



MEMORANDUM

TO: Cooperative Forecasting Committee
FROM: Nicole McCall, Senior Regional Planner
SUBJECT: Update to Suggested Baseline Employment Estimates
DATE: July 10, 2018

This memo provides an update to the suggested baseline employment estimates for the Metropolitan Washington Council of Government’s Cooperative Forecasting program.

The baseline employment estimates are updated to reflect new and revised federal employment estimates, including: (1) revised 2010-2016 and new 2017 Bureau of Labor Statistics estimates, (2) 2016 Census Public Use Microdata Sample (PUMS) 1-Year files, and (3) 2016 military estimates. While described in detail, there is no change to the suggested approach for baseline employment estimates. In addition, the base year (2015) for the Round 9 Cooperative Forecast, regardless of series, remains the same.

Table 1 Suggested Baseline Employment Estimates (Thousands), 2010-2017

Jurisdiction	2010	2011	2012	2013	2014	2015	2016	2017 Preliminary
District of Columbia	752.328	759.036	768.405	779.712	785.122	808.735	823.305	831.011
Arlington County	184.186	193.625	191.968	192.156	189.000	197.131	201.055	206.918
Alexandria City	105.279	103.765	105.293	105.069	105.009	106.638	104.750	104.409
Montgomery County	494.296	499.931	501.929	505.628	510.408	517.514	515.442	520.878
Prince George's County	344.114	340.437	342.170	344.245	348.022	351.884	362.812	371.087
Fairfax County	636.136	641.407	654.444	651.644	644.893	653.615	667.691	680.339
City of Fairfax	21.810	21.406	21.733	21.508	21.742	21.655	21.420	21.553
City of Falls Church	13.600	12.852	12.336	11.173	12.198	12.777	13.035	13.579
Loudoun County	145.210	150.799	155.579	161.513	164.292	172.681	176.278	182.988
Prince William County	120.245	125.390	131.857	136.643	139.549	141.862	148.268	151.252
City of Manassas	26.052	26.573	26.707	25.344	25.421	24.961	25.201	25.091
City of Manassas Park	3.099	3.184	3.010	3.027	3.149	3.271	3.656	3.931
Charles County	45.412	46.345	46.530	46.876	47.486	48.544	50.942	49.406
Frederick County	103.126	101.777	103.413	106.085	106.575	109.411	110.538	111.794
Region	2,994.893	3,026.529	3,065.374	3,090.624	3,102.866	3,170.678	3,224.394	3,274.235

METHODOLOGY

The below steps outline how to develop the baseline employment estimates and the latest available data, from 2017, used in the example. The 2017 estimates include preliminary data from the BLS which may be revised in Fall 2018, any changes are typically small.

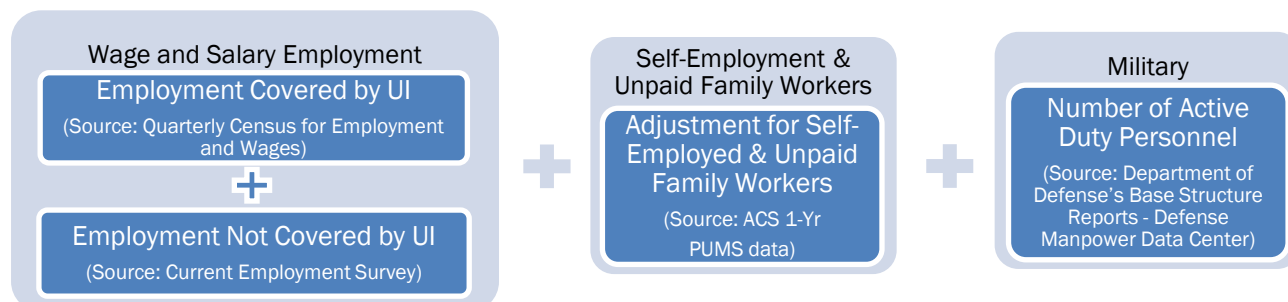


Figure 1 Baseline Employment

1. Wage and Salary Employment

Employment Covered by Unemployment Insurance (UI)

The Bureau of Labor Statistics' (BLS) Quarterly Census for Employment and Wages (QCEW) program, also known as the ES-202 program, publishes a quarterly count of employment and wages of establishments which report to the unemployment insurance (UI) programs of the United States. These estimates are shown, in thousands, in the below table.

