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BEFORE NBER: WARREN NUTTER'S SOVIET RESEARCH AT THE CIA

BY
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Warren Nutter's work as director of the National Bureau of Economic Research's (NBER) Soviet growth project is his best-known contribution to economics and public affairs. Many histories of Sovietology note the oddity of Nutter's selection as project director, given his apparent lack of prior experience studying the Soviet Union. This paper provides new context for Nutter's selection to lead the NBER effort. From 1951 to 1952 Nutter was the acting chief of the Economic Capabilities Branch of the CIA's Office of Research and Reports (ORR), and chairman of the Economic Analysis Subcommittee of the interagency Economic Intelligence Committee. In this capacity he managed at least three major research efforts, including an input-output analysis of the Soviet Union and contributions to two national intelligence estimates. Nutter may have been proposed as director of the NBER project by Robert Amory, the Deputy Director of Intelligence, in 1953. Nutter's research for the CIA cultivated new analytic capacities for the agency and provided a foundation for his own work on the Soviet Union.

I. INTRODUCTION

The University of Virginia economist Warren Nutter made significant contributions to the study of the Soviet economy as director of the National Bureau of Economic Research's (NBER) 1954 to 1962 project on Soviet growth. During and after the NBER project, Nutter's work was instrumental in shifting expert and public opinion towards the view that Soviet economic growth was weaker than many Western Sovietologists had estimated and feared (Nutter 1957a, 1957b, 1958, 1959, 1962, 1966). The dramatic clash of intellectual personalities over estimates of Soviet growth has received ample attention

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(Kestner 1999; Harrison 2000; Engerman 2009; Jefferies 2015; Kontorovich 2019), and Nutter's role has been of particular interest to historians of economics (Levy and Peart 2015, 2016, 2020; Kuehn 2021, 2023). Despite the large amount of literature on Nutter's research with the NBER, there is currently no account of his work at the CIA in 1951 and 1952, which followed soon after his graduation from the University of Chicago in 1949 and appointment at Yale in 1950. This is a major gap in the literature because Nutter's research at the CIA was a vital building block for the agency's Soviet research program and a precursor to his own work with the NBER.

Nutter's employment with the CIA has been a matter of public record for decades, but the substance of his work there has been shrouded in secrecy. Many of the CIA documents relevant to Nutter's work were declassified only in the early 2000s.[1] These documents show that between the summer of 1951 and the waning months of 1952, Nutter was swiftly promoted from being a special assistant to Max Millikan, the director of the Office of Research and Reports (ORR), to acting chief of the Economic Capabilities Branch of ORR. During this period ORR "devoted most of its attention" to intelligence on the economic capabilities of the Soviet Union,[2] so Nutter's projects were among the highest priorities of ORR, and thus the highest basic research priorities of the CIA. During his time at the CIA, Nutter also chaired the interagency Economic Intelligence Committee's (EIC) subcommittee on Economic Analysis. The subcommittee was charged with conducting the intelligence community's most sophisticated economic analyses, none of which were more important than assessing the Soviets' capacity to mobilize for and wage a general war.

Warren Nutter's work on the economics of a general war occurred at a time when the role of economists in defense policy was changing. Joy Rhode (2020) argues that in the early years of the Cold War, social scientists transitioned from understanding war as a classic "social problem" that must be eliminated to understanding war as a social institution that could be harnessed. This view that social science could actively contribute to defense policy was not entirely original to the early Cold War. In the first half of the twentieth century, economists provided scientific expertise to help the US government effectively wage war. During the first and second world wars, they analyzed the economic capacity to mobilize for total war (Moulton 1918; Lacey 2011), strategic decision making (Rostow 1981; *United States Strategic Bombing Survey* [1945] 1987), and war finance (Fisher 1918; Keynes 1940). Warren Nutter's CIA research grew out of this older body of work, and particularly the economics of capacity and mobilization.

A critical turning point for social scientists' orientation towards war was the development of intercontinental ballistic missiles (ICBMs) with nuclear payloads in the late 1950s.

[1] Often, Nutter's name appears directly in declassified CIA records. However, in many documents Nutter's name is redacted, but his abbreviated title, A/EC/RR (Acting Chief, Economic Capabilities Branch, Office of Research and Reports), is not redacted. A/EC/RR can be confirmed as Nutter's abbreviated title using the document "Atomic Energy Contribution to the Study on the Economic Capabilities of the Soviet Bloc to Support a General War," February 13, 1952, CIA-RDP75-00662R000100190045-5. In this document, Nutter's name is redacted but "A/EC/RR" and his office address (Room 2225 M Building) are not redacted. This documentary link between A/EC/RR and Nutter's office provides the link between the abbreviated title and Nutter himself. I will assume all documents addressed from "A/EC/RR" during Nutter's tenure are referring to Nutter.

[2] Armory to [Sanitized], "Division of Responsibility Between ORR and OIR," March 24, 1952, CIA-RDP75-00662R000100050067-6.

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After the emergence of ICBMs, mobilization of an economy for total war was eclipsed by the application of rational choice theories to nuclear strategies that would "tame the terrors of decisions too consequential to be left to human reason alone" (Erickson et al. 2013, p. 2). Policy makers were less interested in knowing about the Soviets' economic potential for full mobilization, which Nutter was studying for the CIA, and more interested in formulating a strategic response to nuclear conflict. This all came towards the end of the decade, though. In the early 1950s war on the Korean Peninsula was conventional, even though it was fought in the shadow of the atomic bomb. It was in this context of conventional total war that Nutter worked for the CIA and launched the NBER project.

This paper begins *in media res*, at the link between Nutter's work with the CIA in 1951 and 1952 and his selection to direct the NBER Soviet growth project. Nutter's leadership of the NBER project is celebrated by economists as a major step forward in the study of the Soviet economy, but his apparent lack of qualifications for the job has been a lingering puzzle in the historical literature on Sovietology, which assumes he was tapped for his ideological reliability. I argue that Nutter was scientifically well prepared to lead the NBER project. Nutter's research on the Soviet Union before NBER was more extensive than has been generally appreciated, and his former supervisor at the CIA spoke with the Rockefeller Foundation about the NBER project in 1953. Ideology and economics are often linked, and Nutter had unusually strong ideological commitments, but this paper suggests that appeals to ideology as driving economics are often weak historical explanations.

After establishing the CIA as a key stepping stone in Nutter's career, I provide the first account of Nutter's work at the CIA, including his hiring in 1951, the role of economic research in the agency, and the projects that Nutter managed. Nutter worked on at least three CIA research efforts. The first, Project 110-51, was a large input-output study of the Soviet economy conducted to better understand the Soviets' capability to wage a general war. Referred to as the "Capabilities Study" by analysts, Project 110-51 only ever resulted in a working paper, but it served as a template for future CIA attempts to build a complete input-output model of the Soviet economy. In addition to the Capabilities Study, Nutter managed ORR's contributions to two National Intelligence Estimates (NIEs): NIE-59 on the effects of severing East-West trade, and NIE-65 on Soviet economic capabilities through 1957.

The paper concludes with a reassessment of how the CIA influenced and interacted with Nutter and the NBER project. I show that Nutter was in close contact with the CIA throughout the NBER project and that he was better informed about the intelligence underlying Director of Central Intelligence (DCI) Allen Dulles's statements on Soviet growth than he indicated publicly. I further argue that Nutter's CIA work on input-output modeling influenced his later analysis of the difficulties of measuring economic growth under conditions of structural change.

II. THE CIA AS A STEPPING STONE TO THE NBER

Nutter's CIA experience provides crucial context for understanding his selection as director of the NBER project on Soviet growth. Historians of economics do not dwell on the NBER project's origins, with Gordon Brady's (2009) unpublished paper on the Rockefeller Foundation's decision to fund the project being an important exception.

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Historians of Sovietology have been more attentive to the roots of the NBER project and have highlighted the peculiarity of Nutter's selection as project director. David Engerman (2009, p. 118) notes that Nutter's early research on monopoly was unrelated to the Soviet Union, which made him a "far from obvious selection." The more logical explanation for Nutter's selection, Engerman argues, is that his conservative politics appealed to the Eisenhower administration. John Kestner (1999, pp. 231–232) also notes Nutter's lack of Soviet research experience, highlighting the brevity of his work as a consultant on a RAND study "during the summer of 1952," that "lasted only about three months." William Jefferies (2015) is less directly critical of Nutter's preparedness for the NBER work but dismissively claims the project's goal was to produce politically palatable results for the administration. Engerman describes the project in similarly dismissive terms, calling it "the White House's end-run around the CIA," and suggesting that Nutter was guilty of "using the imprimatur of [the] NBER and money from the Rockefeller Foundation to challenge the estimates of CIA experts" (Engerman 2009, p. 121). Although Nutter was unmistakably politically conservative, there is no evidence presented in any of these histories to support the claim that his politics were a factor in his selection to lead the NBER Soviet growth study.

