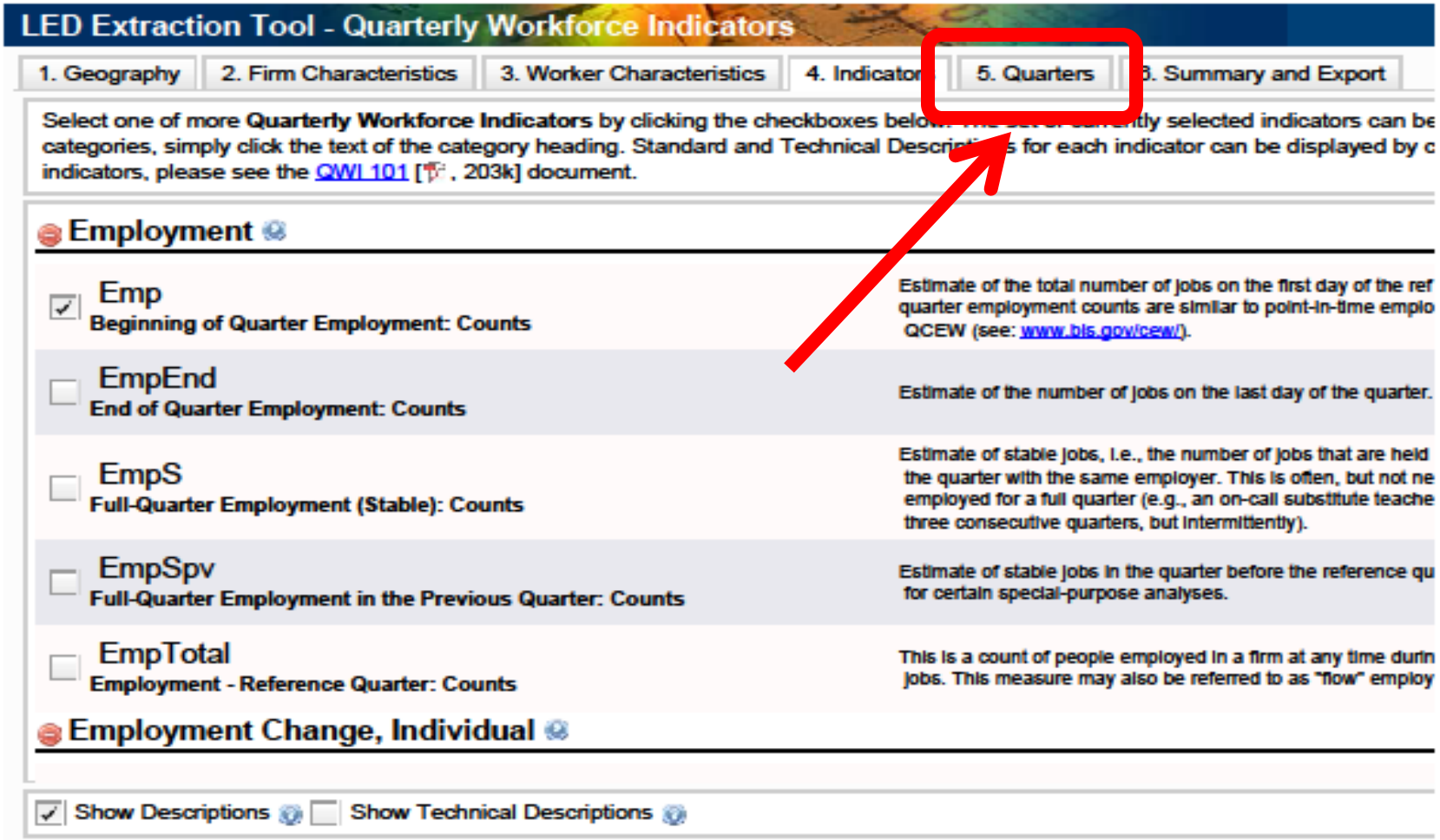
Hires & Separations Rates (6 of 6)



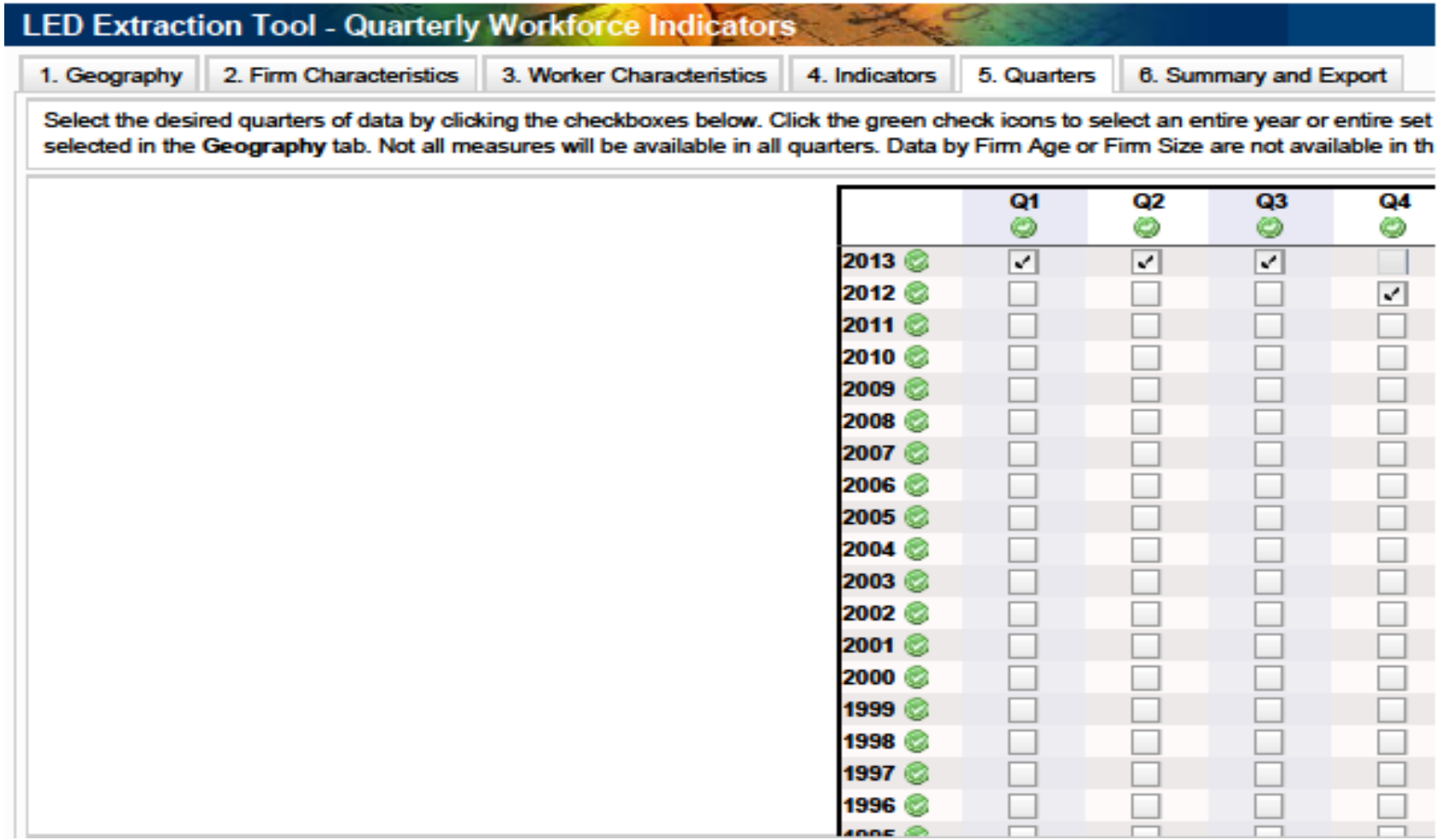
Which employment measure should be used in the denominator of the hires and separations rates?