Table 2 Employment Covered by Unemployment Insurance, 2017 (Thousands)

Jurisdiction	Employment
District of Columbia	763.805
Arlington County	176.703
Alexandria City	93.781
Montgomery County	469.354
Prince George's County	319.529
Fairfax County	601.563
City of Fairfax	19.184
City of Falls Church	12.086
Loudoun County	164.439
Prince William County	127.877
City of Manassas	22.333
City of Manassas Park	3.499
Charles County	41.646
Frederick County	100.655
Region	2,916.454

Source: BLS QCEW

Employment covered by the UI programs represents about 95% of wage and salary civilian employment in the country. While there are slight differences in coverage between the District of Columbia (DC), Maryland (MD), and Virginia (VA) (see Appendix A), the following types of employment are typically excluded by UI coverage:

- Unincorporated self-employed workers
- Unpaid family workers
- Agricultural workers on small farms
- Religious organizations
- Very small non-profit organizations
- Railroad workers
- Service by students and spouses of students in the employ of a school, college, or university by a student enrolled and regularly attending classes at such school; spouse is excluded provided employment is under a program designed to give financial assistance to the student
- Domestic service in a private home, local college club, or local chapter of a college fraternity or sorority.
- Service performed for government entities:
 - As an elected official;
 - As a member of a legislative body or a member of the judiciary;
 - As a member of the state National Guard or Air National Guard;
 - As an employee serving on a temporary basis in case of fire, storm, snow, earthquake, flood, or similar declared emergency;
 - In a position which, under the state law, is designated as a major, non-tenured, policymaking or advisory position, or a part-time policymaking position which ordinarily requires 8 or fewer hours a week;
 - Or as a member of the military
- U.S. residents employed by foreign government (including embassies and consulates) or international organization
- Military and certain national security agencies
- Commissioned Corps of the National Oceanic and Atmospheric Administration
- Individuals serving on a temporary basis in case of fire, storm, earthquake, or other similar emergency
- Individuals employed under a Federal relief program to relieve them from unemployment

Employment Not Covered by UI

Data from BLS' Current Employment Statistics (CES) program is used to account for wage and salary civilian employment that is not covered by UI. The CES has a broader definition of employment than the QCEW and includes persons on establishment payrolls who worked or received pay for any part of the pay period that includes the 12th day of the month. BLS constructs an annual benchmark for its CES program to (1) realign the sample-based employment totals with the UI based counts for March, and (2) account for wage and salary civilian employment not covered by UI¹. The ratio of the CES to the QCEW (for the same geography) can be used to determine the portion of wage and salary employment not covered by UI.

The CES is not published at the County level, the smallest scale of geography that it is available for metropolitan areas and divisions. For the National Capital Region, the employment estimates for the following areas are used (1) District of Columbia, (2) 43524 – Silver Spring- Frederick-Rockville, MD

¹ Sources of data used to account for noncovered employment include: Railroad Retirement Board, Census Bureau's County Business Patterns and Annual Survey of Public Employment and Payroll (ASPEP), and Labor Market Information Agencies (LMI).

Metropolitan Division, (3) 94781 – Calvert County, Charles County, Prince George’s County. In addition, an estimate for Northern Virginia is derived using existing estimates.

For Northern Virginia, the total employment for the District of Columbia and 94781 - Calvert County, Charles County, Prince George’s County is subtracted from 47894- Washington-Arlington-Alexandria, D.C.-Va.-Md.-W.Va. Metropolitan Division before obtaining the ratio of CES to QCEW. This leaves a CES value that covers Northern Virginia as well as Jefferson County, WV. (While BLS produces a separate estimate for the non-standard CES Area, Northern Virginia, that area also covers Culpeper County and Rappahannock County. These adjustments, shown in Table 3, help the estimate better geographically match MWCOG’s planning area and TPB’s modeled region.

