

**Appendix to**  
**The Quality of China's GDP Statistics**

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**Appendix B:**  
**Military Value-added**

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## Appendix B: Military Value-added

This appendix is motivated by the question to what extent China's GDP includes military value-added (and aggregate expenditures include military expenditures).

*I am grateful to Beibei Bao who brought to my attention recent changes to (or recently published details for) the calculation of military value-added (National Income Accounts Division, 2010) as well as the intricacies of the 2011 sectoral classification system (NBS 2011) regarding the military.*

Thus, in the calculation of value-added, the military appears covered in two respects:

- The tertiary sector sub-sector “Public Administration and Social Organizations” includes the Armed Forces (*wuzhuang liliang*). (Enterprises run by the Armed Forces are also included here.) (National Income Accounts Division, 2010, p. 126)
- Various military-related industrial sectors are included as sub-sectors of different manufacturing sectors. Thus, the “manufacture of firearms and ammunition” is included in sector 3399 “Manufacture of Other Unspecified Metal Products,” a sub-sector of sector 339 “Manufacture of Other Metal Products,” which in turn is a sub-sector of 33 “Manufacture of Metal Products.” Similarly, sector 3731 “Metal shipbuilding” includes such ships produced by the military, sector 3741 “Manufacture of airplanes” includes airplanes produced for national defense, and sector 2671 “Manufacture of explosives and pyrotechnics” includes such manufacture for military use. (Bebei Bao pointed out to me sectors 3399, 373, and 267, after which the NBS approach became apparent.)

For earlier years, it would appear likely that the Armed Forces have always been included in “Public Administration and Social Organizations,” even when that was not made explicit. Searching the 2002 (rather than 2011) sectoral classification system (NBS, 2008), the corresponding sectors to those listed above are 3663, 3751, 3761, and 2664 (with sector titles not all identical but very similar).<sup>1</sup>

There is also the possibility that innovations in the calculation of military value-added for the purpose of compiling GDP values occurred more recently only. National Income Accounts Division (2010, p. 2) states explicitly that in 2009, following the second economic census, the calculation of nominal value-added of, among others, the Armed Forces, was improved. The “Public Administration and Social Organizations” section of this volume (National Income Accounts Division, 2010, p. 126) makes explicit that “activities of enterprises of the Armed Forces and the Armed Police are also included in this sector.”

In the expenditure approach, government consumption includes “recurrent expenditures for national defense” (National Income Accounts Division, 2010, p. 163). In a list of definitions (pp. 163f., in the section on government consumption) a further item related to national defense appears in form of “national defense service expenditures = personnel expenses.” No mentioning of national defense (or the Armed Forces) is made in the section on gross capital formation, which would imply that all national defense expenses are regarded as government consumption, and the definition of national defense service expenditures may then hint at two categories of national defense recurrent expenditures, one covering services, and one covering all else.

Otherwise, gross capital formation by the military could be implicitly subsumed in the buildings, equipment etc. categories of gross capital formation.

*A revised version of my earlier write-up on military value-added follows, retaining what may still be relevant (in light of the above practices).*

According to the 1997 NBS explanations on how it calculates *aggregate expenditures*, “recurrent” (*jiingchangxing*) national defense expenditures (*guofang zhichufei*) are included in government consumption (NBS, 1997, pp. 154ff.); these national defense expenditures explicitly *exclude* military expenditures that can be converted to civil use projects, such as construction of barracks, military harbors, and military airports. No explanations are provided regarding other national defense investment expenditures (such as for weapons).

In the United Nations System of National Accounts (SNA) 1993, “offensive weaponry and their means of delivery” are excluded from capital formation and regarded as “defence services” (i.e., government consumption) at the point of their acquisition. The NBS, however, only considers “recurrent” national defense expenditures, which would seem to exclude “offensive weaponry,” in government consumption.<sup>2</sup> In the 2008 revision to the SNA, all military expenditures that meet the criteria for capital formation are treated as such—the U.S. currently follows this procedure: in 2012, national defense consumption expenditures accounted for 4.0% of GDP, and national defense gross investment for 1.0 percent.<sup>3</sup>

