2020

SDMAC
SAN DIEGO MILITARY ADVISORY COUNCIL

SAN DIEGO MILITARY ECONOMIC IMPACT REPORT

SUPPLEMENT

UC San Diego
RADY SCHOOL OF MANAGEMENT

2020 MEIR PURPOSE & PHILOSOPHY

The Military Economic Impact Report (2020 MEIR) is based on extensive research into the effect of the military presence in San Diego County. The report serves as a condensed, easy to understand document covering a vast amount of information. The report is intended as a guide to decision-makers in the county and beyond. It is truthful and transparent reporting of the available information.

The research team acknowledges the considerable challenge of tracking and producing good numbers. Presenting actionable information required an amount of conservative inference, prediction, and conjecture. The team found it critical, therefore, to include a Supplement to the 2020 MEIR, detailing it with academic sourcing and a full explanation of analyses and calculations.

The report leveraged previous publications by taking a fresh look at ways to better inform the main users of the report. The team endeavored to distill the information, while maintaining as much insight as possible, to create a user-friendly document. The Supplement was written and reviewed by the same team as the 2020 MEIR to provide transparency without overburdening the presentation of the report. The 2020 MEIR is the first report produced by the Rady School of Management at UC San Diego and future teams will continue to collaborate closely with SDMAC to refine the approach established here.

DATA SOURCE & USE

San Diego Military Advisory Council (SDMAC) provided most of the report's data, reaching out to the leadership of the San Diego area military branches. Data was gathered in March of 2020, halfway through the fiscal year (FY), which means numbers reported for FY2020 are estimates. The report data for FY2019 is based on September 2019 data.

The United States Navy (USN) contact provided significant overall counts using the Defense Manpower Data Center (DMDC) because its goal is to "collate personnel, manpower, training, financial, and other databases for the Department of Defense (DoD)." DMDC supplied as much information as it could gather, and the Navy contact worked with the naval installations to validate their counts in the DMDC. Other military branch counts were not validated by the DMDC, and the numbers used in the 2020 MEIR were provided by the service branch itself.

The US Government documents payroll in a separate system from individual counts. In general, payroll distribution is documented by an individual's mailing address while the individual count is documented by the military's Unit Identification Code (UIC). Due to these separate systems, there are inherent discrepancies. Where discrepancies appeared from multiple sources, the team used numbers provided by the individual service branches, which tended to be conservative.

At times during the analysis, estimations were required to predict fully representative numbers. Estimates were used to either endure consistency between years or to account for the remainder of the fiscal year. Whenever using estimations, the team used conservative numbers with the intent of avoiding unjustified deltas between fiscal years.

The numbers for direct spending do not include funding from grants because the research team had difficulty finding this information. Future teams will place renewed effort in procuring this information.

USASPENDING.GOV

Government contract values were derived from usaspending.gov using the variety of values provided in the downloaded data set. For a complete explanation of the variables in the data, see https://www.usaspending.gov/download_center/data_dictionary. Based on the team's understanding of how defense contracts are awarded and operate, the research team used the "Potential Total Value of Award" to determine a contract's monetary value. To determine the FY2020 value, the team assumed a linear distribution of funds over the entire contract period of performance (PoP). The daily value was then multiplied by the number of days that the PoP overlapped with the current fiscal year to create the total value attributed to that contract for FY2020.

MULTIPLIER EFFECT

In December of 2019, a first of its kind paper was published reviewing the effects of military funding at a local level (Auerbach, Alan J., Yuriy Gorodnichenko, and Daniel Murphy. Local Fiscal Multipliers and Fiscal Spillovers in the USA. IMF Economic Review (2020) 68:195-229 ("Auerbach paper")). Previous studies of fiscal multipliers were based solely on the state and national levels. The Auerbach paper evaluated the local impact (defined as the core-based statistical area (CBSA)) and spillover effects. The paper provided the SDMAC 2020 MEIR team a means to capture the local effects of San Diego County.