Use the average of "Beginning of Quarter Employment" and "End of Quarter Employment"

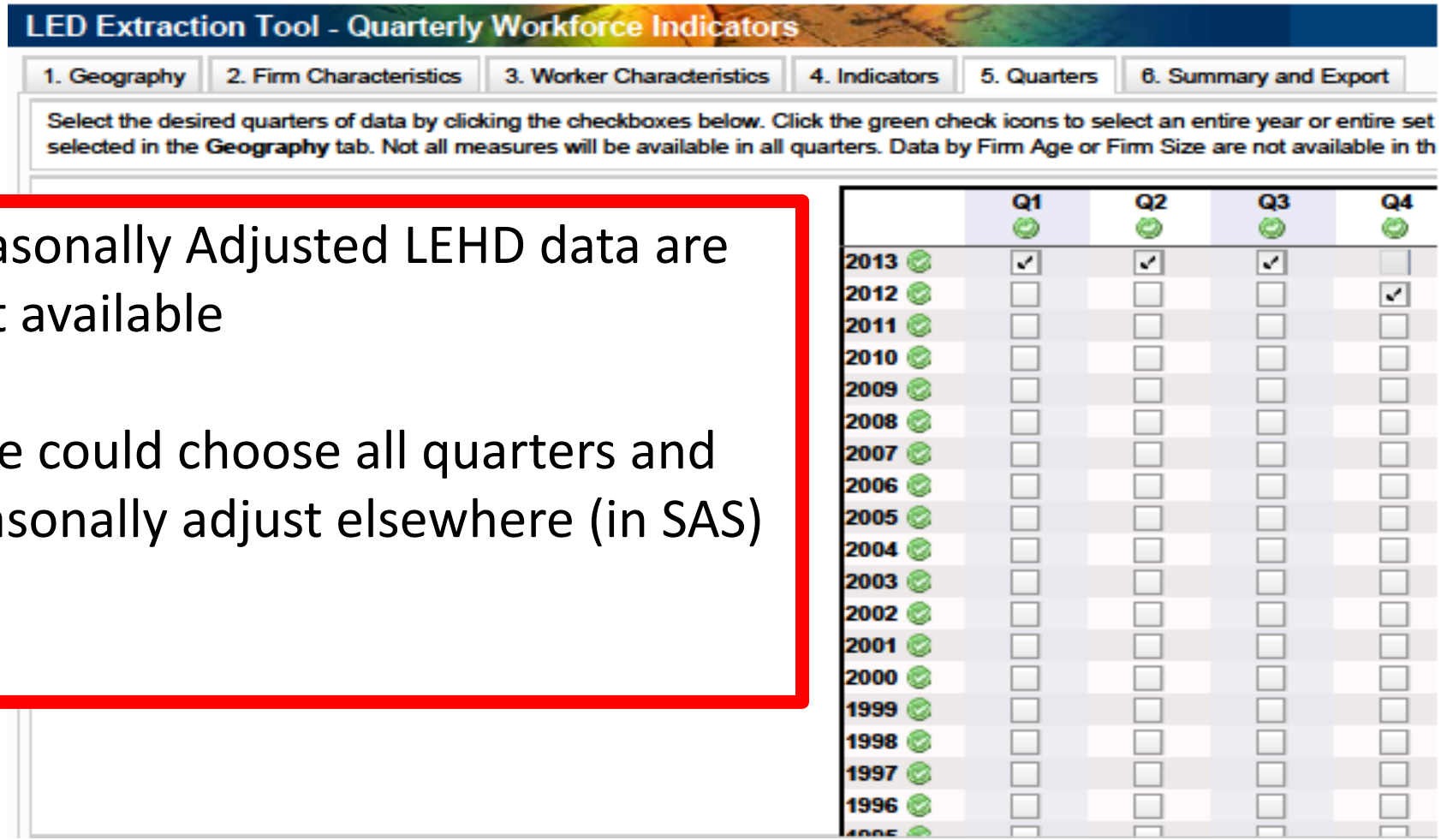
Move onto step 5



Choose a Time Period



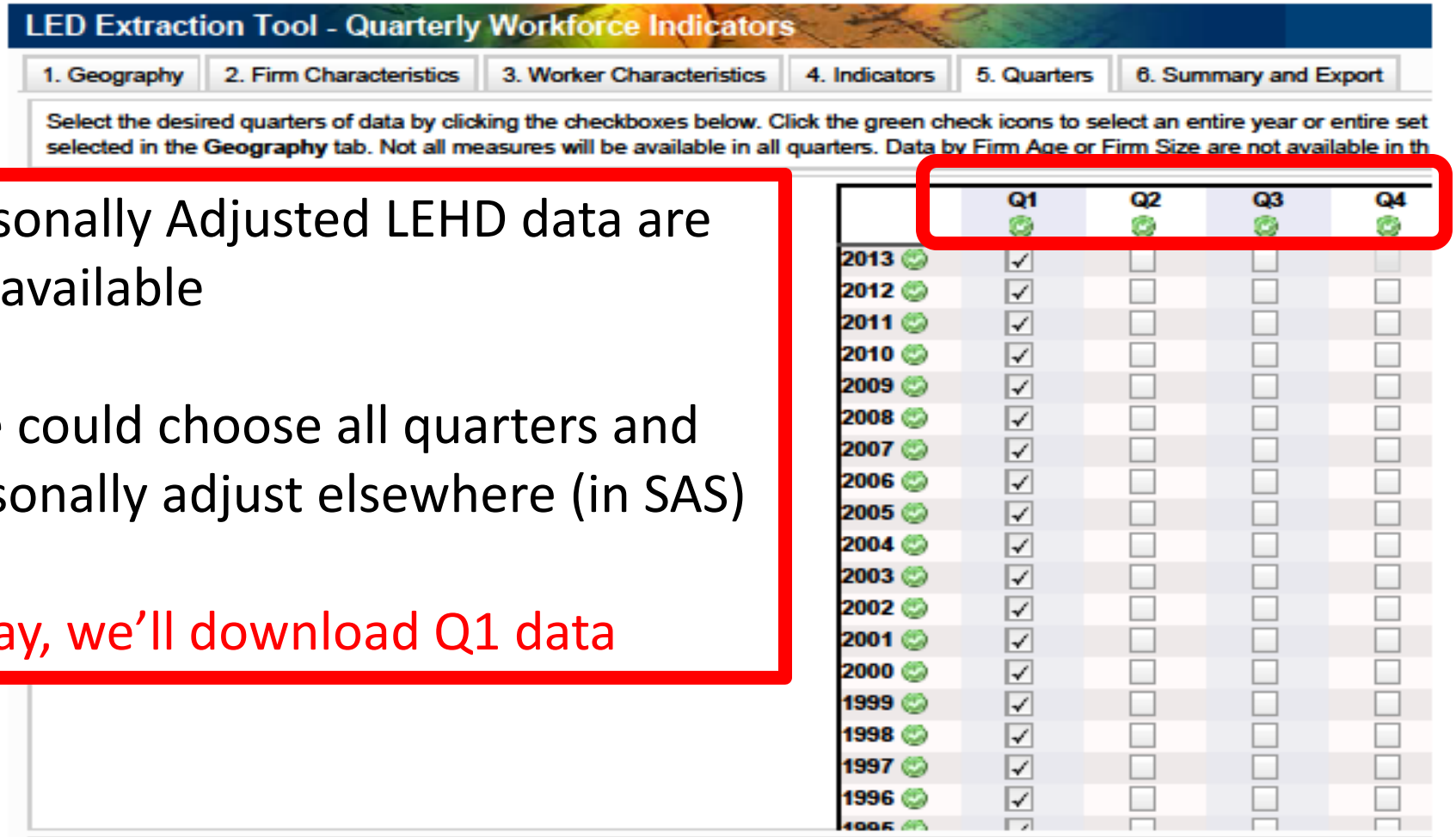
Choose a Time Period



Seasonally Adjusted LEHD data are not available

One could choose all quarters and seasonally adjust elsewhere (in SAS)