Table 3 Wage and Salary Civilian Employment for Northern Virginia, 2017 (Thousands)

Metropolitan Area or Division	Employment
47894- Washington-Arlington-Alexandria, D.C.-Va.-Md.-W.Va. Metropolitan Division	2628.6
District of Columbia	790.4
94781 - Calvert County, Charles County, Prince George’s County	417.3
Northern Virginia	1474.9

Source: BLS CES

The CES Wage and Salary Adjustment Factor is the ratio of CES to QCEW. These adjustment factors vary over time due to cyclical and structural changes in the region’s economy.

Table 4 CES Adjustment Factors, 2017

Jurisdictions	CES State or Metro Area	QCEW (Thousands)	CES (Thousands)	Adjustment factor
District of Columbia	District of Columbia	763.8	790.4	1.035
Montgomery, Frederick	43524 - Silver Spring-Frederick-Rockville, MD Metropolitan Division	570.0	591.5	1.038
Calvert, Charles, Prince George's	94781 - Calvert County, Charles County, Prince George's County	385.4	417.3	1.083
Arlington, Clarke, Fairfax, Fauquier, Loudoun, Prince William, Spotsylvania, Stafford, Warren, City of Alexandria, City of Fairfax, City of Falls Church, City of Fredericksburg, City of Manassas, City of Manassas Park, Jefferson County, WV	47894 - Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division minus sum (District of Columbia and 94781 - Calvert County, Charles County, Prince George's County)	1,378.9	1474.9	1.070
Region		3,098.1	3274.1	1.057

Source: BLS CES and QCEW

2. Self-Employment and Unpaid Family Workers

Self-employed as well as unpaid family workers should also be included in the employment estimate. The Census Bureau's American Community Survey (ACS) provides data on the class of worker including wage and salary, self-employed not incorporated, and unpaid family worker. The Public Use Microdata Sample (PUMS) 1-Year files are used to summarize the data by place of work. Next, the ratio of the sum of total workers to the sum of self-employed not incorporated and unpaid family workers is used to produce the self-employment factor. This self-employment factor should be applied to the CES adjusted wage and salary employment. For the baseline employment estimates shown in Table 1, the 2013 Self-Employment (and Unpaid Family Workers) Adjustment Factor is applied to the CES adjusted wage and salary employment for years prior to 2015, and the 2015 Self-Employment Adjustment Factor is applied to the CES adjusted wage and salary employment for 2015, and the 2016 Self-Employment Adjustment factor is applied to the CES adjusted wage and salary employment for 2016 and 2017.

Table 5 Self-Employment (and Unpaid Family Workers) Adjustment Factor, 2016

Jurisdiction of Work	Wage and Salary Employment (Thousands)	Self-Employed Not Incorporated & Unpaid Family (Thousands)	Total Workers (Thousands)	Self-Employment Factor
District of Columbia	797.563	29.814	827.377	1.04
Arlington County	179.990	6.749	186.739	1.04
City of Alexandria	104.373	4.272	108.645	1.04
Montgomery County	501.297	27.865	529.162	1.06
Prince George's County	332.818	18.649	351.467	1.06
Fairfax County / City of Fairfax / City of Falls Church	643.405	35.118	678.523	1.05
Loudoun County	166.142	7.428	173.57	1.04
Prince William County/ City of Manassas / City of Manassas Park	165.171	8.147	173.318	1.05
Charles County	45.521	3.776	49.297	1.08
Frederick County	106.74	6.924	113.664	1.06
Region	3043.02	148.742	3191.762	1.05

Source: Census ACS PUMS 1-Year Files

3. Military

The Department of Defense's (DOD) Base Structure reports include an appendix with Personnel Data from the Defense Manpower Data Center. The below table reports the latest available Active Duty Total by County reported in September 2016. Appendix B (Spreadsheet) provides this information, as well as the number of National Guard/Reserve and Civilian Employees, by state and military base. The FY2017 Base Structure Report can be viewed at <https://www.acq.osd.mil/eie/Downloads/BSI/Base%20Structure%20Report%20FY17.pdf>.