Table 3 of the Auerbach paper provides the results for the gross-regional-product (GRP) multiplier. The paper provided two approaches to calculating the multiplier. After consultation with an economics expert on fiscal multipliers at UC San Diego, the research team decided to use the Instrumental Variable (IV) estimate. Table 1, below, depicts the portion of the Auerbach's Table 3 that is relevant for 2020 MEIR purposes. Additionally, the expert confirmed it reasonable to consider a range of the average (μ) ± 1 standard deviation (σ) since the high standard deviation relative to the average indicates significant variability in the source data. While the 2-year multiplier includes more effects due to a longer time horizon, the 1 and 2-year values for average plus 1 standard deviation are the same; thus creating a difference without a distinction.

The research team went with the average plus one standard deviation ($\mu + \sigma$). The resultant GDP coefficient was 1.56, closely aligning with estimates cited in the Auerbach paper "which are typically close to 1.5." Additionally, the Auerbach paper states that "cities at the upper end of the size distribution have much larger multipliers than other cities." As a city with a population in the top ten nationally, the San Diego multiplier is expected to be higher than average. The 1.56 number is also within the larger state impact value of 1.63 reported in the paper. While the study focused on contractor spending, further consultation supported the application of a 1.56 multiplier across all areas considered in direct spending.

Table 1.
GDP Multiplier (sample of Table 3 from Auerbach paper)

GDP COEF	AVERAGE	STANDARD DEVIATION	AVERAGE + 1 SD
Impact Multiplier (1 year)	1.054	0.508	1.562
2-year multiplier	1.116	0.450	1.566

In addition to the fiscal multiplier, the Auerbach paper found that "$100,000 in Department of Defense contracts generates 0.84 (s.e. 0.24) year-jobs." In alignment with the approach to the fiscal multiplier, the 2020 MEIR calculated the jobs created as 1.06 for every $100,000 in contracts and procurements. As stated in the Auerbach paper, "this magnitude is in line with Chodorow-Reich (2019) reporting a range from 0.76 to 3.80 year-jobs." This calculation results in "indirect" jobs indicated in the 2020 MEIR, Exhibit 5. The calculations in Exhibit 5 did not include employee compensation, retirement, or VA benefits because those funds are provided directly to individuals.

While the exact multiplier value used in previous reports is unknown, it is significantly higher than what is used in the 2020 MEIR. The 2019 SDMAC military economic impact study stated that $28.1 billion in directed spending contributed $51 billion to San Diego GRP, an estimated 1.8 times multiplier. There are two potential explanations for the higher multiplier. The first is that at the time of the 2019 publication, the only available studies for fiscal multipliers were at the state or national level. As discussed in the Auerbach paper, the state and national levels have significantly higher multipliers due to the capture of the spillover effect. Previous reports likely applied the state-level multiplier to the San Diego region, given that was the only available information. Secondly, the leading study before the Auerbach paper, published by Chodorow-Reich, reviewed the effects of the 2009 American Recovery and Reinvestment Act (ARRA) effects. ARRA funds occurred during a global recession, so there was a natural growth of value as the economy recovered, independent of funds provided. As a result, the Auerbach paper states the multiplier calculated by the review of ARRA was higher than what may be expected during a normal economy. For similar reasons, the multiplier for 2020 may also be larger due to the COVID-19 pandemic.

SAN DIEGO GRP ESTIMATE & EMPLOYMENT NUMBERS

The team's goal was to use a robust method to predict the San Diego GRP that supports a conservative estimate of the proportional military spending. In this context of adopting a conservative approach, the team over predicted the San Diego GRP, thus lowering the percentage of military contributed spending. The team determined the best calculations came from using a verified prediction of California GDP, assuming a certain proportion for San Diego. US GDP is more frequently updated; therefore, more reflective of the current economic climate however CA GDP better matches San Diego's volatility. Additional methods considered and discarded included rolling averages, regression analysis, and growth correlations, but they were found to be less predictive of actual historical values.