One attempt at estimating military value-added is the following. In the production approach, military VA could be approximated by the VA of military personnel as ‘government personnel,’ plus the VA created in the production of weapons. The *Population Census 2010* reports exactly 2,300,000 military personnel (that are not counted as part of the census summary statistics). If these 2.3m military personnel produced as much VA per person as the employees of the sector “public management, social security, and social organizations,” then China’s 2010 military service value-added would be 191b yuan, equivalent to approximately 0.475 percent of GDP.<sup>4</sup>

Some provincial statistical yearbooks through 2003 in their industry statistics included an industrial sector “weapons and ammunition.” In 1998, data were available for eight provinces, with VA of this sector accounting for 0.01 to 0.22 percent of provincial industrial VA.<sup>5</sup> Of these eight provinces, perhaps only one, Shaanxi, is an apparent candidate for defense industries, and the provincial data may not include national defense firms under central control located in Shaanxi. Combining the military employment considerations (previous paragraph) with the limited military industry data suggests that the military value-added that can be directly identified accounts for approximately one percent of China’s GDP

Estimating military value-added following the expenditure approach, China’s national budget of 2010 shows national defense expenditures of 533.337b yuan, which is equivalent to 1.3 percent of aggregate expenditures.<sup>6</sup> No data on off-budget military expenditures are available. The Stockholm International Peace Research Institute adjusts the official defense expenditure data to arrive at 2010 military expenditures of 836b yuan, or 2.1 percent of GDP. This does not necessarily imply that China’s GDP is underestimated (by underreporting military expenditures), as some military expenditures may be subsumed under other expenditure categories.

Overall, China's GDP data appear to capture at least some of China's military value-added (or expenditures). To the extent that military value-added and expenditures are included under non-military headings, China's GDP data could capture all military value-added and expenditures.

### References only used in this appendix (and not in the paper)

- NBS (National Bureau of Statistics). *Guomin jingji hangye fenlei zhushi* ([2002] National sectoral classification scheme). Beijing: Zhongguo tongji chubanshe, 2008.
- National Income Accounts Division (of the NBS). *Zhongguo fei jingji pucha niandu guonei shengchan zongzhi hesuan fangfa* (Calculation method of China's annual gross domestic product in years other than census years). No publisher, no location, 7 May 2010. Purchased online, in electronic form, at <http://www.docin.com/p-91284573.html>, on 9 June 2014.

### Notes

<sup>1</sup> Searching the term “military use” (*junyong*) across the 2002 sectoral classification system also yields sectors 2641 (coating manufacturing), 4141 (optical instrument manufacturing), and 4153 (cameras and equipment manufacturing). In the 2011 sectoral classification, it yields sector 4041 (optical instrument manufacturing).

<sup>2</sup> Gross fixed capital formation is split into gross fixed capital formation by state-owned, collective-owned, and private units, with no mentioning of the military. For the System of National Accounts, see the Wikipedia entry on “gross fixed capital formation” ([http://en.wikipedia.org/wiki/Gross\\_fixed\\_capital\\_formation](http://en.wikipedia.org/wiki/Gross_fixed_capital_formation)), accessed 23 October 2013.

<sup>3</sup> See the September 26, 2013 release of GDP data for the second quarter of 2013, accessed at <http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm> on 23 October 2013.

<sup>4</sup> VA per laborer in the sector “public management, social security, and social organizations” is obtained by dividing 2010 VA of 1,621.03b yuan in this sector reported in the *Statistical Yearbook 2012* (p. 54) by an estimated number of laborers in this sector of 19,531,687. The estimated number of laborers is obtained by multiplying total employment (of 761.05m, reported in the *Statistical Yearbook 2012*, p. 125) by a ratio. The ratio is obtained from the *Population Census 2010* (Vol. 2, pp. 822, 888)—which collected employment data in the long-form questionnaires given to only a subset of the total population—as laborers in this sector divided by all laborers. The 2010 GDP value is 40,151.28b yuan (*Statistical Yearbook 2012*, p. 54).

<sup>5</sup> The data for the eight provinces are: Liaoning 0.09 percent, Heilongjiang 0.19 percent, Fujian 0.02 percent, Shandong 0.01 percent, Henan 0.08 percent, Guizhou 0.02 percent, Yunnan 0.12 percent, and Shaanxi 0.22 percent.

<sup>6</sup> See *Statistical Yearbook 2011*, p. 280. The separate item “public security expenditures” comes to 551.770b yuan.