

## Abstract

### Russian Scientific Networks

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The significance of knowledge transfer for international technology diffusion has been increasingly studied by examining ethnic scientific and entrepreneurial networks. Economists have been especially interested in Chinese and Indian communities in the U.S. and their linkages to their home countries. Despite the Russian diaspora's relatively larger available pool of scientists, engineers, and mathematicians and a longer history developing such an endowment of human capital, less attention has been given to Russian scientific networks. The object of this paper is to fill this gap. This is an opportune time to investigate Russian scientific communities for two reasons.

Until 1992 when the current law establishing patents as private property was promulgated, there was little incentive for inventors in the Soviet Union to obtain a patent. Indeed, very few patents were granted by the government during the Soviet period, and substantially more were granted by the U.S. Patent Office to citizens of the USSR over the same period. Further, the Russian government has attempted to provide incentives for undertaking innovative activities, such as sponsoring scientific competitions and constructing science parks. Have private property and other government incentives provided members of Russian scientific communities been sufficient to increase innovative outcomes in Russia? Fifteen years of U.S. and Russian patent and patent-citation data from the U.S. Patent and Trademark Office and the European Patent Office (Russian) data sets are used to measure the extent to which innovative activities mediated by social or ethnic networks have been undertaken in Russia and other countries of the former Soviet Union. The preliminary evidence suggests that the loci of innovative activity have been the U.S. and Israel, rather than Russia.

In the 1990's, there was an historic influx of Russians into Israel, which resulted in a 12-percent increase in population between 1990 and 1995. Sixty percent of émigrés had professional degrees and experience in white-collar jobs. Immigrant engineers outnumbered their Israeli counterparts by nearly three to one. Simultaneously, there was a marked increase in patenting rates among Israelis. Are these events related? Evidence from U.S. patents and from the Israeli Ministry of Immigrant Absorption suggests a positive correlation between these events and, further, a slight propensity for Russian immigrant inventors in Israel to participate on teams with Russian immigrant inventors in the U.S. rather than with Russian inventors in Russia. The high-tech orientation of the émigrés and a growing number of the poor in a number of countries of the former Soviet Union imply that the international diffusion of technology could markedly enhance

economic growth and living standards in these countries, which would be of interest to economists and policymakers alike.