

The Correlates of Defense Burden Sharing in the European Union (1980-2023): Evidence across Alternative Measures

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Abstract — This paper examines the correlates of defense burden sharing among European Union member states over the period 1980–2023. Using a panel of 28 EU countries, we combine machine-learning–based variable screening with fixed-effects panel estimation to identify systematic drivers of defense effort. A key contribution is the explicit distinction between two complementary sets of indicators: *between-ally* measures, capturing each state’s share of total EU military spending, and *within-ally* measures, reflecting the domestic weight of defense on national accounts. This dual framework allows us to disentangle relative burden contributions from domestic resource allocation dynamics.

We introduce four underexplored correlates – nuclear latency, constitutional complexity, colonial legacy, and arms technology level – alongside standard economic and strategic controls. Nuclear latency emerges as the most robust and consistent finding across both indicator families: states possessing the technical endowments to develop nuclear weapons systematically allocate less to conventional defense, consistent with a substitution effect between nuclear potential and conventional expenditure. The two indicator families diverge in what they reveal about institutional and structural determinants. Between-ally indicators show

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that stronger constitutional structures are negatively associated with relative burden contributions, as higher legislative transaction costs constrain defense budget expansion, while arms technology and GDP are positively associated, reflecting procurement costs and fiscal capacity. Within-ally indicators instead capture domestic reallocation dynamics: larger populations are associated with a shift of public expenditure toward social needs, while greater distance from the colonial past is linked to a declining national prioritization of defense.

Results are robust across multiple specification checks; excluding leading states sharpens estimates, suggesting that structural commitments of dominant members may partially obscure baseline relationships. Replication on the NATO sample yields consistent findings, supporting external validity and suggesting that the EU already functions as a defense alliance structurally comparable to NATO – despite the absence of a formal defense mandate.

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