Stronger circumstantial evidence suggests that far from the NBER project being an "end-run around the CIA," Nutter's CIA employment was a critical factor in his selection. In July 1953, the Eisenhower White House, through Robert Cutler, Eisenhower's special assistant, reached out to the Rockefeller Foundation about the embryonic NBER project. Cutler wrote to Dean Rusk, the president of the Rockefeller Foundation, to communicate the White House's awareness of and support for plans to fund a Soviet growth project. Cutler hoped that the project would "minimize doubt as to the reliability of our data and forecasts." He further noted that some people were skeptical of the statistical veracity of earlier work by Sovietologists on Soviet growth. Cutler notably did not press Rusk for any particular result on Soviet growth rates.[3] He concluded his letter by insisting that Rusk meet with Arthur F. Burns (Council of Economic Advisors) and Robert Amory (CIA) for their input.[4]

This is not to say that the Rockefeller Foundation did not have a particular motivation for its grant. Brady (2009) documents the Rockefeller's determination to move Soviet studies beyond the exclusive control of the "Russian experts" who are naively thought by policy makers and the public to "possess a fund of esoteric knowledge of all things Russian." The Rockefeller's decision had more to do with dueling claims to expertise than with promising any particular result. The NBER project was an example of the Rockefeller's efforts at this time to diversify its grant portfolio away from the "area studies" approach to Soviet studies (Engerman 2009; Mueller 2013). When Solomon Fabricant and Leo Wolman (both NBER) spoke with Joseph Willitts (Rockefeller Foundation) about the study in August, they were also "emphatic that they would not be interested in doing such a study, unless it was done on a completely scientific basis,"[5] possibly meant as commentary on the scientific rigor of existing area studies.

[3] Cutler to Rusk, July 3, 1953, CIA-RDP79-01206A000200010001-9.

[4] Cutler to Rusk, July 3, 1953, CIA-RDP79-01206A000200010001-9. Arthur F. Burns had been research director at NBER since 1945 but had recently been appointed chair of Eisenhower's Council of Economic Advisors. Burns would return as president of the NBER in 1957.

[5] "Interviews: JHW, Dr. Solomon Fabricant and Dr. Leo Wolman," August 31, 1953, Page 211, Diary 1953: July–December, Rockefeller Foundation records, officers' diaries, RG 12, S-Z (FA394).

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Historians of Sovietology recount Burns's and Cutler's outreach to the Rockefeller Foundation, but they ignore Robert Amory's involvement. Amory's participation is significant because he directly supervised Nutter's work at ORR for most of 1952. In May 1953, after Nutter left the CIA, Amory was promoted from director of ORR to Deputy Director of Intelligence.[6] Rusk already knew Amory from their time working on the planning committee for Eisenhower's Solarium Project earlier that year.[7] At some point in the summer of 1953, Amory met with Rusk and reported the meeting to Richard Helms (Director of Intelligence) and Allen Dulles.[8] The substance of the Amory-Rusk meeting is not described in Amory's report, except for noting that they discussed the NBER project on Soviet growth. Cutler pointedly suggested to Rusk that he consider Amory's input on the NBER project, so it seems likely that the conversation was crucial for Nutter's appointment since Amory was Nutter's direct supervisor at the CIA. It would be an extraordinary coincidence for Nutter to be selected as director if Amory, his boss at the CIA, made no mention of Nutter as a candidate for the job in his outreach to the Rockefeller Foundation.

At least one individual far from the halls of power in Washington also actively promoted Nutter on the basis of his CIA experience at this time. In March 1954 Milton Friedman recommended Nutter to Theodore Schultz as a candidate to succeed Tjalling Koopmans as director of the Cowles Commission, citing Nutter's "phenomenal administrative success in Wash. At Central Intelligence Agency."[9] Internal CIA documents confirm these positive evaluations of Nutter's work. A 1952 memorandum referred to Nutter's projects as "the basis of a sound foundation for our research generally as well as for a concrete research program which will serve the requirements for foreign economic intelligence."[10] Nutter did not direct the Cowles Commission at Chicago or in its new incarnation as the Cowles Foundation at Yale. Nevertheless, Friedman's reference to his "phenomenal administrative success" at the CIA buttresses the case that Nutter would have come highly recommended from Robert Amory.

III. NUTTER AND ECONOMIC INTELLIGENCE AT THE CIA IN THE EARLY 1950S

Nutter was recruited by the CIA two years after earning his doctorate from the University of Chicago, while he was an assistant professor at Yale. He was responsible for teaching Yale's introductory economics course (Kalman 2014), the same course that William F. Buckley decried as collectivist indoctrination in his 1951 book *God and Man at Yale.*

[6] For biographical details on Amory, see Robert Amory Jr., Undated, CIA-RDP75-00001R000100190094-4.
[7] Solarium was "an exercise in competitive policy determination" (Engerman 2009, p. 115). For Amory's and Rusk's work on the planning committee, see Memorandum for the Record by the Special Assistant to the President for National Security Affairs, 15 May, 1953, Document 63, Foreign Relations of the United States, 1952–1954, National Security Affairs, Volume II, Part 1.
[8] "Deputies Meeting," September 21, 1953, CIA-RDP80B01676R002300130007-8.
[9] See Friedman to Schultz, March 29, 1954, Hoover Institution Archives, *Milton Friedman Papers*, Box 194, Folder "194.6 Economics Department S-Z, 1946–1976." I quote from Irwin Collier's transcription of the letter, http://www.irwincollier.com/chicago-milton-friedman-from-cambridge-to-t-w-schultz-29-mar-1954/. Accessed December 23, 2023.
[10] "ORR Research Program—Summary and Conclusions," August 12, 1952, CIA-RDP75-00662-R000300130007-1.

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The university was a notoriously fertile recruiting ground for intelligence work. Professors, coaches, and even Charles Seymour, the university's president, actively recruited students and faculty for intelligence posts and passed leads on to Washington (Winks 1987). Some Yale men, like Warren Nutter, served only briefly. Others, like Richard Bissell (economics) or Sherman Kent (history), would forge long and extraordinarily consequential careers in the intelligence community.

Nutter's first documented post at the CIA in August 1951 was special assistant to Max Millikan, the first director of the CIA's Office of Research and Reports.[11] ORR produced the basic intelligence research that was then processed by the Office of National Estimates (ONE) into national intelligence estimates, and by the Office of Current Intelligence (OCI) into current intelligence bulletins for President Truman and other policy makers (Hedley 2008). Prior to his stint as director of ORR, Millikan was a professor in the Yale economics department. He left Yale in 1949, barely missing Nutter's arrival, but his continuing connections to the department may have been a factor in Nutter's recruitment to the CIA.[12] Millikan left the CIA early in 1952, when he was hired by MIT to run its Center for International Studies (Engerman 2009). Millikan's ORR faced a daunting task. Compared with the "long history of political and military intelligence," economic intelligence was relatively new, and "in point of view of the Soviet problem, literally thirty-three years of secret economic history must be captured overnight."[13]

At some point in the fall of 1951, Nutter was promoted from Millikan's assistant to acting chief of the Economic Capabilities Branch of ORR.[14] Nutter's leadership of that branch gave him direct authority over the center of the CIA's input-output research agenda.[15] ORR built expertise and contacts in input-output modeling in the early 1950s to support work on the Capabilities Study and other projects. In August 1951 an ORR representative met with Burke Horton of the Air Force to discuss the service's research on "matrix constructions after the Leontief pattern."[16] A week later ORR arranged a similar meeting with Morris Goldman of the Bureau of Labor Statistics (BLS). BLS supported Wassily Leontief's work and was the beating heart of federal input-output research (Kohli 2001a, 2001b). Goldman shared the BLS's research on input-output matrices with ORR and provided further connections to input-output experts in the Bureau of the Budget.[17] In December ORR representatives met with Marvin Hoffenberg, another BLS researcher,[18] who was working with his colleague W. Duane Evans on the 1947 US input-output tables (Evans and Hoffenberg 1952). The day after the

