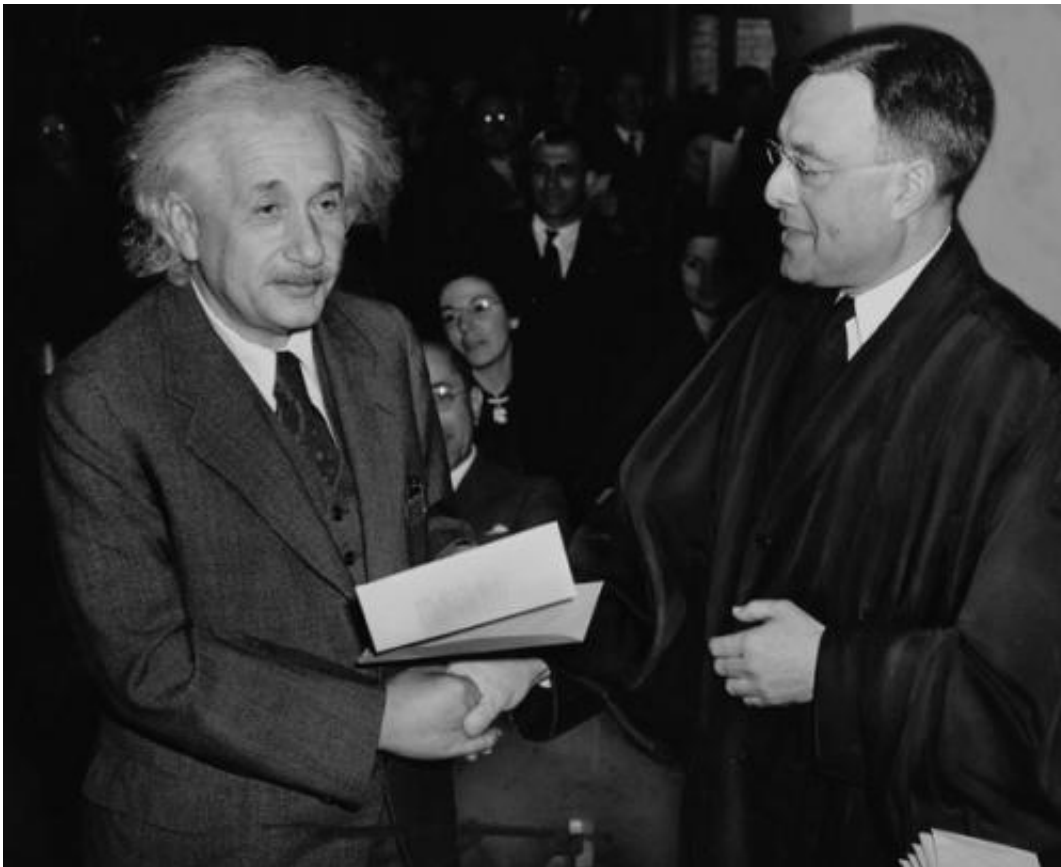


Jews who fled Nazis revolutionized US science, Stanford economist says

August 12 2014, by Clifton B. Parker



Famed German Jewish physicist Albert Einstein receives his certificate of U.S. citizenship in 1940 from Judge Philip Forman. Credit: Al Aumuller/Library of Congress

U.S. patents increased by 31 percent in fields common among Jewish scientists who fled Nazi Germany for America, according to Stanford

economist Petra Moser. Their innovative influence rippled outward for generations, as the émigrés attracted new researchers who then trained other up-and-comers.

Anecdotal accounts suggest that the arrival of German Jewish émigrés to America who were fleeing the Nazi regime in the 1930s revolutionized U.S. science and innovation.

But this claim has never been empirically confirmed until now, thanks to new research by a Stanford economist.

Petra Moser, an assistant professor of economics at Stanford, found that the number of U.S. patents increased by 31 percent after 1933 in fields common among those who emigrated from Germany, according to her research paper. In fact, these scientists and inventors led a transformation of American innovation in the post-World War II period.

"German Jewish émigrés had a huge effect on U.S. innovation," Moser said in an interview. "They helped increase the quality of research by training a new generation of American scientists, who then became productive researchers in their own rights."

Historical obstacles

The decision by many Jews to leave Germany is perhaps best understood in light of a Nazi Germany law passed on April 7, 1933 – just 67 days after Adolf Hitler was appointed chancellor – that forced so-called non-Aryan civil servants out of their jobs.

By 1944, more than 133,000 German Jewish émigrés had moved to America – many of them highly skilled and educated. Some were even Nobel Prize winners and renowned intellectuals like Albert Einstein in physics, and Otto Loewi and Max Bergmann in chemistry.

As Moser describes it, these newcomers to the United States faced obstacles even in their new homeland, though nothing like the life-and-death situation in Nazi Germany. Sometimes Jewish scientists met with unusual administrative hurdles in acquiring visas and employment, she noted.

Nonetheless, German Jewish scientists contributed brainpower to the U.S. war effort and postwar industry – at least that's the historical perception.

To assess the veracity of this claim, Moser and her co-authors compared changes in chemistry patents between German émigrés and U.S. inventors. They also measured U.S. patents across different fields and the research output of individual inventors. The time period they studied was 1920 to 1970.

"Chemical innovations are exceptionally suitable to patent protection," as Moser explained, whereas research in physics was often classified and therefore not patented.

Moser's co-authors included Alessandra Voena from the University of Chicago and Fabian Waldinger from the University of Warwick.

Scientific collaboration, motivation

The findings show a 31 percent increase in U.S. patents in the particular fields of these German Jewish émigrés. Moreover, a generational effect ensued.

"Evidence from a new data set on the patent histories of more than 500,000 U.S. inventors indicates that the émigrés' arrival increased U.S. innovation by attracting a new group of U.S. researchers to their fields, rather than by increasing the productivity of incumbent U.S. inventors,"

she said.

These highly skilled scientists had networks of colleagues that amplified their innovative contributions to American society, Moser said.

"U.S. inventors who collaborated with émigré professors began to patent at substantially higher levels in the 1940s and continued to be exceptionally productive in the 1950s," wrote the researchers.

The effect of German Jewish émigrés was arguably even larger than can be scientifically documented, Moser added. Some of their research was highly classified – such as the Manhattan Project that led to the atomic bomb – and therefore rarely patented.

Moser said that biographical records suggest that British universities like Oxford and Cambridge quickly hired the most productive scientists – and only the younger, less prominent ones came to the United States.

"When these people arrived in the U.S. they were often not allowed to work in the most promising research fields because they were Jewish, and there was still a lot of open anti-Semitism in large U.S. firms," she said.

When the researchers controlled for these facts in their study, they found the new émigrés accounted for a 70 percent overall increase in [patents](#) for inventions, Moser said.

'A big plus'

Moser said she undertook this research because the effect of German Jewish émigrés is one of the big issues in America's 20th-century economy.

"Everybody knows about the Manhattan Project and has a vague notion that getting these highly talented refugees was a big plus for American science. But before our study, there was very little if any systematic evidence to document these effects," she said.

And while her research is historically based, it may have implications today as well.

"More than half of my colleagues at Stanford are immigrants. I want to find out how policies that alter the flow of such highly skilled immigrants affects science and innovation," she said.

Provided by Stanford University

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