Choose a Time Period

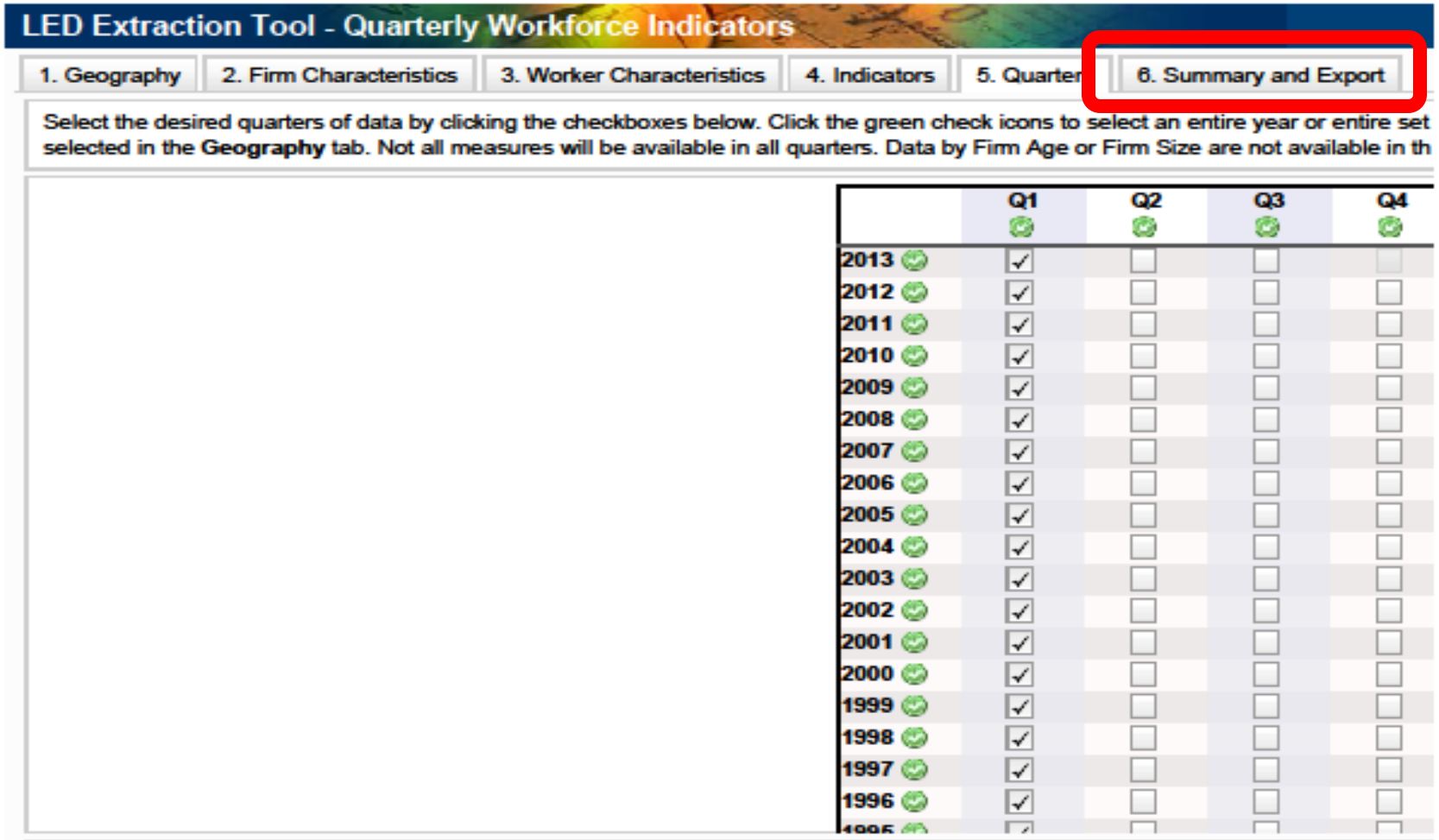


Seasonally Adjusted LEHD data are not available

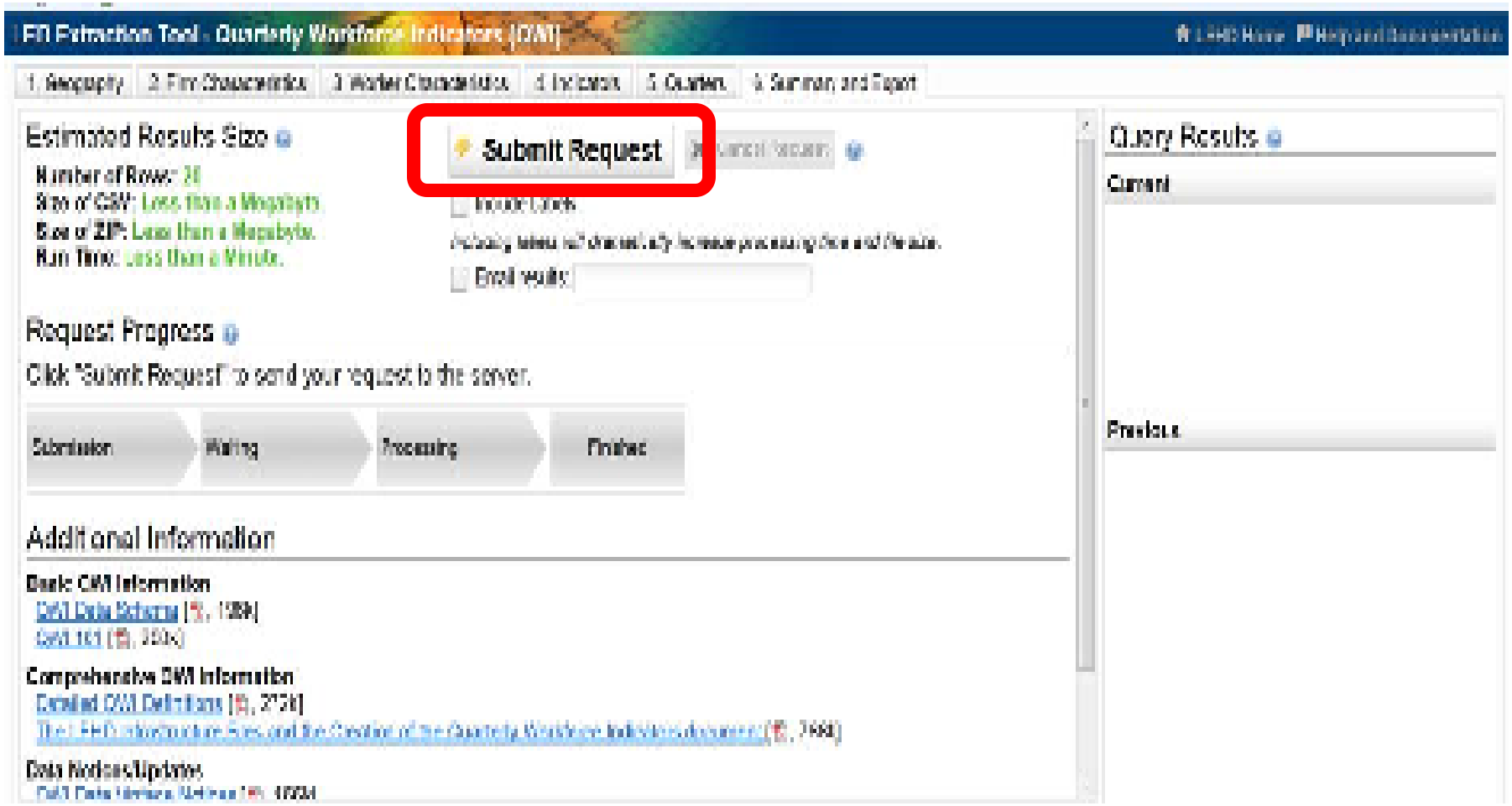
One could choose all quarters and seasonally adjust elsewhere (in SAS)