[11] "Economic Intelligence Committee Members," August 14, 1951, CIA-RDP92B01090R000200110002-5.
[12] For an example of Millikan's continued relations with the economics department, see Miller to Millikan, November 2, 1951, CIA-RDP75-00662R000300160026-7; and Millikan to Miller, November 14, 1951, CIA-RDP75-00662R000300160025-8. Millikan's response to Miller even makes a brief joking reference to Buckley's criticism of the Yale economics department as "collectivist."
[13] "CIA Progress Report, October 1950 to December 1951, ORR Suggestion on Section II, Historical Summary," November 5, 1951, CIA-RDP75-00662R000300090004-9.
[14] "Nominations to the EIC Working Group on the JIG Capabilities Project," November 26, 1951, CIA-RDP92B01090R000200120027-7.
[15] "Draft of Office Paper for Task Force I," June 1, 1951, CIA-RDP75-00662R000300010031-7.
[16] "ORR Diary 30 August, 1951," CIA-RDP67-00059A000400280083-6.
[17] "ORR Diary 7 September, 1951," CIA-RDP67-00059A000400280078-2.
[18] "ORR Diary 12 December, 1951," CIA-RDP67-00059A000400280012-4.

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meeting with Hoffenberg, Horton followed up with ORR again to share documents from Project SCOOP, the Air Force's input-output study.[19] It is unclear whether Nutter himself participated in this flurry of meetings because the names of the ORR representatives are redacted.

It is not surprising that the CIA pursued input-output modeling expertise inside the federal government, rather than in academia. Input-output modeling was an exciting new avenue of inquiry, but by the early 1950s Leontief "split from the profession," in the words of Vincent Carret (2022, p. 1) and harbored a "bitterness" over the critical reception of his work. Much of this bitterness came from heated methodological arguments with econometricians at the Cowles Commission (Biddle 2017; Carret 2022). Nutter provides no indication of where he learned input-output methods or even how adept he was personally with those methods. Considering that he did not draw on Leontief for his dissertation on monopoly power and the chilly reception of Leontief at the Cowles Commission, it seems probable that he familiarized himself with input-output modeling on the job, at the CIA.

Max Millikan's leadership of economic intelligence in ORR "propelled its ascent to the status of a major source of intelligence analysis to the US government" (Zelikow 1997, p. 167). But even though the CIA was a rising star in the federal firmament, intelligence was always an interagency effort. Economic intelligence was overseen by the EIC, which was composed of representatives from agencies active in the intelligence community (e.g., the CIA, State Department, and the armed services), and non-intelligence agencies with critical subject matter expertise (e.g., the Department of Labor and Department of Agriculture). The work of the EIC was done by its permanent subcommittees and various ad hoc working groups for particular projects (Figure 1).

By April 1952 Nutter was appointed chairman of the Economic Analysis Subcommittee of the EIC, beating out Herbert Block of the State Department, who had initially been suggested for the job.[20] The Economic Analysis Subcommittee was responsible for applying "fairly advanced analytical tools and techniques of economic theory, including input-output analysis, national income accounting, the construction of index numbers, price and cost theory, and the like."[21] Nutter was still serving as chairman of the subcommittee in October 1952, but he was listed only as a consultant to the CIA, indicating an end to his direct employment. The timing is not surprising: his transition to consultant coincides with a new academic year at Yale.[22] Apparently, in the years after Nutter's return to academia, it was not generally known that he had worked for the CIA. William Stauffer's (1956, p. 61) history of the University of Virginia (UVA) economics department notes only that Nutter was a "Division Chief with the Federal Government."

[19] "ORR Diary 14 December, 1951," CIA-RDP67-00059A000400280010-6.

[20] "The following person has been nominated …", April 15, 1952, CIA-RDP92B01090R000200120031-2. For Block's initial recommendation, see Economic Intelligence Committee Minutes …", February 28, 1952, CIA-RDP82-00283R000100170011-7.

[21] "Economic Intelligence Committee Minutes of Meeting …", December 20, 1951, CIA-RDP82-00283-R000100180001-7.

[22] "Subcommittee on General Economic Analysis of the Economic Intelligence Committee," October 1, 1952, CIA-RDP92B01090R000200120020-4.

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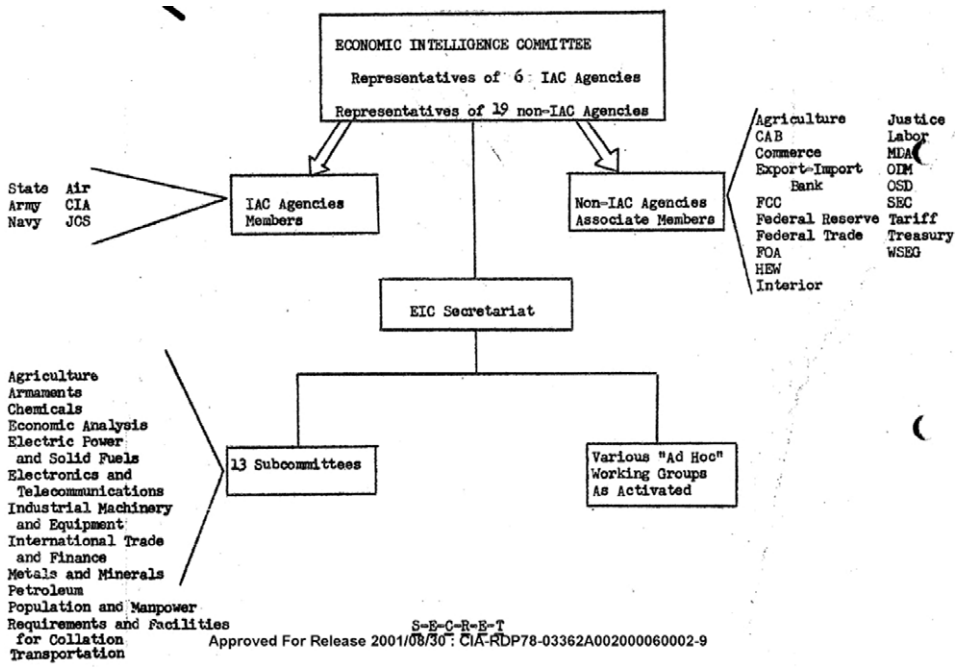


FIGURE 1. Economic Intelligence Committee Organizational Chart, 1954.
Source: The Economic Intelligence Committee, CIA-RDP78-03362A002000060002-9.

IV. THE CAPABILITIES STUDY, NIE-59, AND NIE-65

Nutter served as special assistant to Max Millikan as early as August 1951, and was presumably involved in many of Millikan's institution-building efforts that summer, but his first documented project began in the fall of 1951: an interindustry study of the structure of the Soviet economy, Project 110-51. The purpose of Project 110-51 was to assess the Soviets' economic capability to wage a general war, so it was often referred to as the "Capabilities Study." The Capabilities Study originated with a request from the Joint Intelligence Committee (JIC), which was the intelligence arm of the Joint Chiefs of Staff, and served immediate Cold War intelligence needs concerning "the timing of full mobilization in the Soviet Bloc."[23] Early JIC guidance for Project 110-51 did not request input-output methods but did call for estimates of "peacetime and wartime military production requirements" and "allocations of basic materials and industrial production to the civilian and military economies."[24] This could have come in the form of a materials balances analysis, but input-output analysis was chosen.

The documentary record on the Capabilities Study is clearest during its first three months, thanks to a three-page report from Nutter to Max Millikan recounting the initial

[23] "Report of the Working Group on Techniques and Projects," September 19, 1952, CIA-RDP75-00662-R000200190010-2.
[24] "Memorandum for the Chairman, Intelligence Advisory Committee," October 23, 1951, CIA-RDP82-00400R000200060009-0.

