EXPORTING THE BOMB: Technology Transfer and the Spread of Nuclear Weapons. Cornell Studies in Security Affairs. ***By Matthew Kroenig.*** *Ithaca and London: Cornell University Press, 2010. xii, 233 pp. (Tables, figures.) US$22.95, paper. ISBN 978-0-8014-7640-2.*

Matthew Kroenig poses an important question that few who write about proliferation have focused on: Why do states transfer sensitive nuclear assistance that could help other states make nuclear weapons? His answer may be surprising: it's not for the money. They do it, he says, for strategic reasons.

States capable of projecting conventional power—the ability to fight a ground war on the territory of potential target states—are loath to provide such assistance; states that cannot feel freer to proliferate. Power-projectors fear that the spread of nuclear arms will deter them from intervening, reduce their effectiveness at coercive diplomacy, aggravate regional instability that could ensnare them, erode their alliances, and trigger arms races. Non-power projectors are less concerned with these consequences. The United States exemplifies the first approach and Pakistan the second.

As evidence for Kroenig's theory, France's help for the Israeli nuclear program occurred in 1959-65 after the Suez crisis exposed just how far its power projection capacity had declined. Along with France, China provided Pakistan with help in nuclear-arming as a counterweight to India, but showed more self-restraint in proliferation once its power projection capacity expanded. An exception was Soviet help for China's nuclear weapons program in 1958-60, which Kroenig explains away in realist terms as intended to bolster an alliance against a common foe, the United States, and characterizes as grudging, occurring only after Beijing accused Moscow of lack of support in the 1958 Taiwan Straits crisis.

The problem with any theory of proliferation is that there are very few cases, and Kroenig has specified his variables in ways that shrink the number still further. He confines his analysis to "sensitive" nuclear assistance: significant quantities of weapons-grade uranium or plutonium, help with weapons design, and construction of reprocessing and enrichment facilities. That excludes aid to construct research and power reactors and supply of dual-use equipment, among other items.

His statistical analysis takes account of the limited data set. In the end, however, that rests on his historical examples, and while he is judicious in his readings of the past, some of the world's nuclear history remains murky. For instance, he excludes US nuclear cooperation with Great Britain and France on the grounds that it occurred after they had acquired nuclear weapons and was confined to delivery vehicles. Perhaps. But what of British and French help in the Manhattan Project?

Did power-projectors "fiercely" oppose proliferation, as he asserts? Here, the record is more mixed than Kroenig suggests. For instance, US intelligence detected Israel's budding nuclear program in collusion with

France in early 1958 and openly acknowledged that awareness in December 1960. President Kennedy warned that the US "commitment to and support of Israel could be seriously jeopardized" if it could not verify that Dimona was being used for peaceful purposes, but it contented itself with occasional one-day visits to the site under tight Israeli control that assured nothing would be uncovered—especially the underground reprocessing facility there. President Johnson was pressed to do more, but demurred. He was warned that Israeli acquisition of nuclear arms "might spark Nasser into a foolish preemptive move." Nasser did just that in 1967. One of his aims in provoking war was to destroy Dimona before Israel had the bomb, an attempt that proved too little and too late—the Israelis already had their first weapon and preempted his preemption, destroying the Egyptian air force before it got off the ground.

Similarly, the US effort to keep Pakistan from nuclear-arming never took priority over securing Pakistan's help in defeating the Soviet invasion of Afghanistan. The United States did its best to deny North Korea the means to arm, but having negotiated the 1994 Agreed Framework that verifiably shut down the Pyongyang's plutonium program, Washington failed to keep its end of the bargain. It has shown even more reluctance to negotiate with Iran, though it made more sustained—and successful—efforts to induce South Korea, Taiwan and Sweden, among others, from nuclear-arming. What Kroenig calls "fierce" opposition by Washington to proliferation was sometimes a pretext for selective prosecution of some states through isolation, sanctions and war while ignoring others, rather than for sustained negotiations to disarm strangers.

For Kroenig to develop a new and interesting theory of why states spread nuclear technology is an ambitious undertaking. If at times the effort falls somewhat short of his claims, Kroenig deserves credit for trying. Social scientists rightly search for generalizations, and he has found some useful ones. In the end, however, one wonders whether each case of proliferation is idiosyncratic enough that generalizations may sometimes get in the way of understanding, and prudent policy making.

Social Science Research Council, Brooklyn, USA LEON V. SIGAL