



Critique of Anderson Forecast's California High-Speed Rail and Economic Development: Lessons from Japan

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Anderson Forecast, a research center at UCLA, recently released a study on high-speed rail's economic impacts.¹ The study investigates the first high-speed rail service in the world, the Japanese Shinkansen, which was opened in 1964. It concludes that the high-speed rail corridor connecting Tokyo and Osaka did not generate discernible economic benefits to the region it serves from its opening to 1990. Based on the findings, the authors argue that California high-speed rail (CHSR) would not be able to generate the huge economic benefits that the CHSR Authority's business plan predicts. However, the methodology adopted in the Anderson study is questionable and the comparability of Japan in the 1960s to California in the future is doubtful.

Summary of Study

The study looks into the economic growth of the area served by the Tokaido Shinkansen, which connects the major Japanese cities of Tokyo, Osaka, Nagoya and Kyoto. The study examines the Greater Tokyo region and the more rural region in the middle of the corridor separately.

For the Greater Tokyo region, it compares the GDP growth of four prefectures, served and not served by HSR, to the region's growth for the time period of 1960s to 1990. **The authors observe no systematic difference between the regional growth rates and the growth rates of**

¹ Jerry Nickelsburg and Saurabh Ahluwalia, June 2012, "California High-Speed Rail and Economic Development: Lessons from Japan," UCLA Anderson Forecast for the Nation and California, http://www.anderson.ucla.edu/documents/areas/ctr/forecast/UCLAForecast_June2012_HSR.pdf.

prefectures served by HSR; and the prefectures not served by HSR, e.g. Chiba, grew as robustly as the prefectures served by HSR.

Then the study looks at the more rural region between the major cities, and again, compares the prefectures' GDP growth with the region's growth. Like in the Tokyo region, the authors observe no difference in GDP growth pattern between HSR prefectures and those without HSR. The authors also point out that, for both regions, **there is no spike in GDP growth in 1964, nor is there a change in growth pattern before and after HSR.**

Based on those findings, the authors make the following **key conclusions**:

- No discernible economic impacts other than increasing suburbanization and decreasing density are observed in the region served by HSR.
- The Shinkansen serves passengers, not freight. The benefits of lower transportation costs for passenger travel only have marginal effects on economic growth.
- The Shinkansen lowered transportation costs for commuting into Tokyo, Osaka, Nagoya and Kyoto. As a consequence, those moving out of the city generated economic growth in the suburban bedroom communities, and hence contributed to suburbanization.
- Higher economic growth in places like Kanagawa was achieved at the expense of urban centers like Tokyo, as shopping, dining and school attendance moved out of the urban centers;

The authors derive **two lessons for California** with regard to HSR development. **First, HSR tends to create sprawl. Second, the estimated job creation of 450,000 as a result of construction and operation of HSR is not likely to be realized.**

Critique

The methodology adopted in the study is questionable, as its selection of control group for comparison is biased. The interpretations and conclusions derived from the analysis are logically flawed. The study fails to single out the economic effects of HSR, and hence the conclusions are doubtful. Following are detail critiques on the methodology, reasoning and conclusions of the study:

First, the comparison of economic growth rate is based on a biased selection of reference group. The prefectures served by HSR, e.g. Tokyo and Kanagawa (containing Yokohama, a major port city in Japan), are selected because of their status as established economic centers. Whereas those not served by HSR are less developed suburbs and rural areas. **The two groups of prefectures are inherently too different from each other to be compared. That is to say,**

even without HSR, the two groups of prefectures, served and not served by HSR, would have performed very differently. Common sense suggests that established major city centers like Tokyo and Yokohama will grow at a slower rate than their suburbs, because they are bigger to start with. In the case of Tokyo region, the suburban prefectures Saitama and Chiba would probably have grown faster than Tokyo and Kanagawa anyway, without HSR. Therefore, the difference or indifference of such comparison could not lead to any valid conclusion about HSR's economic impacts.

Second, while not having a HSR station in their territories, prefectures may still have benefited from HSR due to their connectivity to HSR by conventional rail and roads. For instance, Saitama and Chiba were not served by Shinkansen directly, but travelers from those prefectures could transfer to Shinkansen in Tokyo and continue their trips to the final destinations along the HSR corridor. Therefore transportation costs for Saitama and Chiba residents were still lowered, and the market enlarged than without HSR. It is unfair to regard those two prefectures not directly served by HSR as unaffected by HSR.

Third, the economic benefits of HSR would be reaped through an extensive period of time, not just in the first year of opening as the authors expect. The economy would start to benefit from the HSR when the construction begins. Business decisions taking into account the future benefits of HSR, such as investments in real estate near HSR stations, would result in additional growth before HSR starts operating. Various types of economic benefits would also continue to be generated throughout the lifetime of HSR, such as lowered transportation costs and increasing productivity due to agglomeration effects. The authors' expectation to see a spike in GDP growth in the first year of HSR operation is not reasonable.

Fourth, Japan in the 1960s was still an export-led industrial economy, which is very different from California today. Though Shinkansen may not have directly contributed to the freight transport and industrial production, it has played a much more important role in Japan's transition into a knowledge and service economy in the later years of its operation. Today and into the future, California's economy will be dominated by service and knowledge sector jobs. The importance of passenger transportation is much greater for California in the future than for Japan in the 1960s. It is doubtful whether we should focus on the early years of Shinkansen's operation for applicable lessons for California.

Lastly, the urban geography of Japan is fundamentally different than that of California. In Japan, cities are highly densely populated and rail and other public transportations are the major modes of commuting. In California, however, cities are dispersed with very low density, and commuting is dominated by automobiles. It may be true for Japan that high-speed rail contributes to the development of bedroom communities in the suburbs (note that Japanese bedroom communities have higher densities than Californian suburbs) and reduces density in

central cities. But in California, cities are already highly dispersed. There is great potential for HSR to attract commuters from automobiles and denser development around its stations. Unlike in Japan, HSR could increase densities by bringing transit-oriented communities to California.