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problems that confronted the study team.[25] According to Nutter the Capabilities Study was already starting to go off the rails before the end of the year. It was meant to be completed within five months, but an entire month passed before the EIC was even officially charged with the project. After receiving the request, the EIC began coordinating with its military counterparts and outlining the study. Problems with the military emerged quickly. Nutter reported that the military treated the initial directives "as the Bible for its part of the study and refused to deviate in any way from the format laid down without 'orders' to do so from the JIG [Joint Intelligence Group]." In mid-November the military refused to accept an edited outline of the study or take responsibility for "drawing up a list of military end-items" for the input-output analysis.[26] Estimates from the various branches of ORR were straightforward to obtain compared with these military contributions because ORR analysts reported to Millikan (and after his departure, to Amory), but Millikan and Amory had no direct control over the military. By late November Nutter reported that the military "had made no progress in its two jobs and had given up on both." Early December saw "the military prepared, and indeed happy, to abandon the whole project."[27]

Ten years to the day after the attack on Pearl Harbor, on "7 December, that memorable date," Nutter met with military representatives in what he described as "an attempt to revive the apparent corpse." One proposal to scale back the Capabilities Study "was beaten down," and the decision was made "to push ahead on the study as newly conceived and make the best of it possible."[28] To regain control of the project, Nutter insisted that any suggested changes flow through his EIC working group "[s]ince all parts of the project are highly interdependent."[29] Nutter further proposed that the first part of the Capabilities Study be published as soon as possible, and that subsequent sections be published as they were finished. Millikan overruled him on this, warning that a partial publication would be interpreted as a final product by the Joint Chiefs and that it was better to wait for a complete study. The timeline for the Capabilities Study was rescoped in January 1952, so that contributions were due to the subcommittee in March. Nutter was put in charge of drafting the report in March and April, and then it would be sent through production.[30] This revised timeline was not met either. The Capabilities Study would not be sent through production until December 1952.

Nutter was not just a project manager on the Capabilities Study; he was also engaged in the finer analytic details of the project. For example, shortly after his December

[25] History of the Study on the Economic Capabilities of the Soviet Bloc to Support a General War, December 19, 1951, CIA-RDP75-00662R000100190036-5. This is one of the most significant pieces of evidence where Nutter's name is redacted, along with Millikan's. The report is addressed from the Acting Chief of the Economic Capabilities branch ("A/EC/RR") to the Assistant Director of Research and Reports ("AD/RR"), that is, from Nutter to Millikan.

[26] Nutter eventually requested the JIG to direct the military to produce their components: The Economic Capabilities of The Soviet Bloc to Support a General War, December 3, 1951, CIA-RDP75-00662-R000100190031-0.

[27] History of the Study on the Economic Capabilities of the Soviet Bloc to Support a General War, December 19, 1951, CIA-RDP75-00662R000100190036-5.

[28] History of the Study on the Economic Capabilities of the Soviet Bloc to Support a General War, December 19, 1951, CIA-RDP75-00662R000100190036-5.

[29] The Economic Capabilities of The Soviet Bloc to Support a General War, December 3, 1951, CIA-RDP75-00662R000100190031-0.

[30] Meeting on Project 110-51, 1400, 29 Jan 1952, January 29, 1952, CIA-RDP75-00662R000100190039-2.

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7 meeting with the military "to revive the apparent corpse," Nutter met with the Ferrous Metals Branch of the EIC Materials Division to discuss whether the Soviet steel industry's outputs would be reported in units of rolled or raw steel. Raw steel was determined to be the most appropriate because steel consumed in industry was made from both blooms and billets, and in some cases ingots of steel, making it easier to convert all inputs into their raw steel equivalents.[31] Although the project record is patchy and often redacted, glimpses of Nutter's day-to-day encounters, like his meeting with the Ferrous Metals Branch, illustrate his close involvement in the work of the ORR economic analysts.

The tempestuous launch of the Capabilities Study in 1951 was followed by a smoother start to Nutter's work on the EIC contribution to NIE-59 in early 1952. The intelligence estimate assessed the impact of severing East-West trade on the strategic position of the Soviet Union. NIE-59 experienced its own delays, but these were not as dramatic as Nutter's experiences with the military on the Capabilities Study in November and December 1951. The Economic Capabilities Branch depended on the Commerce Department for international trade data for NIE-59, and Commerce's data production was delayed. In January 1952 Nutter met with Commerce representatives about the delays[32] and laid out provisional plans to proceed with the analysis in the meantime.[33] Otherwise, NIE-59 went smoothly.

The first report produced as a part of ORR's contribution to NIE-59 was an "analytic framework" for studying "economic warfare as applied to the East-West trade problem."[34] The analytic framework begins by cautioning against investing too many intelligence resources in the study of economic warfare because of the relative impotence of that policy tool.[35] Most of the rest of the framework dwells on the differences between "economic welfare" and "strategic welfare," and all the difficulties of estimating reductions in Soviet strategic welfare achievable by severing trade. In September 1952, guided by the analytic framework, the EIC working group produced its contribution to NIE-59: an Economic Intelligence Report submitted to ONE. The intelligence report estimated that the short-run cost of trade severance would be approximately 1.3% of Soviet GNP, declining to 0.4% of GNP over a four-year adjustment period. With these numbers in hand, the EIC working group concluded that trade severance would not substantially affect the Soviets' capacity to wage war.[36]

[31] Project No. 110-51, 'Economic Capabilities of the Soviet Bloc to Support a General War,' Steel Consumption, December 11, 1951, CIA-RDP75-00662R000100190033-8.
[32] "ORR Diary 18 January, 1952," CIA-RDP67-00059A000400290113-1.
[33] Trade Statistics for NIE-59, January 23, 1952, CIA-RDP75-00662R000200150038-6.
[34] An Analytic Framework for a Study of Economic Warfare as Applied to the East-West Trade Problem, March 18, 1952, CIA-RDP79R01012A001800020009-3.
[35] Mulder's (2022, p, 296) history of sanctions and economic warfare similarly recounts the tension between analytic determinations that economic warfare had low "efficacy" and the political value of the dramatic "effects" of economic warfare.
[36] Economic Intelligence Report: Generalized Assessment of Economic Damage to the Soviet Bloc in the Event of a Complete Severance of East-West Trade, August 31, 1953, CIA-RDP92B01090R000300020016-6. The intelligence report was completed in September 1952 but published as an official Economic Intelligence Report in August 1953, as a reference document submitted with the National Intelligence Estimate.

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In the spring of 1952, Nutter and the Economic Capabilities Branch began work on the ORR contribution to NIE-65, a national intelligence estimate of Soviet war capabilities projected through 1957. The intelligence estimate was multifaceted and incorporated political, scientific, and military estimates in addition to ORR's economic estimates. Nutter and the Economic Capabilities Branch were responsible for constructing industry-level Soviet growth indices from 1927 to the present and forecasting industrial growth through 1957. Branch analysts expanded the input-output matrices of the Capabilities Study to weight the production indices for NIE-65.[37] Since NIE-65 made use of the Capabilities Study's input-output matrices, the delays on the Capabilities Study spilled over into the new work on the intelligence estimate. The due date for NIE-65 had to be pushed "at least thirty days" past the original deadline of September 1952 to accommodate repeated delays in the Capabilities Study. When William Bundy received news of these delays in a memorandum from Nutter, he conceded to Director of National Intelligence Estimates Sherman Kent that "my hunch is that there will be more slippage than that, by a good deal." Kent approved the adjustments but insisted that "we've got to hold the line on the 64 papers," a reference to the high-priority NIE-64 estimate of Soviet capabilities to launch a war in 1953.[38]

By the summer of 1952, the interagency headaches were largely resolved and Nutter committed some time to a parallel Soviet input-output effort at the RAND Corporation led by Norman Kaplan. Kaplan made many important contributions to the study of the Soviet economy during his career, but in 1952—much like Nutter—he was only getting started in the field. Kaplan was a contemporary of Nutter's in the University of Chicago economics department. He was a focused, diligent student who kept copious class notes.[39] Kenneth Arrow remembered him as being overwhelmed by the "verbal violence" of Chicago seminar culture during his years as a student (Arrow 1987, p. 645). Kaplan's interest in the Soviet Union was cultivated at Chicago, where he studied under the Sovietologist Frederick Barghoorn and completed two independent studies on the economics of socialism and on Marxian economics, respectively.[40] He left Chicago with a master's degree in 1948, the same year that Nutter earned his master's degree and a year before Nutter completed his PhD.

Kaplan's input-output table was only a 20 x 20 matrix, which was smaller than the tables Nutter was constructing at the CIA. His work was based on the 1941 Soviet Plan, and therefore over a decade out of date the moment it was printed. The RAND study was conducted over the course of ten weeks in the summer of 1952 with a staff that fluctuated between five and ten people (Kaplan et al. 1952). Kaplan's final memorandum acknowledges Nutter's consultation on the project, along with other leading lights in the areas of Soviet economics (Abram Bergson and Joseph Kershaw) and input-output modeling (Marvin Hoffenberg and Wassily Leontief). The RAND input-output study is often

[37] Allocation of Responsibility within ORR for Contributions to NIE-65, Soviet War Potential, 1952–1957, June 6, 1952, CIA-RDP79-01157A000200100015-9; and Procedure for D/I Analysis in Preparing Production and Input Estimates for NIE-65, undated, CIA-RDP79-01157A000200100017-7.

