

MEMORANDUM

TO: Cooperative Forecasting Committee
 FROM: Nicole McCall, Senior Regional Planner
 SUBJECT: 2017 Update to Suggested Approach for Preparing Baseline Employment Estimates
 (Revised following initial July 10, 2017 release)
 DATE: July 14, 2017

This memo describes the suggested approach for the development of baseline employment estimates for the Council of Government’s Cooperative Forecasting program. The proposed methodology uses available wage and salary employment, self-employment, and military employment data series, to develop baseline employment estimates. This memo serves as an update to the 2015 memo, “Suggested Approach for Preparing Baseline Employment Estimates,” and includes (1) adjusted 2010-2014 estimates to reflect revisions to BLS data¹, (2) new estimates for 2015 and 2016, and (3) a 2015 Self-Employment (and Unpaid Family Workers) Adjustment Factor. The suggested approach for preparing baseline employment estimates and the base year (2015) for the Round 9 Cooperative Forecasts remain the same.

Table 1 Baseline Employment Estimates based on Suggested Approach (Thousands)

Jurisdiction	2010	2011	2012	2013	2014	2015	2016 <small>Preliminary</small>
District of Columbia	752.328	759.036	768.405	779.712	785.122	808.735	822.451
Arlington County	185.526	195.185	193.505	194.026	190.865	199.079	202.622
Alexandria City	106.085	104.658	106.196	106.169	106.106	107.751	106.489
Montgomery County	497.106	502.775	505.749	509.460	515.240	523.908	528.118
Prince George's County	335.949	331.970	332.735	334.489	337.841	341.919	348.764
Fairfax County	640.954	646.899	660.024	658.422	651.587	660.393	672.271
Fairfax City	21.977	21.591	21.919	21.733	21.969	21.881	21.568
Falls Church City	13.705	12.963	12.442	11.290	12.325	12.910	13.016
Loudoun County	146.322	152.098	156.914	163.204	166.008	174.483	181.032
Prince William County	121.118	126.412	132.925	137.990	140.929	143.265	147.876
Manassas City	26.251	26.802	26.936	25.609	25.687	25.221	25.148
Manassas Park City	3.122	3.212	3.036	3.059	3.182	3.305	3.645
Charles County	44.311	45.199	45.253	45.550	46.101	47.173	48.120
Frederick County	103.709	102.353	104.198	106.889	107.585	110.764	112.101
Region	2,998.463	3,031.153	3,070.237	3,097.602	3,110.545	3,180.787	3,233.219

¹ BLS revised the Current employment statistics and 2014 Quarterly Census of Employment and Wages (QCEW) estimates and following the last memo.

METHODOLOGY

The below steps outline how to develop the baseline employment estimates. For the purposes of this memo, the latest available data (2016) is used in the example. These include preliminary data from the BLS which may be revised in Fall 2017, typically the revisions are small.