Table 6 Military Employment, 2016 (Thousands)

County	Active Duty Total
District of Columbia	8.851
Arlington County	10.283
City of Alexandria	0.050
Montgomery County	4.457
Prince George's County	4.274
Prince William County	7.582
Fairfax County	4.483
City of Fairfax	0
City of Falls Church	0
Charles County	0.695
Frederick County	1.045
Region	41.720

Source: DOD Base Structure Report

In cases where jurisdiction staff is in direct contact with the military and is provided with a direct source of military employment estimates, COG recommends using those and requests the data be shared with the Cooperative Forecasting Committee. In addition, employment estimates that reflect the presence of the Central Intelligence Agency, National Security Agency, the National Imagery and Mapping Agency, and/or the Defense Intelligence Agency, should be included as well.

RESULTS

To obtain the baseline employment, the QCEW is multiplied by the CES Adjustment Factor to produce the total wage and salary employment. Next, the total wage and salary employment is multiplied by the Self-Employment (and Unpaid Family Workers) Adjustment Factor to produce total civilian employment. Finally, military employment is added to obtain total employment.

Table 7 Baseline Employment (Thousands), 2017

County	QCEW	CES Adjustment Factor	Self-Employment Adjustment Factor	Military Employment	Baseline Employment
District of Columbia	763.805	1.035	1.04	8.851	831.011
Arlington County	176.703	1.093	1.04	10.283	206.918
City of Alexandria	93.781	1.093	1.04	0.050	104.409
Montgomery County	469.354	1.038	1.06	4.457	520.878
Prince George's County	319.529	1.083	1.06	4.274	371.087
Fairfax County	601.563	1.093	1.05	4.483	680.339
City of Fairfax	19.184	1.093	1.05	0	21.553
City of Falls Church	12.086	1.093	1.05	0	13.579
Loudoun County	164.439	1.093	1.04	0	182.988
Prince William County	127.877	1.093	1.05	7.582	151.252
City of Manassas	22.333	1.093	1.05	0	25.091
City of Manassas Park	3.499	1.093	1.05	0	3.931

County	QCEW	CES Adjustment Factor	Self- Employment Adjustment Factor	Military Employment	Baseline Employment
Charles County	41.646	1.083	1.08	0.695	49.406
Frederick County	100.655	1.038	1.06	1.045	111.794
Region	2916.454	1.067	1.05	42.339	3,274.235

Table 8 Change from Prior Baseline Estimates for Region (Thousands)

	2010	2011	2012	2013	2014	2015	2016	2017
Previous Baseline Estimates (2017)	2,998.46	3,031.15	3,070.24	3,097.60	3,110.55	3,180.79	3,233.22	
Current Baseline Estimate (2018)	2,994.89	3,026.53	3,065.37	3,090.62	3,102.87	3,170.68	3,224.39	3,274.24
Difference (2018-2017)	-3.57	-4.62	-4.86	-6.98	-7.68	-10.11	-8.83	N/A
Percent Difference	-0.1%	-0.2%	-0.2%	-0.2%	-0.2%	-0.3%	-0.3%	N/A

Table 9 Difference between Latest Baseline Estimates and Cooperative Forecast Round 9.0, Thousands

	2015	2020
Cooperative Forecast Round 9.1	3160.8	3,360.6
Latest Baseline Estimates (Revised July 2018)	3,170.7	3,401.8 ¹
Difference (Latest Baseline - Cooperative Forecast R9)	9.9	41.2
Percent Difference (Latest Baseline/Cooperative Forecast R9 - 1)	0.3%	1.2%

¹2020 Baseline projected by applying 2010-2017 Compound Growth Rate to 2017 estimate.