[38] Status of Economic Capabilities Study and Its Effect on Proposed NIE-65, April 23, 1952, CIA-RDP79-R01012A002200020012-4. Quotes are from addenda or handwritten marginal notes.

[39] See boxes 1 through 4, Norman Maurice Kaplan Papers, University of Chicago.

[40] Barghoorn taught Kaplan's Soviet Social Trends course at Chicago in 1947, but his permanent position was with the Yale Political Science Department.

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considered to be a failure in the historical literature. It "was rarely cited and did not become a significant part of the growing literature on economic Sovietology" (Engerman 2009, p. 108). Nevertheless, ORR did find Kaplan's work useful for their own intelligence estimates. Delays in Nutter's Capabilities Study continued to hamper work on NIE-65 into the autumn, as William Bundy had feared. In October ORR used Kaplan's input-output table to weight the NIE-65 industrial production indices, since the Capabilities Study was not yet ready.[41] ORR's reliance on Kaplan's research for NIE-65 highlights the CIA's early dependence on external researchers in combination with agency staff for its fast-paced and under-resourced work.

A comparison of the Capabilities Study matrices and Kaplan's matrix helps to draw out the differing goals and resources available to the two teams. Kaplan's team included "Defense Industries" as a producing and consuming industry in their matrix—an endogenous agent in the economy—and not as an exogenous source of final demand during a war. For Nutter, the whole point of the matrix was to model the impact of exogenous changes in military demand. The Capabilities Study included three distinct Soviet defense sectors (army, navy, and air) as sources of final demand to accommodate multiple alternative war-gaming scenarios. The CIA matrix also included more detail than the RAND matrix in sectors that were well represented among the EIC subcommittees. Where the RAND matrix reported on "chemicals" only, the CIA matrix had entries for refined benzol, toluol, and phenol. RAND's "non-ferrous metals" entry was broken out into copper and aluminum in the CIA matrix. The CIA had more industrial equipment detail as well, including separate rows for generators, ball and roller bearings, machine tools, and electron tubes. Although the CIA produced detailed accounting in several industries, surpassing what was available to Kaplan, it failed to incorporate a few industries that RAND had, including timber and paper products.

The CIA matrix had clear technical advantages over Kaplan's matrix as well. It was an open economy matrix, including imports and exports, and it also captured inventory depletions and accretions. By almost every measure the CIA matrix was superior to its RAND counterpart, with the exception that Kaplan's matrix was expressed in rubles, a step that Nutter's team had not taken. There was no practical obstacle preventing Nutter from denominating in rubles instead of physical units. A 1952 CIA procedural document indicates that Nutter's branch had "some 70 price lists, mostly 1949 and 1950 prices" at its disposal,[42] and was soliciting more price lists from other divisions. This should have been sufficient to translate physical units to prices.

The Capabilities Study remained a working paper and was never published as a national intelligence estimate like NIE-59 or NIE-65. Most of the 237-page working paper was composed of production input tables and use patterns for each of the industries in the coefficient matrix. Use patterns furnished the rows of the input-output matrix while input patterns furnished the columns. For most industries, there were also forecasts for sectoral growth, but the discussion of growth received more cursory treatment than the use and input patterns. The Capabilities Study failed to produce a full input-output

[41] Preliminary Evaluation of Aggregate Time Series in NIE-65, October 22, 1952, CIA-RDP75-00662-R000300020024-4.

[42] Procedure for D/I Analysis in Preparing Production and Input Estimates for NIE-65, undated, CIA-RDP79-01157A000200100017-7.

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model or analysis of the Soviet economy, but it did provide the CIA with several analytical tools and a foundation of processed data for future input-output tables. In addition to the supporting tables and analysis, the study featured five interindustry matrices:

1. a "Consolidated USSR Transactions Table" with thirty-four producing industries, labor, and inventory depletions as inputs, and twenty consuming industries;
2. an accompanying "Consolidated USSR Percentage Allocation Table" with the same dimensions;
3. a "1952–1953 USSR Transactions Matrix," which included thirty-four producing industries, labor, inventory depletions, and imports as inputs, twenty-eight consuming industries, and six final demand sectors;
4. a "1952–1953 USSR Percentage Allocation Matrix," with the same dimensions; and
5. a "1952–1953 USSR Coefficient Matrix," which included thirty-four producing industries and twenty-eight consuming industries.

Nutter's team never computed an inverse matrix, which would have been necessary to conduct a full analysis of the war-making capabilities of the Soviet Union. Even without an inverse matrix, the transaction and coefficient matrices provided insights into the structure of Soviet industry that were fed into subsequent analyses. For example, in the midst of heightened fears about Communist subversion in Iran, an ORR report on the possible Soviet construction of a trans-Iranian oil pipeline drew on Nutter's Capabilities Study for estimates of steel inputs to the Soviet petroleum industry.[43]

As the Capabilities Study and the ORR contribution to NIE-65 moved into their final stages, Nutter confronted further challenges. The rapid growth of ORR that catapulted Nutter through the ranks also put pressure on the clerical staff and the facilities that produced reports. A November 1952 ORR monthly report noted that "[t]his problem will become particularly acute during the first half of December when strenuous efforts will have to be made to meet the deadlines for two large Office-wide projects, ORR project 110-51 [the Capabilities Study] and ORR contribution to NIE-65." Increased demands for clerical personnel by late 1952 were especially daunting because "working conditions (physical) are abominable and there are no grounds for believing that they will not deteriorate in the near future as additional people report for duty."[44] A site plan for the building provides further details on these "abominable" physical working conditions, noting "moisture related problems" and the need for "improving the custodial services which seem to be lacking."[45]

[43] "Estimated Capabilities of the USSR to Build a Trans-Iranian Pipeline from Abadan to the Caspian Sea," July 14, 1952, CIA-RDP75-00662R000200160002-4. The Capabilities Study is referenced in endnote 15 of the report.

[44] All quotes from Office of Research and Reports Monthly Reports November 1952, December 10, 1952, CIA-RDP75-00662R000300110002-8.

[45] See Site Plan 2430 E. Street NW, undated, CIA-RDP89-00874R000100150001-0. Nutter's office was also in this building. Although undated, the site plan refers to a survey of the site, which is probably a reference to a series of property surveys that the CIA conducted in 1950 and 1951 during the initial planning to move the agency to a new headquarters. For details on the surveys and planning for the move, see Planning and Construction of the Agency Headquarters Building January 1946–July 1963, Volume I Text, CIA-RDP90-00708R000300060001-0.

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ORR supported several additional Soviet input-output matrix projects after Nutter's departure. By 1953 "almost half of the time allocated to office-wide projects" was dedicated to interindustry research.[46] ORR produced a 61 x 61 input-output table in 1955, and a collapsed 28 x 28 version of the table in 1956 to facilitate calculation of an inverse matrix. Those calculations, which would have been grueling if assigned to CIA staff "calculators," were completed on the National Bureau of Standards' Standards Eastern Automatic Computer (SEAC).[47] This growth in ORR interindustry research guaranteed that the CIA had an appetite for economists in the early 1950s. A little over a week after Nutter's Capabilities Study report was printed, ORR representatives attended the 1952 American Economic Association meeting in Chicago, where the CIA recruiter "was quite active and approximately twelve promising young economists were interviewed."[48] All of these CIA studies predate any public research on Soviet input-output tables in the West by several years, with the sole exception of Kaplan's study (Treml 1975). The Soviet Union itself did not publish an input-output table until 1959, following years of official skepticism of Leontief's "bourgeois" method (Levine 1964; Treml et al. 1972).