According to the U.S. Department of Commerce Bureau of Economic Analysis (BEA) historical data, the San Diego GRP/CA GDP ratio dropped steadily over the last decade: from 10% in the early 2000s to 7.32% in 2018. Therefore, the team took a conservative approach, using the last available ratio to multiply by the estimated CA GDP. Similarly, the San Diego/US GDP dropped steadily to 1.07% in 2018. Thus, the team also used the last available ratio in its calculations.

To capture the recent impacts of the economic climate caused by the COVID-19 pandemic the 2020 MEIR estimated the SD GRP as a proportion of the US GDP. Calculations for the 2020 SD GRP used the BEA's 2nd quarter estimate US GDP: https://www.bea.gov/news/2020/gross-domestic-product-2nd-quarter-2020-advance-estimate-and-annual-update. The COVID-19 pandemic was expected to negatively impact SD GRP, however, the US Government Spending source did not have an estimate that took that into account for CA GDP. Considering this, the US GDP from the BEA's estimate was used to capture the impacts of the economic climate surrounding the COVID-19 pandemic. Under normal circumstances, the CA GDP should be used to derive San Diego's GRP, but with no updated CA projections, the US GDP was used for 2020. The CA GDP is available at US Government Spending (https://www.usgovernmentspending.com/compare_state_spending_2019bZ0A).

Military employment represents 23% of jobs in San Diego County. The percentage was calculated using military and civilian employment data. Military employment numbers include active duty members across the Navy, Marine Corps, and Coast Guard services. Civilian employment numbers came from data reported in May 2020 by the US Bureau of Labor Statistics (https://www.bls.gov/regions/west/ca_sandiego_msa.htm).

A sensitivity analysis was performed which demonstrated the military impact percentage varied from 20% at lowest (assuming 2% growth in GDP) to 25% (assuming Q2 projection of US GDP is accurate), with the latter value used for this report. The increased percentage should be understood not to be the result of expanding military spending, but because military spending is stable while the local economy shrinks.

U.S. NAVY

Navy data was provided by the Navy Region Southwest (NRSW) office. Throughout the report, and specifically in 2020 MEIR Exhibit 7, a ship homeported in San Diego was considered part of the count, regardless of deployment status. The ship count distribution for all ships in San Diego for FY19 - FY21 was provided by NRSW directly.

The spotlight on aircraft carriers was selected because 2020 is the first time in a decade that San Diego is home to three aircraft carriers. As discussed in the report, each ship is its own city, bringing over 3,000 sailors and their families to San Diego County. The United States Government Accountability Office “Navy Force Structure” report to Congressional Committees from March 2017 provided raw data of the Nimitz class aircraft carrier cost and personnel count. The operating costs are shown for maintenance, personnel, and “other”. The values reported in the 2020 MEIR are estimates based on the Optimal Manning Period. The multiplier effect was applied to all costs to calculate the full impact on the San Diego regional economy.

The spotlight on Coastal Campus was selected because of the significant impact of military dollars being spent in the San Diego region. The majority of the facility construction is scheduled for completion in FY2020. Significant information beyond the scope of the report is available on the Navy Region Southwest website. The multiplier effect was applied to spending on the project to consider the full impact on the San Diego regional economy.

U.S. MARINE CORPS

The Marine Corps data was enriched with information from an interview with Colonel Charles B. Dockery, Commanding Officer of MCAS Miramar. The interview focused on the impact of the F-35 and the capital spending required to support the new aircraft, adding context to the numbers provided by Colonel Dockery and his staff. The spotlight on the F-35 was selected because of the FY2020 arrival of this new aircraft.

U.S. COAST GUARD

2020 MEIR estimates of employee and retiree compensation, Government Purchase Cards, and procurement were provided by the San Diego Coast Guard. Additional numbers for grants and loans were provided but omitted from the study due to their relative immateriality (on the order of $10,000 or less). The Coast Guard contact provided compensation numbers for 2019 and the number of reserves members for both 2019 and 2020. Compensation numbers for 2020 were unavailable. For this report, 2020 spending on Coast Guard was estimated at the same annual rate as 2019, scaled to the 2020 reserve count. The Coast Guard also provided the numbers for the average day count in the US Coast Guard. San Diego specific numbers were requested from Coast Guard contacts, but personnel changes interrupted their ability to deliver data.