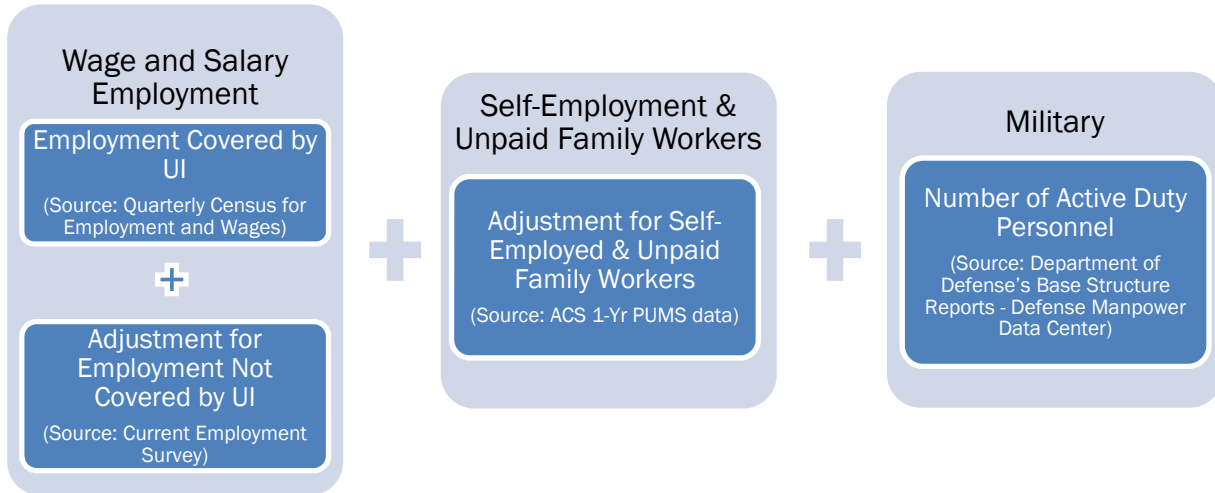


Figure 1 Baseline Employment

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 QCEW Average Annual Employment (Thousands)

Jurisdiction	2016
District of Columbia	756.35
Arlington County	172.806
Alexandria City	94.843
Montgomery County	463.836
Prince George's County	312.048
Fairfax County	595.256
Fairfax City	19.215
Falls Church City	11.596
Loudoun County	159.761
Prince William County	126.296
Manassas City	22.62
Manassas Park City	3.279
Charles County	42.937
Frederick County	99.48
Region	2,880.323

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 UI². The ratio of the

² Sources of data used to account for noncovered employment include: the Railroad Retirement Board, Census Bureau's County Business Patterns and Annual Survey of Public Employment and Payroll (ASPEP), and Labor Market Information Agencies (LMI).

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 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 Northern Virginia Employment (Thousands), CES

Metropolitan Area or Division	CES Employment (2016)
47894- Washington-Arlington-Alexandria, D.C.-Va.-Md.-W.Va. Metropolitan Division	2635.5
District of Columbia	782.2
94781 - Calvert County, Charles County, Prince George's County	398.6
Northern Virginia, Va.	1454.7

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 2015 CES Adjustment Factors

Jurisdictions	CES State or Metro Area	QCEW (Thousands)	CES (Thousands)	Adjustment factor
District of Columbia	District of Columbia	756	782	1.034
Montgomery, Frederick	43524 - Silver Spring-Frederick-Rockville, MD Metropolitan Division	563	593.9	1.054
Calvert, Charles, Prince George's	94781 - Calvert County, Charles County, Prince George's County	379	398.6	1.051
Arlington, Clarke, Fairfax, Fauquier, Loudoun, Prince William, Spotsylvania, Stafford, Warren, Alexandria City, Fairfax City, Falls Church City, Fredericksburg City, Manassas City, Manassas Park City, 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)	1,361	1,455	1.069
Region		3,059	3,299.4	1.056

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 (and Unpaid Family Workers) Adjustment Factor is applied to the CES adjusted wage and salary employment for 2015 and 2016.

Table 5 Self-Employment (and Unpaid Family Workers) Adjustment Factor, 2013

Jurisdiction of Work	Wage and Salary Employment (Thousands)	Self-Employed Not Incorporated & Unpaid Family (Thousands)	Total Workers (Thousands)	Self-Employment Factor
District of Columbia	773.434	26.978	800.412	1.03
Arlington County	188.531	5.718	194.249	1.03
Alexandria City	92.01	4.994	97.004	1.05
Montgomery County	474.672	30.108	504.78	1.06
Prince George's County	309.353	16.771	326.124	1.05
Fairfax County	641.958	33.077	675.035	1.05
Loudoun County	146.653	7.004	153.657	1.05
Prince William County	159.138	8.273	167.411	1.05
Charles County	40.576	1.913	42.489	1.05
Frederick County	100.554	5.645	106.199	1.06
Region	2,926.88	140.481	3,067.36	1.05