V. "DRAWING HEAVILY ON WHAT HAS COME BEFORE": THE LEGACY OF NUTTER'S CIA RESEARCH

Nutter continued his work on the structure and growth of the Soviet economy in the NBER Soviet growth study, which lasted from 1954 to 1962. The Soviet growth study was originally planned as an extended, century-long history of Russian and Soviet development, much like other extended economic histories produced by the NBER. However, it was quickly abbreviated to focus on the Soviet period, which was more consistent with the work of contemporary Sovietologists.[49] There is a tendency to view Nutter as a voice crying in the wilderness on Soviet growth, but the NBER project required the cooperation of a large team of researchers and support staff over nine years. Overseen by Nutter and Solomon Fabricant, the project involved seven principal researchers leading their own studies and a total of at least twenty-seven staff (Table 1) providing research support as well as production support such as editing (Marie-Christine Culbert) and chart production (Irving Forman).[50] Of all the lead researchers, Nutter

[46] Request for Permission to Approach Prospective Consultants, July 24, 1953, CIA-RDP80-B01676R004000050057-3.

[47] For the 61 x 61 table, see The Structure of the Soviet Economy, May 1, 1955, CIA-RDP79-01093-A000900060003-1. For the subsequent report with the inverse matrix, see Soviet Structural Studies Techniques and Analysis, February 20, 1956, CIA-RDP79-01093A001000120001-4.

[48] Office of Research and Reports Monthly Reports December 1952, January 13, 1953, CIA-RDP75-00662-R000300100001-0.

[49] See Goldsmith (1961) for a short discussion of the early change in direction of the project. Even with the Soviet focus, Nutter was still criticized for including Tsarist output data and data from before the first five-year plan.

[50] The twenty-seven-person staff acknowledged in the final NBER volumes is likely an undercount of the total staff supported by the Rockefeller grant or otherwise involved in the project. Nutter (1956) identifies three additional researchers (Leo Grebler, Carolyn Shilling, and Nancy Baster) working on affiliated projects on Soviet housing and standards of living that apparently did not come to fruition. These studies are not included in Table 1 because Nutter (1956) makes only a passing reference to them without identifying the study's title, plans, or full staff.

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Table 1. Study Volumes (Planned or Produced) Associated with the 1954–1962 NBER Project on Soviet Growth

Study title	Study lead	Supporting staff acknowledged by the author	Final product date
The Growth of Industrial Production in the Soviet Union	Warren Nutter*	Israel Borenstein, Adam Kaufman, Alexander Erlich*, Nestor Terleckyj, John Young, Nicholas Dewitt*, Stanley Zyzniewski, Maude Pech, Harold Wool, Marie–Christine Culbert, Julia Kamermacher, Charlotte Wasserman, Murray Feshbach, Martha Jones, Robert S. Johnson, and Irving Forman	1962
Small–Scale Industry in the Soviet Union	Adam Kaufman	Marie–Christine Culbert, Julia Kamermacher, and Irving Forman	1962
Freight Transportation in the Soviet Union	Ernest Williams*	George Novak, Holland Hunter*, Marie–Christine Culbert, and Irving Forman	1961
Soviet Statistics of Physical Output of Industrial Commodities and Quality	Gregory Grossman*	Marie–Christine Culbert and Irving Forman	1960
Statistics of Population, Labor Force, and Employment in the Soviet Union	Harold Wool	Philip Lever, Galena Seligen, and Marie–Christine Culbert	1959 (working memorandum)
Statistical Abstract of Industrial Output in the Soviet Union, 1913–1955	Warren Nutter*		1956 (unpublished appendices)
Agricultural Production	George Kuznets*		No finished product
Agricultural Input and Productivity	D. Gale Johnson*	Arcadius Kahan* and Douglas Diamond	No finished product

Notes: * = Listed as a recipient of ORR unclassified studies in 1960. Supporting staff include research and production staff supporting the study lead. Supporting staff exclude named readers and reviewers who are not identified as providing research or production assistance. Supporting staff are typically drawn from acknowledgment sections, so Kuznets's and Johnson's work may have involved additional supporting staff whom I was not able to identify without a copy of the final research product. Johnson's listed supporting staff comes from Fabricant (1959). Journal articles associated with the project are not included in the table.
Sources: Fabricant (1959), Wool (1959), Grossman (1960), Williams (1962), Nutter (1962), Kaufman (1962), and Recipients for ORR Unclassified Studies, July 1, 1960, CIA-RDP63-00314-R000100180007-7.

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(1962) acknowledges by far the most supporting staff for his 1962 book *The Growth of Industrial Production in the Soviet Union.* The gregariousness of a gratified project director surely contributes to Nutter's comprehensive acknowledgments, but they also reflect the scale of the effort required for the book, which a reviewer called "by far the most complete survey of Soviet industry" (Karcz 1963, p. 575).

Four books were eventually published as a part of the NBER Soviet growth project, including work on Soviet statistics (Grossman 1960), transportation (Williams 1962), small-scale industry (Kaufman 1962), and industrial growth (Nutter 1962). Harold Wool (1959) also produced a 312-page "working memorandum" from his Soviet population research. Never published, the memorandum was instead circulated privately to selected economists and Soviet researchers. Nutter hoped "that even a preliminary report will be of use to others studying the Soviet economy,"[51] and he cited Wool's work in his own book. In addition to this published and unpublished work, Nutter's team produced five appendix volumes for the project in 1956 and a supplemental appendix in 1957.

Nutter ran into some of the same holdups in managing the NBER project as he did at the CIA. In December 1957 he complained to Milton Friedman that "the primary obstacle seems to be George Kuznets, who has not yet come close to finishing his study of Soviet agriculture." Like the military's delays on the Capabilities Study, Kuznets's delays had broader ramifications and Nutter worried that it "may hold up the Bureau project for several months."[52] Kuznets and D. Gale Johnson both planned to produce reports on Soviet agriculture, but neither delivered a final product—published or unpublished—that I have been able to identify. Nutter referenced a contribution on agriculture in his preface to Grossman's book, which suggests that as late as 1960 he was still expecting to have a publication out of Kuznets, Johnson, or both.

Superficially, the ORR contribution to NIE-65 was most similar to Nutter's industrial growth study for the NBER. NIE-65 required compiling Soviet production data from 1927 to 1952, synthesizing these data into a production index, and forecasting production through 1957. This is the subject of chapters 4 through 7 of Nutter's book, accounting for almost half of the main text. Nutter's experience with index number construction for NIE-65, in combination with Fabricant's (1940) research on index numbers, provided an intellectual foundation for the work. Practically every economist studying the Soviet economy was building an index number of some sort in the 1950s, and Nutter dutifully made his contribution to the swelling literature. But more than any other Soviet researcher, Nutter was dissatisfied with the fundamental theoretical problems plaguing index number construction. Some of the problems Nutter struggled with were well known, including reliability of Soviet price data for weighting index components (Nutter 1962, p. 121) and the Gerschenkron effect (Nutter 1962, p. 127). One problem that Nutter was uniquely concerned with was the difficulty of measuring growth when the *structure* of the economy was changing.

Nutter's work was highly attentive to the effect of structural change on growth empirics and he had clear inspiration on these issues from Leontief. Nutter's famous analogy comparing structural change to the metamorphosis of a butterfly, that "[w]e cannot say how much the caterpillar grows when it changes into a butterfly" (Nutter

[51] See Nutter's "prefatory note" in Wool (1959, p. i).

[52] Nutter to Friedman, December 19, 1957, Box 31, Folder 16, Milton Friedman Papers at the Hoover Institution Archives. George Kuznets was Simon Kuznets's younger brother.

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1966, p. 181), is taken directly from Leontief's (1953) chapter on structural change and input-output models in *Studies in the Structure of the American Economy*:

> Comparing the structure of an economic system in two stages of its historical development sufficiently removed from each other, one might easily find them to be as unlike as a butterfly and a caterpillar. Not only the relations between the separate sectors of the economy, between the various commodities and services, will have changed, but more than that, the commodities and services found in two stages might turn out to be entirely dissimilar. (Leontief 1953, p. 20)

That Leontief's concerns with analyzing structural change found its way into Nutter's work is no surprise, considering Nutter's close study of input-output methods for the ORR Capabilities Study. Input-output models were also an important tool for the ORR contribution to NIE-65 by providing weights for the production indices,[53] and serving as a check on input estimates from military intelligence.[54] Nutter's work with input-output methods at the CIA was complemented by Solomon Fabricant's familiarity with Leontief's work. Fabricant was not confident in input-output modeling's potential. He even shared his doubts with Leontief's funders at the Rockefeller Foundation, confiding that Leontief "has produced little and will produce little."[55] Nutter did not comment publicly on input-output modeling, but a UVA colleague recalls that Nutter shared Fabricant's skepticism about whether the input-output methods would be useful for modeling structural change.[56] These concerns from Fabricant and Nutter may explain why the NBER project did not follow NIE-65 in using input-output models to weight growth indices.