Cocaine seizure was selected as the spotlight because the San Diego Coast Guard devotes a larger proportion of its resources to drug interception than the Coast Guard in other locations. Insight into USCG's value to San Diego and in-depth information on drug interception activities were provided through an interview with LCDR Jerod Hitzel.

NAVY MEDICINE

Navy Medicine provided a spreadsheet of cost allocations, represented in 2020 MEIR Exhibit 11. Employee Compensation was taken as the sum of officers, enlisted members, and civilian employees across all the Navy Medicine facilities.

Total employee compensation of Navy Medicine in San Diego was the sum of NMCSD, NHCP, NHRC, and NMW spending. 2020 estimates for NMW spending were not provided and were assumed to be equal to the provided 2019 value. 2020 employee compensation for officers, enlisted members, and civilians were fully provided for NMCSD and NHRC, while only civilian spending was provided for NMCSD. NMCSD enlisted and officer compensation was estimated by calculating the average pay per enlisted/officer at NHCP and scaling to the number of enlisted and officers at NMCSD.

RDML Tim Weber provided insight into Navy Medicine's value to San Diego.

The USNS Mercy was chosen as the spotlight because of its relevance to the COVID-19 pandemic.

VETERANS AFFAIRS & RETIREMENT

Active and former active duty members of the military may be considered a veteran and/or retiree. A veteran is someone who has served in the armed forces, regardless of the duration of service, and may be eligible for a variety of benefits. A retiree is someone who has retired from active duty, either after a determined number of years or medical retirement. A retiree is a veteran, but not all veterans are retirees. San Diego has an estimated 297,000 veterans, of which there are an estimated 44,000 retirees.

Veteran benefits are funded and delivered through the U.S. Department of Veteran Affairs (VA).

An extensive list of available veteran benefits is best described on the VA website (http://www.benefits.va.gov/). The VA benefits referenced in the 2020 MEIR were provided by the San Diego Veterans Affairs Regional Office (VARO) and include all relevant benefits received by San Diego County residents. Retirement funds are provided through the DoD and individual military branches, independent of the VA. Retirement compensation included in the 2020 MEIR was provided by individual service branches.

The Veterans Affairs organization in San Diego is divided into three areas: regional office, medical system, and cemetery. The regional office is responsible for administering benefits to veterans in San Diego, Riverside, Imperial, and Orange Counties, excluding assistance with medical, loans, and educational needs. The VA San Diego Healthcare System is an organization that is responsible for the facilities and personnel to support inpatient and outpatient care. While a smaller presence here in San Diego, the VA National Cemetery Administration (NCA) manages and operates its facilities. Employment and spending of the VA NCA were not provided and is not included in the report.

Blue Star Families is a prominent organization in San Diego dedicated to strengthening America's military families through community building. The report team worked with the organization to document the impact of the GI-bill for a particular individual to demonstrate the bill's personal and economic value.

Educational benefits provided by the VA are a key resource for many veterans. Benefits provide training and schooling options, including the Post 9/11 GI-bill. Further background information for VA education benefits and the GI-bill can be found on the VA website (https://www.benefits.va.gov/gibill/). GI-bill funds are sourced in the U.S. Department of Veteran Affairs but do not directly flow through the VARO for distribution.

CONCLUSION

The Rady School of Management research team, in close partnership with SDMAC and military partners, endeavored to produce an unbiased and transparent report that highlighted the impactful aspects the military has on the San Diego economy and the people in it. The supplement is intended to capture the detailed analysis performed for the 2020 MEIR and inspire others to do the same in their community. Readers should justifiably understand how vital and connected military spending is for the San Diego economy. The team sincerely thanks all individuals who spoke with us, provided guidance, and helped gather relevant data.

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