Today, we'll download Q1 data

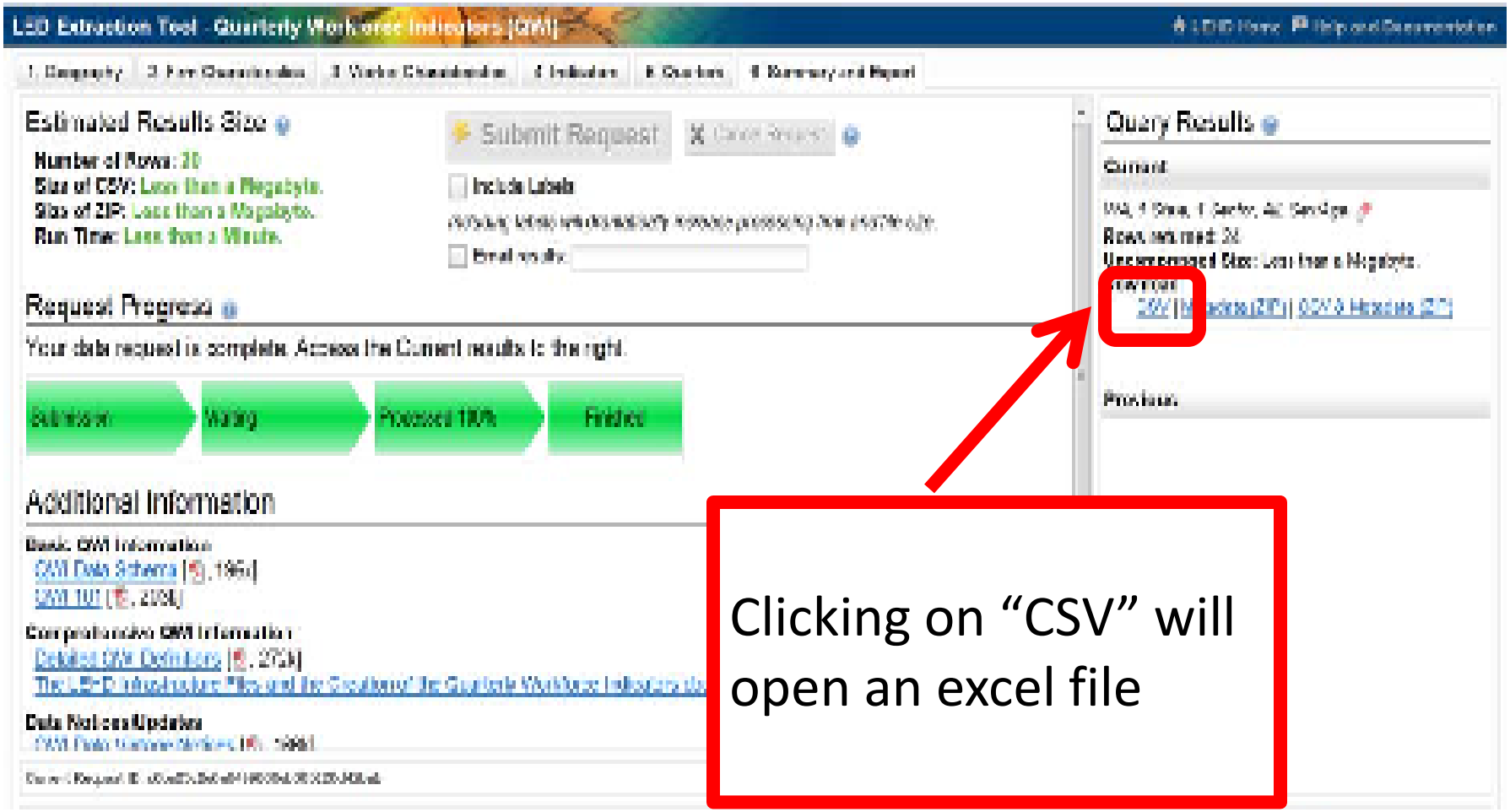
Move onto step 6



Download Data



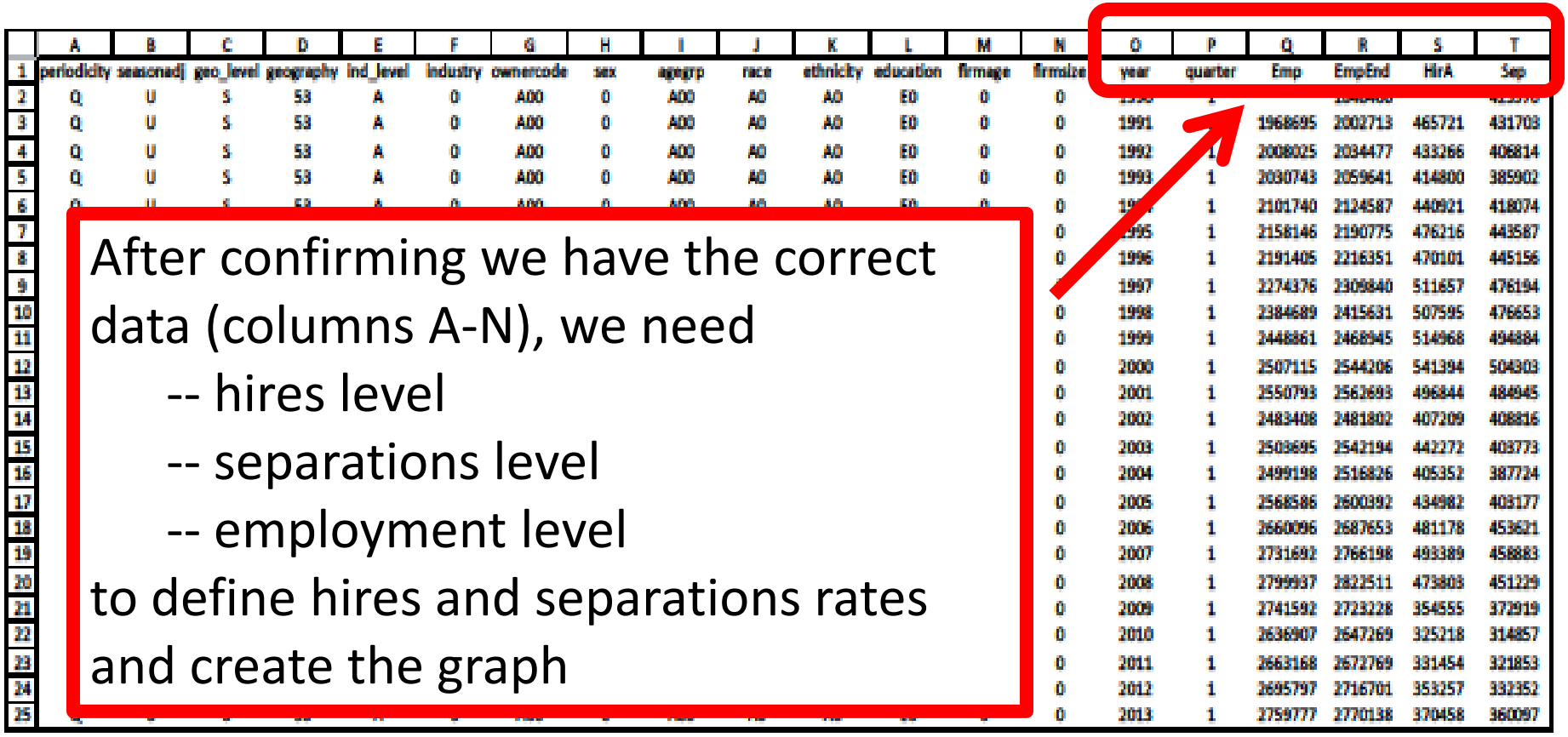
Download Data



Creating the graph (1 of 6)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	periodicity	seasonadj	geo_level	geography	ind_level	industry	ownercode	sex	agegrp	race	ethnicity	education	firmage	firmsize	year	quarter	Emp	EmpEnd	HirA	Sep
2	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1990	1		1848406		423976
3	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1991	1	1968695	2002713	465721	431703
4	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1992	1	2008025	2034477	433266	406814
5	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1993	1	2030743	2059641	414800	385902
6	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1994	1	2101740	2124587	440921	418074
7	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1995	1	2158146	2190775	476216	443587
8	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1996	1	2191405	2216351	470101	445156
9	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1997	1	2274376	2309840	511657	476194
10	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1998	1	2384689	2415631	507595	476653
11	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1999	1	2448861	2468945	514968	494884
12	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2000	1	2507115	2544206	541394	504303
13	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2001	1	2550793	2562693	496844	484945
14	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2002	1	2483408	2481802	407209	408816
15	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2003	1	2503695	2542194	442272	403773
16	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2004	1	2499198	2516826	405352	387724
17	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2005	1	2568586	2600392	434982	403177
18	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2006	1	2660096	2687653	481178	453621
19	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2007	1	2731692	2766198	493389	458883
20	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2008	1	2799937	2822511	473803	451229
21	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2009	1	2741592	2723228	354555	372919