RECOMMENDATION

For consistency purposes, COG suggests the methodology described in this memo be used to develop baseline employment estimates for the Cooperative Forecasting Program. If jurisdictions have access to additional data to inform these baseline employment estimates or choose to utilize a different methodology, please share it with the Committee and include a description as a part of the transmittal package.

NOTE

This approach is tailored for jurisdictions where estimates from the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) are available. While the QCEW is published for independent cities in Virginia, this data is not available for cities in Maryland. It is recommended that cities in Maryland should work with their surrounding county and use other existing resources to develop Baseline Employment Estimates.

SOURCES

<https://www.bls.gov/cew/datatoc.htm>

<https://download.bls.gov/pub/time.series/sm/>

<http://workforcesecurity.doleta.gov/unemploy/pdf/uilawcompar/2015/coverage.pdf>

<http://www.irs.gov/Individuals/International-Taxpayers/Persons-Employed-by-a-Foreign-Government-or-International-Organization--FUTA>

<http://www.bls.gov/cew/cewfaq.htm#Q14>

<https://www.acq.osd.mil/eie/Downloads/BSI/Base%20Structure%20Report%20FY17.pdf>

ATTACHMENTS

Appendix A. Employment Not Covered by QCEW

Appendix B. Spreadsheet – Military Employment

Appendix C. Spreadsheet – Baseline Employment



Employment Not Covered by Unemployment Insurance (UI)		District of Columbia	Maryland	Virginia
Self-Employment		X	X	X
Unpaid Family Workers		X	X	X
Religious Organizations	A church, convention, or association of churches	X	X	X
	An organization operated primarily for religious purposes, which is operated, supervised, controlled, or principally supported by a church, convention, or association of churches	X	X	X
	An elementary or secondary school operated primarily for religious purposes, regardless of affiliation with a church, convention, or association of churches	X	X	X
Non-Profit Organizations with 4 or fewer Employees		Expanded coverage provisions beyond Federal Requirements, States cover organizations with 1 or more employees	Expanded coverage provisions beyond Federal Requirements, States cover organizations with 1 or more employees	X
Railroad Workers		X	X	X
Insurance Agents on Commission		X	X	X
Real Estate Agents on Commission			X	X
Part-time Service for Nonprofit Organizations Exempt from Federal Income Tax		X	X	X

Not Covered by QCEW		District of Columbia	Maryland	Virginia
Service by Students and Spouses of Students in the employ of a school, college, or university by a student enrolled and regularly attending classes at such school; Spouse is excluded provided employment is under a program designed to give financial assistance to the student	Student Nurses and Interns in Employ of a Hospital	X	X	X
	Students Working for Schools	X (Do not exclude service by the spouse of a student in the employ of the school)	X	X (Do not exclude service by the spouse of a student in the employ of the school)
Domestic service in a private home, local college club, or local chapter of a college fraternity or sorority.		Quarterly payroll less than \$500	Quarterly payroll less than \$1,000	Exclude: (1) Medical services performed by an individual employed to perform those services in a private residence or medical institution if the employing unit is the person receiving the services; and (2) services performed under agreement with a Public Human Service Agency in the home of the recipient of the service or the provider of the service

Not Covered by QCEW	District of Columbia	Maryland	Virginia
Government Entities, service performed: <ul style="list-style-type: none"> • As an elected official; • As a member of a legislative body or a member of the judiciary; • As a member of the state National Guard or Air National Guard; • As an employee serving on a temporary basis in case of fire, storm, snow, earthquake, flood, or similar declared emergency; • in a position which, under the state law, is designated as a major, non-tenured, policymaking or advisory position, or a part-time policymaking position which ordinarily requires 8 or fewer hours a week • Military 	X	X	X
U.S. Residents employed by Foreign Government (including embassies and consulates) or International Organization located within the U.S.	X	X	X

X=Not covered by UI (not represented in QCEW)