Nutter's use of Leontief's caterpillar and butterfly metaphor goes back to 1957, when he wrote about the Soviet economy going through "radical metamorphoses" (Nutter 1957a, p. 62), and the problem of "measuring how much the caterpillar grows when it turns into a moth" (Nutter 1958, p. 362). In his book the phrase is restated as "we are faced with metamorphosis rather than growth," and that "[i]t is as if we tried to measure how much a caterpillar grows when it turns into a butterfly" (Nutter 1962, p. 111). Nutter (1957a) highlighted several problems posed by structural change for growth indices. First, when an economy goes through structural change and unbalanced growth, the opportunity costs associated with the bundle of goods actually produced (and therefore the weights for the index) change. The Gerschenkron effect is a special case of this problem as it pertains to pre-industrial base-year weights, but the problem applies to any structural change. Second, even if the growth of each good in the basket is proportional (eliminating the Gerschenkron effect), changes in the structure of opportunity costs will

[53] Preliminary Evaluation of Aggregate Time Series in NIE-65, October 22nd, 1952, CIA-RDP75-00662-R000300020024-4.

[54] Allocation of Responsibility within ORR for Contributions to NIE-65, Soviet War Potential, 1952–1957, June 6, 1952, CIA-RDP79-01157A000200100015-9.

[55] For Fabricant's familiarity with input-output methods, see his work on a federal panel to study the status and limitations of input-output models ("Report on Inter-Industry Relations Study," 1949), Fabricant et al. (1949), and Fabricant (1952). For Fabricant's negative report to the Rockefeller Foundation on Leontief, see Joseph Willit's diary entry, January 4, 1954, in Rockefeller Foundation Records, Officers' Diaries, RG 12, S-Z (FA394).

[56] Personal correspondence with John H. Moore. Moore emphasizes that this was his interpretation of Nutter's view of Leontief, rather than something that Nutter explicitly communicated.

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lead to different measured growth rates for different baskets on the same production possibility frontier. Finally, structural change introduces new product bias to growth indices.[57]

In *The Growth of Industrial Production in the Soviet Union*, Nutter (1962, p. 111) bounded the potential effect of radical structural change on his index by producing multiple alternative indices with different product groups (industrial materials, finished civilian products, and all civilian products) and different base years for weighting the products (1913, 1928, and 1955). This solution was ultimately pragmatic and followed prior NBER precedent. The procedure was inspired by earlier work by Geoffrey H. Moore at NBER.[58] Moore (1944) used the approach to understand the scope of the structural disruptions of WW I and WW II on the American economy.

Nutter also analyzed the structural differences between the US and Soviet economies by charting out the relative lags of the Soviet economy in detailed industrial sectors. The lag analysis was reported in technical journal articles as well as a feature article on "the true story of Russia's weakness" in *U.S. News & World Report* (Nutter 1957b, 1957c, 1958, 1962). Nutter showed that the Soviet economy had made imbalanced progress, advancing significantly in some areas but not others. Walt Rostow (1960) drew extensively on Nutter's analysis of relative Soviet lags in *The Stages of Economic Growth.* Despite Rostow's enthusiastic citation to Nutter, Nutter's own argument departed significantly from that of modernization theory. Where Rostow made the case for a "take-off" event, setting a sequential unfolding of modern growth in motion, Nutter told a story of incremental growth occurring at different paces across different industries and governed by political decisions rather than a law of growth.[59]

A more analytic solution to the problem of structural change and growth empirics was provided later by John H. Moore, Nutter's former colleague at UVA. Moore's research was focused on Yugoslavia rather than the Soviet Union, but he faced the same difficulties with constructing economic growth indices during periods of radical structural transformation. With Nutter's encouragement, Moore (1978, 1980) demonstrated how to separate economic growth from structural change in index numbers by defining two different parameters: a structural change index measuring the change in n-dimensional commodity space holding output constant, and a production index measuring expansion of the production possibilities frontier holding the commodity mix constant. The structural change index was defined as the cosine of the angle between output vectors in the commodity space. In his own work on Yugoslavia, Moore (1978, 1980) found that output growth slowed during periods of great structural change, and that changes in the character of the Yugoslav economy—its metamorphosis from caterpillar to butterfly—accounted for many of the observed growth slow-downs and accelerations. Moore's structural change index provided an approach to directly measuring structural change that addressed Nutter's (1968, p. 168) concern that "the

[57] See Harrison (2000) for a detailed discussion of the importance of new product bias for the differences between Nutter's estimates and the estimates of other researchers.

[58] Contrast Nutter (1962) and Moore's (1944) use of alternative product group indices to understand structural change with Kaplan and Moorsteen's (1960, p. 313) dismissal of the idea that alternative product groups can provide insights on structural change.

[59] See Levy and Peart (2015, 2020) for an alternative argument that Nutter and Rostow's ideas were more consistent.

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economy changes at least as much as it grows, and an appraisal of performance that takes no account of this fact is bound to be misleading if not irrelevant."

VI. THE CIA, ALLEN DULLES, AND THE NBER PROJECT

CIA records indicate a high level of interaction between ORR and the NBER project. A third of the NBER project staff identified in Table 1 were receiving ORR's unclassified studies.[60] As early as 1955 the CIA took Nutter's team into account when planning its own research. A 1955 CIA memorandum planning a study on Soviet agriculture noted that Kuznets's NBER study on agriculture was "closely related and possibly partially duplicating" the CIA proposal.[61] In 1956 the Medium Machinery Division of ORR evaluated what they called the "NBER Statistical Compilation of Soviet Statistics," presumably a reference to the unpublished volumes of statistical abstracts that were completed in the same year.[62] The year after that, Nutter personally sent the Aircraft Branch of the Industrial Division of ORR his estimates of output and inventory of Soviet aircraft to use in their own research.[63] CIA analysts produced detailed reconciliations of discrepancies between their statistics and those shared by Nutter. In some cases the analysts concluded in favor of the CIA's numbers,[64] but in other cases they defended Nutter's figures.[65] Although not directly related to the NBER project, the ORR Trade Branch assigned an analyst to write a report on Nutter's 1958 comments on foreign aid (presumably a reference to his June 1958 lecture on economic warfare, which discussed foreign aid in detail).[66] These surviving incidents are a clear example of how "[t]he 'intelligence community' came to be part of the 'epistemic community'" (Mueller 2013, p. 127) in the early years of the Cold War.

These interactions between the CIA and the NBER project obligate us to reassess Nutter's hostile public relationship with his *bête noire*, DCI Allen Dulles. Beginning with a highly publicized address to the US Chamber of Commerce in 1958, Dulles delivered a series of alarming public speeches and testimonies warning against the looming threat of Soviet economic power. He claimed for the Soviets that "annual growth over-all has been running between 6 and 7 percent, annual growth of industry between 10 and 12 per cent" ("Speech of Allen Dulles Before U.S. Chamber of Commerce" 1958, p. 8). Dulles moderated his forecast in his 1959 Joint Economic Committee testimony, which predicted 6% output growth and 8–9% industrial growth. Despite the moderation of his figures, by that point Dulles had already ignited a highly publicized battle with Nutter and other Soviet researchers over the question of Soviet growth.

[60] Recipients for ORR Unclassified Studies, July 1, 1960, CIA-RDP63-00314R000100180007-7.
[61] Proposed external research project, "The Agricultural Economy of the USSR," May 17, 1955, CIA-RDP59-00882R000200200050-9.
[62] Monthly Report for December 1956, January 2, 1956 [sic], CIA-RDP61S00137A000100010006-3.
[63] Comments on NBER Estimates of Aircraft, May 17, 1957, CIA-RDP61S00137A000100070057-1.
[64] Comments on Nutter's Ruble/dollar ratios, Undated, CIA-RDP71T00730R000100060131-1.
[65] Letter to William F. Knowland from Allen Dulles, March 18, 1958, CIA-RDP80R01731R000100050070-3.
[66] Trade Branch Service Monthly Report for July 1958, August 4, 1958, CIA-RDP61-S00527A000200200043-7.