22	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2010	1	2636907	2647269	325218	314857
23	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2011	1	2663168	2672769	331454	321853
24	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2012	1	2695797	2716701	353257	332352
25	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	2013	1	2759777	2770138	370458	360097

Creating the graph (2 of 6)



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	periodicity	seasonadj	geo_level	geography	ind_level	industry	ownercode	sex	agegrp	race	ethnicity	education	firmage	firmsize	year	quarter	Emp	EmpEnd	HirA	Sep
2	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]
3	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1991	1	1968695	2002713	465721	431703
4	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1992	1	2008025	2034477	433266	406814
5	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1993	1	2030743	2059641	414800	385902
6	Q	U	S	53	A	0	A00	0	A00	A0	A0	E0	0	0	1994	1	2101740	2124587	440921	418074
7														0	1995	1	2158146	2190775	476216	443587
8														0	1996	1	2191405	2216351	470101	445156
9														[illegible]	1997	1	2274376	2309840	511657	476194
10														0	1998	1	2384689	2415631	507595	476653
11														0	1999	1	2448861	2468945	514968	494884
12														0	2000	1	2507115	2544206	541394	504303
13														0	2001	1	2550793	2562693	496844	484945
14														0	2002	1	2483408	2481802	407209	408816
15														0	2003	1	2503695	2542194	442272	403773
16														0	2004	1	2499198	2516826	405352	387724
17														0	2005	1	2568586	2600392	434982	403177
18														0	2006	1	2660096	2687653	481178	453621
19														0	2007	1	2731692	2766198	493389	458883
20														0	2008	1	2799937	2822511	473803	451229
21														0	2009	1	2741592	2723228	354555	372919
22														0	2010	1	2636907	2647269	325218	314857
23														0	2011	1	2663168	2672769	331454	321853
24														0	2012	1	2695797	2716701	353257	332352
25														0	2013	1	2759777	2770138	370458	360097

After confirming we have the correct data (columns A-N), we need

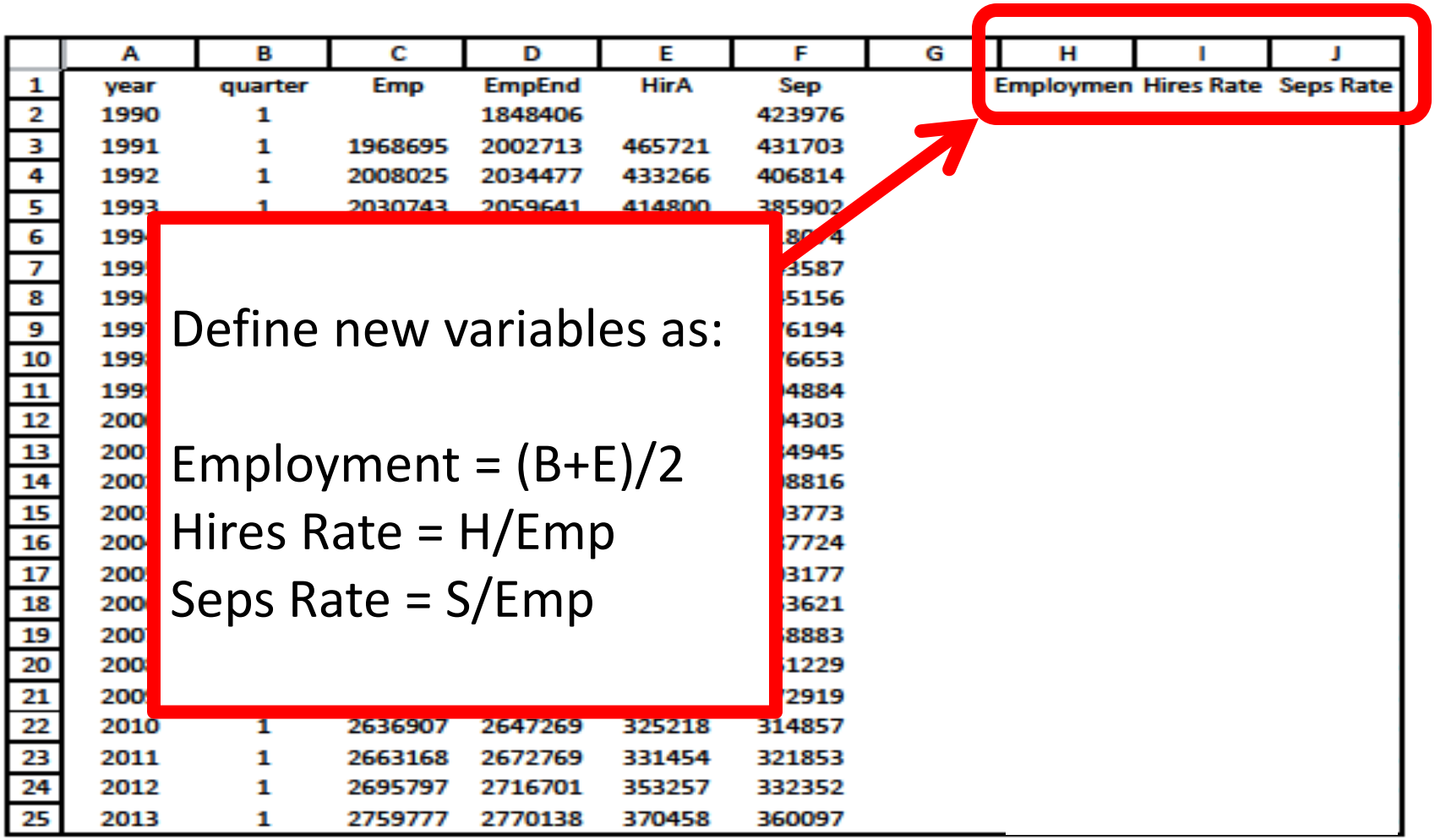
-- hires level

-- separations level

-- employment level

to define hires and separations rates and create the graph

Creating the graph (3 of 6)