Table 6 Self-Employment (and Unpaid Family Workers) Adjustment Factor, 2015

Jurisdiction of Work	Wage and Salary Employment (Thousands)	Self-Employed Not Incorporated & Unpaid Family (Thousands)	Total Workers (Thousands)	Self-Employment Factor
District of Columbia	817,690	31,923	849,613	1.04
Arlington County	186,637	7,539	194,176	1.04
Alexandria City	94,023	4,790	98,813	1.05
Montgomery County	483,061	32,204	515,265	1.07
Prince George's County	338,998	16,079	355,077	1.05
Fairfax County	641,754	29,592	671,346	1.05
Loudoun County	152,455	9,094	161,549	1.06
Prince William County	158,581	6,883	165,464	1.04
Charles County	38,557	1,842	40,399	1.05
Frederick County	103,346	6,496	109,842	1.06
Region	3,015,102	146,442	3,161,544	1.05

3. Military

The Department of Defense's (DOD) annual 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 2014. Appendix B (Spreadsheet) provides this information, as well as the number of National Guard/Reserve and Civilian Employees, by state and military base. The FY2015 Base Structure Report can be viewed at <http://www.acq.osd.mil/eie/Downloads/BSI/Base%20Structure%20Report%20FY15.pdf>.

Table 7 Military, September 2014 (Thousands)

County	Active Duty Total
District of Columbia	9.102
Arlington County	10.503
Alexandria City	0.032
Montgomery County	5.013
Prince George's County	4.403
Prince William County	7.465
Fairfax County	4.126
Falls Church City	0
Charles County	0.737
Frederick County	0.958
Region	42.399

At the time that this memo was released, COG was unable to find a Base Structure Report for FY2016 or FY2017. COG has contacted the DOD and is actively looking for another source of information. If a jurisdiction has a better source of data, COG recommends using it and requests that it 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 8 Baseline Employment (Thousands), 2016

County	QCEW	CES Adjustment Factor	Self-Employment Adjustment Factor	Military Employment	Baseline Employment
District of Columbia	756.35	1.034	1.04	9.102	822.451
Arlington County	172.806	1.069	1.04	10.503	202.622
Alexandria City	94.843	1.069	1.05	0.032	106.489
Montgomery County	463.836	1.054	1.07	5.013	528.118
Prince George's County	312.048	1.051	1.05	4.403	348.764
Fairfax County	595.256	1.069	1.05	4.126	672.271
Fairfax City	19.215	1.069	1.05	0	21.568
Falls Church City	11.596	1.069	1.05	0	13.016
Loudoun County	159.761	1.069	1.06	0	181.032
Prince William County	126.296	1.069	1.04	7.465	147.876
Manassas City	22.62	1.069	1.04	0	25.148
Manassas Park City	3.279	1.069	1.04	0	3.645
Charles County	42.937	1.051	1.05	0.737	48.120
Frederick County	99.48	1.054	1.06	0.958	112.101
Region	2880.323	1.056	1.05	42.339	3,233.219

Table 9 Change from Prior Baseline Estimates for Region (Thousands)

	2010	2011	2012	2013	2014	2015	2016
Previous Baseline Estimates (2015)	2,985.248	3,026.459	3,065.413	3,091.672	3,106.500	N/A	N/A
Latest Baseline Estimates (2017)	2,998.463	3,031.153	3,070.237	3,097.602	3,110.545	3,180.787	3,233.219
Difference (2017-2015)	13.22	4.69	4.82	5.93	4.05	N/A	N/A
Percent Difference	0.4%	0.2%	0.2%	0.2%	0.1%	N/A	N/A

Table 10 Difference between Latest Baseline Estimates and Cooperative Forecast Round 9.0, Thousands

	2015	2020
Cooperative Forecast Round 9.0	3,151.7	3,343.0
Latest Baseline Estimates (2017)	3180.8	3,374.2 ¹
Difference (Latest Baseline - Cooperative Forecast R9)	29.10	31.20
Percent Difference (Latest Baseline/Cooperative Forecast R9 - 1)	1%	1%

¹2020 Baseline projected by applying 2010-2015 Growth Rate Applied to 2015 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 in the transmittal letter for their cooperative forecast.

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>

<http://www.acq.osd.mil/ie/download/bsr/CompletedBSR2015-Final.pdf>

ATTACHMENTS

Appendix A. Employment Not Covered by QCEW

Appendix B. Spreadsheet – Military Employment

Appendix C. Spreadsheet – Baseline Employment

Appendix A

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)