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This canonical version of the story pitting Nutter against Dulles is complicated by the details of Nutter's work at the CIA. Dulles's Soviet growth claims were rooted in NIE-65 and the subsequent special intelligence estimate SE-46, which built off of NIE-65's conclusions (Kaufman 1995). These were Nutter's scientific projects and progeny. Nutter's (1962) claim that "I cannot say why" the CIA estimates are so high "because the basis of their calculations has not been published" conceals—perhaps necessarily but conceals nonetheless—that he was in fact quite well informed of the basis for the CIA calculations underlying Dulles's public statements. Not only was Nutter better appraised of the CIA research effort than he let on; he and Dulles were also corresponding amicably during this period. On April 20, 1959, at the height of Dulles's alarm-raising efforts, Nutter wrote to compliment the DCI on a recent speech on Soviet growth that he made at the Edison Electric Institute Convention. Dulles copied ORR in his gracious reply back to Nutter's letter, presumably because he was aware of Nutter's previous work with the office.[67]

Dulles's public pronouncements are best understood in the context of the CIA's intelligence estimates and reports, Nutter's own NBER estimates, and the later CIA estimates of Rush Greenslade and Phyllis Wallace (Table 2). Dulles's 1959 output growth forecast of 6% was actually well within the bounds of the forecast in NIE-65 that Nutter contributed to but higher than two subsequent forecasts, SIE-46, and an Economic Intelligence Report (EIC-192) on long-run Soviet growth. In 1957 and 1958, the NIE forecasts were raised to 6% output growth, consistent with Dulles's statements and with NIE-65. Even more significantly, Dulles's JEC testimony on industrial growth falls squarely within the range that Nutter (1959, 1962) estimated for the 1950s, all of which are consistent with NIE-65's forecasted industrial output growth as well as the 1958 NIE forecast. Dulles's 1958 claim that industrial growth "has been running" between 10% and 12% does come in higher than Nutter's (1962) estimate, but it is completely in line with the 1958 NIE estimate of industrial growth for 1950 to 1955.[68] In fact, Nutter's 1959 estimate of Soviet industrial growth for 1950 to 1955 deviates more from his revised 1962 estimate for that period than any of the CIA's estimates do. Nutter's revision was made in response to criticism from Greenslade and Wallace (1959), who pointed out that his exclusion of military production significantly misrepresented Soviet industrial production.[69] The evidence is therefore consistent with Abraham Becker's (1994) argument that despite the public controversy, there was far more consensus on Soviet growth rate estimates and forecasts than on the levels of Soviet output.

What should we make of all this? Certainly not that the dispute between Nutter and Allen Dulles was artificial or insincere. Nutter was an important voice in changing public opinion on Soviet economic growth. He obviously harbored fundamental disagreements with Dulles and to a lesser extent with the CIA itself. But Nutter's

[67] Dulles to Nutter, April 22, 1959, CIA-RDP80R01731R000300030019-0.

[68] Nutter's failure to appreciate this point comes from his lack of access to the 1958 NIE and an apparent misinterpretation of Dulles's statement of past industrial growth of 10–12% as a forecast of future growth.

[69] As Kontorovich (2019) meticulously shows, Nutter was one of the few economists studying the Soviet economy to carefully consider military production as a key component of Soviet output, and even Nutter addressed it in detail only after being criticized for neglecting it by Greenslade and Wallace (1959).

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Table 2. Estimates and Forecasts of Output and Industrial Growth

Source	Annual growth in total output	Annual growth in industrial output
CIA intelligence estimates and intelligence reports		
NIE–65 (1953)	5–7%, forecast, 1952–1957	7–8.5%, forecast, 1952–1957 *
SIE–46 (1953)	4.7%, forecast, 1953–1968*	—
EIR–192 (1954)	4.2–4.8%, forecast, 1954–1975	—
NIE–11–4–57 (1957)	6%, forecast, 1957–1962	—
NIE–11–5–58 (1958)	6.5%, estimate, 1955–1957	11%, estimate, 1950–1955
	6%, forecast, 1958–1963	9%, forecast, 1958–1963
NIE–11–4–59 (1960)	6%, forecast 1959–1964	8.6%, forecast, 1959–1964
Greenslade and Wallace (1962)	—	9–9.5%, estimate, 1952–1959
Statements by Allen Dulles		
Dulles (1958)	"has been running" 6–7%	"has been running" 10–12%
Dulles (1959)	6% "through 1965"	"will continue to grow" 8–9%
Estimates from Warren Nutter		
Nutter (1959)	—	7.7%, estimate, 1950–1955
Nutter (1962)	—	9.6%, estimate, 1950–1955
		7.1%, estimate, 1955–1958

Notes: For growth in total output in SIE-46 and growth in industrial output for NIE-64, annual compound growth rates presented here are calculated from the cumulative growth forecasts included in those reports. Dulles's public statements are not precisely dated, so his descriptions of the scope of the data and forecasts are quoted directly.
Sources: NIE-65, Soviet Bloc Capabilities Through 1957, June 16, 1953, CIA-RDP79-R01012A002200020001-6. SIE-46, Probable Long Term Development of Soviet Bloc and Western Power Positions, June 30, 1953, CIA-RDP79S01011A001000080008-3. EIR-192, Long Run Soviet Economic Growth, December 23, 1954, CIA-RDP79-R01141A000500020001-2. NIE-11-4-57, Main Trends in Soviet Capabilities and Policies, 1957–1962, November 12, 1957, CIA-RDP79R01012A008800010011-4. NIE-11-4-58, Main Trends in Soviet Capabilities and Policies, 1958–1963, December 23, 1958, CIA-RDP79-R01012A011000020001-8. NIE-4-59, Main Trends in Soviet Capabilities and Policies, 1959–1964, January, 2, 1960. DOC-0000267657. All other sources are cited in table and included in references.

disagreements with Dulles are those of an insider with a deeper understanding of intelligence estimates and intelligence officials than his public comments might suggest, and with a personal role in producing those estimates.

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VII. CONCLUSION

Before the NBER project on Soviet growth, Warren Nutter made important, underappreciated contributions to the study of the Soviet economy at the CIA. As the director of the Economic Capabilities Branch of the ORR and the chairman of the Economic Analysis Subcommittee of the EIC, Nutter managed some of the most sophisticated economic intelligence work conducted in the federal government in the early 1950s. His research explored the input-output relations of the Soviet economy, Soviet trade with the West, and prospects for future Soviet growth. This early work shaped the rest of Nutter's career. Behind the scenes Robert Amory, Nutter's superior at the CIA, provided input to the Rockefeller Foundation as they were planning to fund the NBER project. Amory may have even recommended Nutter as project director.

The CIA's work on the Soviet capacity to wage a general war would soon be rendered obsolete by progress in miliary technology. In a world of ICBMs carrying thermonuclear weapons, total war did not require a fully mobilized economy. This was the motivating insight behind Charlie Hitch and Roland McKean's (1960, p. 15) seminal book, *The Economics of Defense in the Nuclear Age*, that "destructive power has become so cheap that wars can be won or economies destroyed before there is time for mobilization." Despite the declining importance of military capabilities studies, the estimates of Soviet industrial capacity could be repurposed to understand Soviet economic prowess in the NBER Soviet growth study.

Nutter acknowledged his debt to prior Soviet research, no doubt including the work conducted at the CIA, when he wrote of his NBER work that "[t]his study falls within the stream of expanding knowledge about the Soviet economy, drawing heavily on what has come before" (Nutter 1962, p. 10). Nutter's work with Leontief's input-output methods at the CIA had a clear impact on his subsequent approach to the relationship between structural changes in the economy and index number calculation. Nutter never pursued input-output modeling outside of his work on the Capabilities Study in 1951 and 1952, but he repeatedly returned to Leontief's metaphor about the growth of a caterpillar into a butterfly to emphasize the inadequacy of standard index numbers for capturing radical structural changes.

His experience working for the CIA also colors standard narratives of Nutter's antagonistic relationship with the agency and with Allen Dulles in the late 1950s and early 1960s. The differences between the findings of the NBER study and the CIA's analysis of Soviet growth were real, although in some cases exaggerated. Nutter's public engagement with Dulles concealed his own familiarity with the CIA estimates and the frequent intercourse between the CIA and the NBER project. Of course, Nutter was not at liberty to broadcast details about his relationship with the CIA, so these are not grounds for criticizing Nutter himself. However, with CIA records now (partially) opened, we should reassess how we remember the NBER study on Soviet growth and Nutter's own role in early Cold War efforts to understand the capabilities of the Soviet adversary.

COMPETING INTERESTS

The author declares no competing interests exist.

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