	A	B	C	D	E	F	G	H	I	J
1	year	quarter	Emp	EmpEnd	HirA	Sep		Employmen	Hires Rate	Seps Rate
2	1990	1		1848406		423976				
3	1991	1	1968695	2002713	465721	431703				
4	1992	1	2008025	2034477	433266	406814				
5	1993	1	2030743	2059641	414800	385902				
6	199					8 4				
7	199					3587				
8	199					5156				
9	199					6194				
10	199					6653				
11	199					4884				
12	200					4303				
13	200					4945				
14	200					8816				
15	200					3773				
16	200					7724				
17	200					3177				
18	200					3621				
19	200					8883				
20	200					1229				
21	200					2919				
22	2010	1	2636907	2647269	325218	314857				
23	2011	1	2663168	2672769	331454	321853				
24	2012	1	2695797	2716701	353257	332352				
25	2013	1	2759777	2770138	370458	360097				

Define new variables as:

Employment = (B+E)/2
Hires Rate = H/Emp
Seps Rate = S/Emp

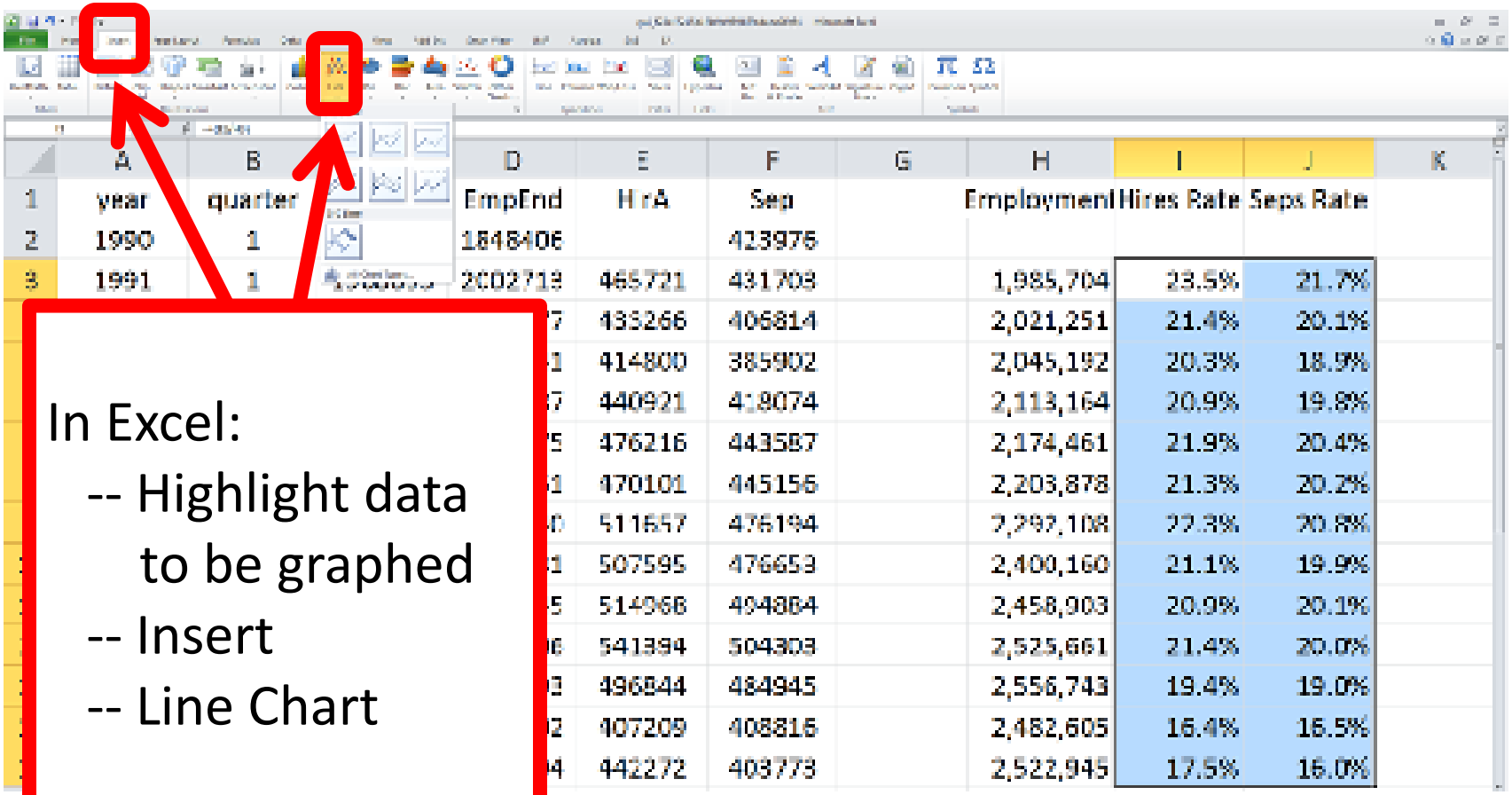
Creating the graph (4 of 6)

	A	B	C	D	E	F	G	H	I	J
1	year	quarter	Emp	EmpEnd	HirA	Sep		Employmen	Hires Rate	Seps Rate
2	1990	1		1848406		423976				
3	1991	1	1968695	2002713	465721	431703		1,985,704	23.5%	21.7%
4	1992	1	2008025	2034477	433266	406814		2,021,251	21.4%	20.1%
5	1993	1	2030743	2059641	414800	385902		2,045,192	20.3%	18.9%
6	199					8 4		2,113,164	20.9%	19.8%
7	199					3587		2,174,461	21.9%	20.4%
8	199					5156		2,203,878	21.3%	20.2%
9	199					6194		2,292,108	22.3%	20.8%
10	199					6653		2,400,160	21.1%	19.9%
11	199					4884		2,458,903	20.9%	20.1%
12	200					4303		2,525,661	21.4%	20.0%
13	200					4945		2,556,743	19.4%	19.0%
14	200					8816		2,482,605	16.4%	16.5%
15	200					3773		2,522,945	17.5%	16.0%
16	200					7724		2,508,012	16.2%	15.5%
17	200					3177		2,584,489	16.8%	15.6%
18	200					3621		2,673,875	18.0%	17.0%
19	200					8883		2,748,945	17.9%	16.7%
20	200					1229		2,811,224	16.9%	16.1%
21	200					2919		2,732,410	13.0%	13.6%
22	2010	1	2636907	2647269	325218	314857		2,642,088	12.3%	11.9%
23	2011	1	2663168	2672769	331454	321853		2,667,969	12.4%	12.1%
24	2012	1	2695797	2716701	353257	332352		2,706,249	13.1%	12.3%
25	2013	1	2759777	2770138	370458	360097		2,764,958	13.4%	13.0%

Define new variables as:

Employment = (B+E)/2
Hires Rate = H/Emp
Seps Rate = S/Emp

Creating the graph (5 of 6)



	A	B	D	E	F	G	H	I	J	K
1	year	quarter	EmpEnd	HirA	Sep		Employment	Hires Rate	Seps Rate	
2	1990	1	1848406		423976					
3	1991	1	2002713	465721	431703		1,985,704	23.5%	21.7%	
			7	433266	406814		2,021,251	21.4%	20.1%	
			1	414800	385902		2,045,192	20.3%	18.9%	
			7	440921	418074		2,113,164	20.9%	19.8%	
			5	476216	443587		2,174,461	21.9%	20.4%	
			1	470101	445156		2,203,878	21.3%	20.2%	
			0	511657	476194		2,297,108	22.3%	20.8%	
			1	507595	476653		2,400,160	21.1%	19.9%	
			5	514966	494864		2,458,903	20.9%	20.1%	
			6	541394	504303		2,525,661	21.4%	20.0%	
			3	496844	484945		2,556,743	19.4%	19.0%	
			2	407209	408816		2,482,605	16.4%	16.5%	
			4	442272	403773		2,522,945	17.5%	16.0%	

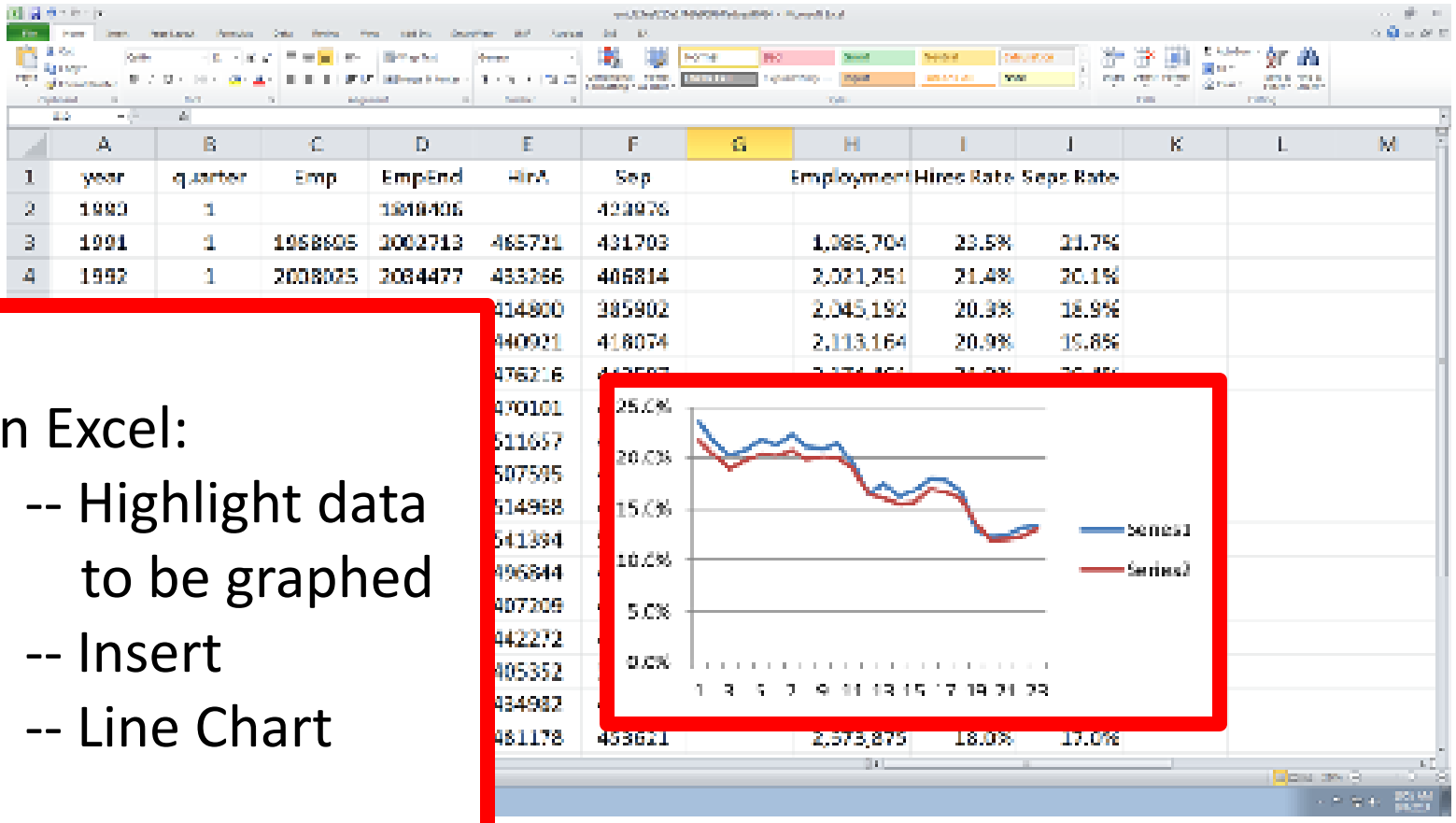
In Excel:

-- Highlight data to be graphed

-- Insert

-- Line Chart

Creating the graph (6 of 6)



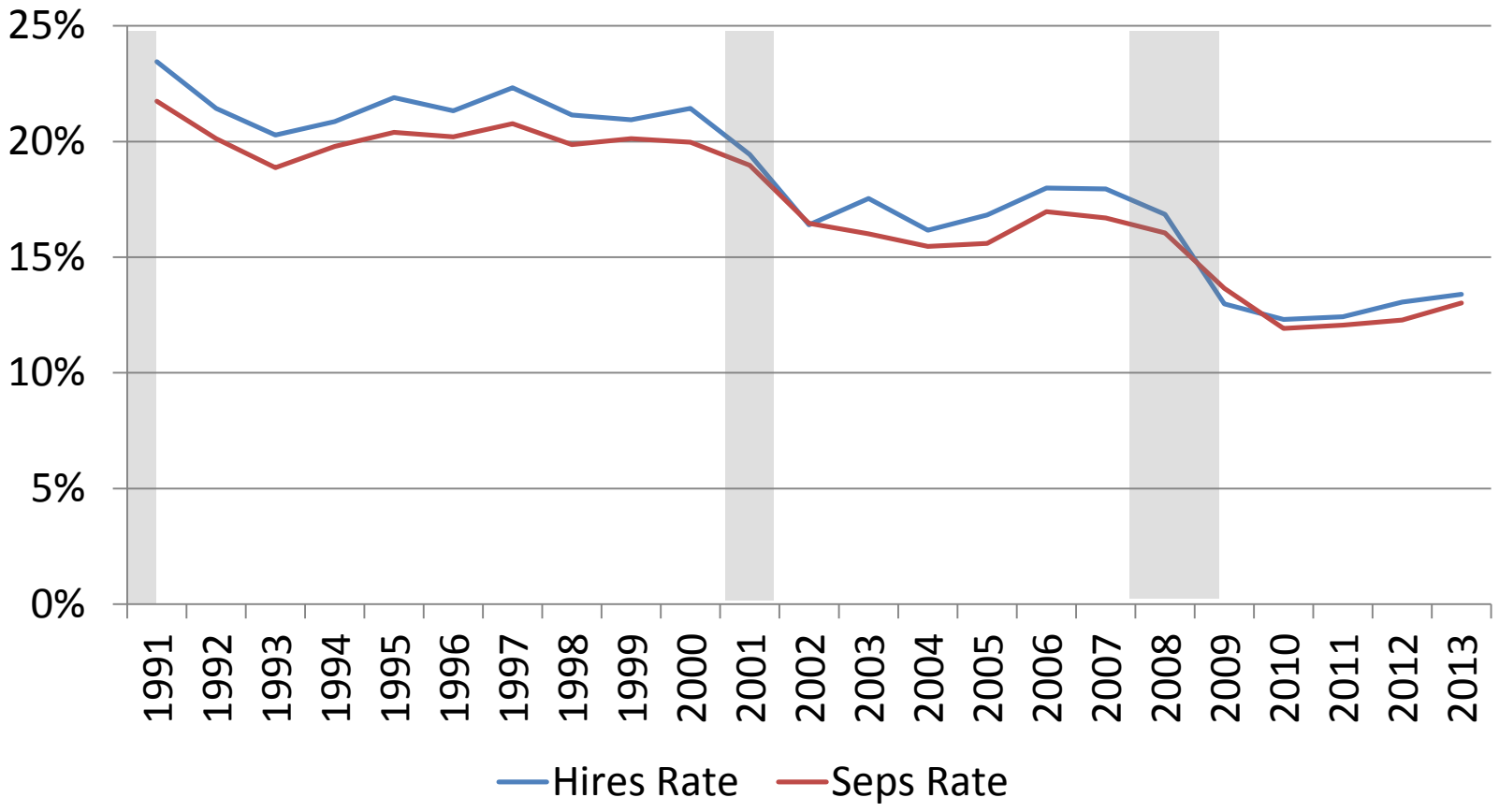
In Excel:

-- Highlight data to be graphed

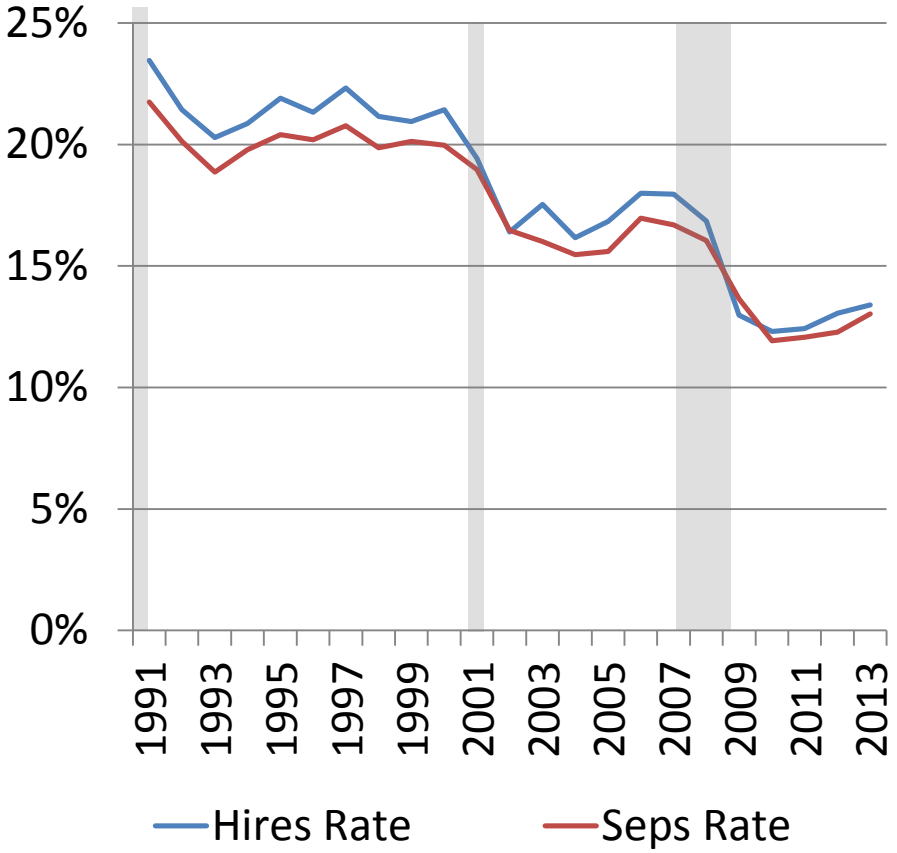
-- Insert

-- Line Chart

“Tidy up” the excel chart



Declining Dynamics (1 of 2)

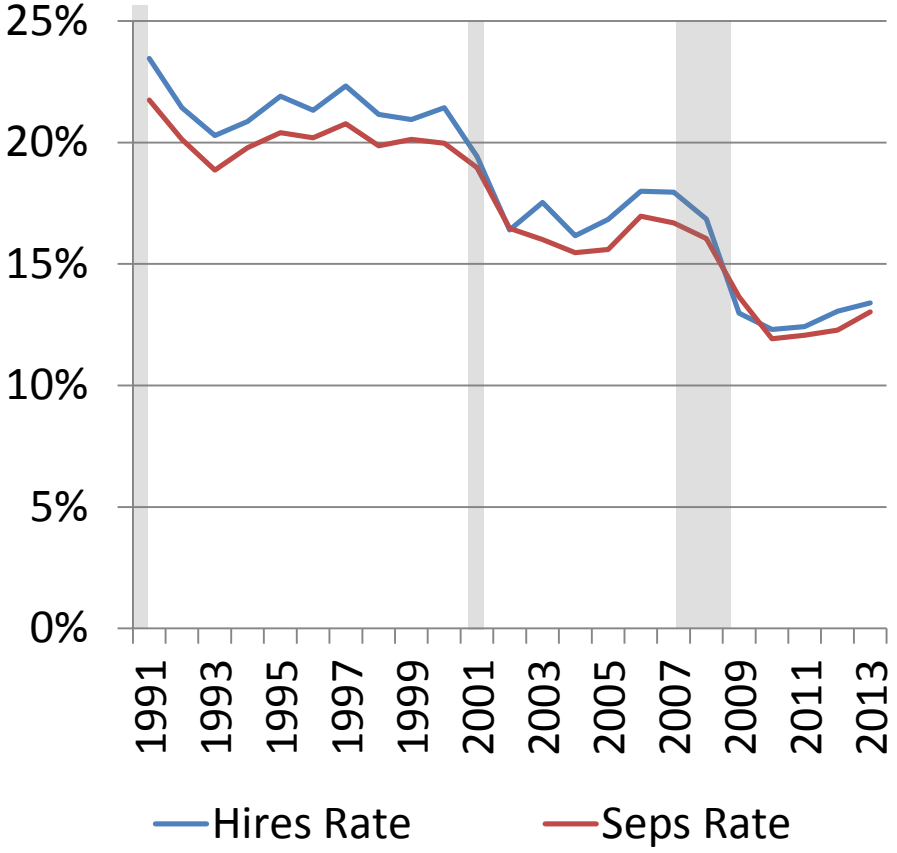


In WA, using Q1 data:

-- The hires rate fell from 23.5% in 1991 to 13.4% in 2013

-- The separations rate fell from 21.7% in 1991 to 13.0% in 2013

Declining Dynamics (2 of 2)



2 key questions motivating research on employment dynamics:

1) Why have hires and separations rates declined during the last 2 decades?

[we don't know]

2) Is this decline good or bad for the labor market

[we don't know]

Why is This Important?

Declining dynamics of hires, separations, job creation, job destruction, and job-to-job flows is pervasive, occurring in all states we have examined

Where are these declines occurring?

-- certain age groups?

-- certain industries?

-- certain firm ages or sizes?

Are these declining dynamics correlated with trends in employment or earnings?

Contact Information

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LED State Workshop

September 10, 2014