

August 16, 2010

## Taking High-Speed Trains into the Future

*For the U.S. to have world-class high-speed trains, the government will have to subsidize them. The investment would be small compared to the billions lavished on highways and airports.*

By Bruce Selcraig

On March 11, 2004, at the height of the morning rush hour in Madrid's stately [Atocha train station](#), 10 improvised explosive devices, like those used in Iraq and Afghanistan, ripped apart four [commuter trains](#), killing 191 people and injuring some 1,800 in the worst act of terrorism in Europe since the explosion of [Pan Am flight 103](#) over Scotland in 1988.

Today, the Atocha station feels about as removed from that horror as one could imagine. Much of the spacious, high-ceilinged waiting area has been transformed into a walkable, indoor forest, with giant ferns, palms and lily pads; famed Catalan cellist Pablo Casals wafts through the sound system. My teenage son and I are waiting for the [AVE high-speed train](#) to Barcelona, the most recently opened high-speed rail line in a much-praised system that Spain inaugurated in 1992. The experience is more like visiting a museum than grabbing a train. There are no hourlong lines. Our shoes remain sensibly on our feet.

As we stride single file onto the eel-like, German-made [Siemens S-103 train](#), which seats 402 and will take us to Barcelona in 2 hours and 38 minutes, it's hard not to be impressed. On board the AVE (for *Alta Velocidad Española*, but also, coincidentally, bird in Spanish) the colors are generic corporate blues and grays, with Wi-Fi, croissants and a flat-screen TV beckoning. Within minutes we're hurtling through the high plains and olive groves of Don Quixote land. A small digital sign in the business car flashes our top speed: 300 kilometers or 186 mph.

Unlike in America, no freight trains or conventional passenger trains compete for these tracks, which are fenced-off and raised on concrete ties. With few stops, the electrified AVE trains on Spain's four major routes maintain a 99 percent on-time record, according to [RENFE](#), the state-owned company that operates the trains. RENFE puts its euros where its mouth is by offering passengers on the Madrid-Seville route a total cash refund if the AVE is more than five minutes late. With seats as cheap as \$60 roundtrip, the Madrid-Barcelona trains have proven so successful that RENFE says it now has lured away nearly 50 percent of the Iberia Airlines traffic on that popular 375-mile route.

Spain's success story with high-speed rail goes well beyond merely transporting people.

One hundred miles south of Madrid, the once-dispirited town of [Ciudad Real](#) (pop. 73,000) has been able to attract more professors to its [University of Castilla-La Mancha](#) campus because the AVE, which arrived in 1992, has reduced the commute from Madrid to 50 minutes, rather than two hours by car. "The school is here because of the AVE," José María Menéndez, head of the civil engineering department, told *The Wall Street Journal*. "Without it, it would be impossible to attract the high-level staff we need." Full trains of "Avelinos" now bring hundreds of professionals from Madrid to Ciudad Real's new information technology firms, regional hospital and international airport.



*An exhibition model of a high-speed train used in Spain's AVE system. (wikimedia)*

In Zaragoza, an alluring city of 700,000 halfway between Madrid and Barcelona, Socialist Mayor [Juan Alberto Belloch](#) told me he was initially concerned that only the rich would benefit from the fast train, but the AVE created an unanticipated type of middle-class tourism. Day-trippers from Spain's two largest cities now come for shopping, major soccer games and religious shrines, arriving in about 80 minutes by AVE instead of three hours by car. Here, too, the AVE has attracted high-tech firms, new housing, shops and a stunning new train station. "Socialist, conservative ... we all agree on AVE," Belloch says.

AVE ridership has grown on every route, and there are plans to build another 6,213 miles of high-speed track by 2020. If those plans can survive Spain's stout recession, the country will be second only to China in the amount of high-speed rail track, and 90 percent of Spain's 47 million people will live within about 30 miles of an AVE station. It's a success story that has had President Obama effusing over Spain's trains at the White House.

Yet there are those in America who insist Europe is so different politically and culturally that the U.S. may never be able to duplicate what seems to occur so naturally there. Behind the politics and ideology, however, are the financial facts of high-speed rail. Those facts are complicated and open to parsing in many different ways — ways that are often inflected by the political ideology of the parser. Still, a few are clear: All forms of mass transit are subsidized. Overall, high-speed rail is far more cost effective than its opponents claim. And high-speed rail could become a significant part of America's transportation mix with far less investment than has been poured into highways and airports.

After four decades of White House policy ranging from indifference (Carter, Clinton) to hostile neglect (Nixon, Reagan, two Bushes), America's woebegone passenger rail system had become, by Barack Obama's inauguration in January 2009, a tired cultural punch line. As Obama took his oath, chances were good that Americans who didn't live along the Pacific Coast, in the upper Midwest or between Boston and Washington, D.C., rarely saw, much less used, a daily passenger train. Of the 32 most developed nations, none has a lower percentage of inter-city rail riders than the United States — a mere 0.3 percent compared to Japan's world-leading 27 percent. Unthinkable in Europe, America has metro areas with more than a million people — such as Nashville, Tenn., Columbus, Ohio, Phoenix and Las Vegas — with no inter-city passenger rail of any kind, at any speed.

Over the last 20 years, this rail ridership gap between America and the rest of the industrialized world has only widened, as China, South Korea, Japan, France, Italy, Germany and Spain committed hundreds of billions of dollars not just to seamless networks of conventional trains (that is, those that travel at speeds below 125 mph) but to the construction of sleek, electrified, high-speed trains that can exceed 186 mph. From Shanghai to Madrid, from right-wing to socialist, governments taxed their citizens and granted subsidies or entered into private partnerships to fund their fast trains, convinced they would not only speed up regional travel, but also reduce carbon emissions and oil dependence, relieve traffic congestion, rejuvenate dying towns and create millions of jobs. In virtually every developed nation except the United States, although there may still be pitched political battles over immigration, foreign policy and soccer, hardly anyone argues about the wisdom of their fast trains.

Less than three months into his presidency, Obama announced his plan to spend \$13 billion in federal stimulus funds over five years to seed America's first [HSR](#) projects. "Imagine boarding a train in the center of a city," Obama preached to a receptive choir at a White House ceremony. "No racing to an airport and across a terminal, no delays, no sitting on the tarmac, no lost luggage, no taking off your shoes. ... There's no reason why the future of travel should lie somewhere else beyond our borders. Building a new system of high-speed rail in America will be faster, cheaper and easier than building more freeways or adding to an already overburdened aviation system — and everybody stands to benefit."

Rail fans like to point out that Abraham Lincoln got roughly \$7 billion — in current dollars — approved for the [first transcontinental railroad](#) during the Civil War. But in a time of crippling state and federal deficits, does America have the political will to spend perhaps a trillion dollars over 20 years on trains?

Although Obama's \$13 billion commitment was the largest single allocation of federal money ever given to passenger trains — even adjusted for inflation — there was no delusion at the White House that it was anything more than a down payment. One would have to return to 1958 to find a year the federal government spent that *little* on highways. Not only was the \$13 billion dwarfed by the recent federal bailouts — Citibank and AIG received about \$460 billion combined — or the \$1 trillion spent in Iraq and Afghanistan, but Obama's fast-train stimulus also pales next to spending by countries like Spain. In California alone, wishful estimates are that a decade-long [HSR project](#) from Los Angeles to San Francisco could cost \$45 billion.

These Monopoly-money figures have fueled a cottage industry of critics who insist no amount of feel-good projections about reduced

carbon footprints can justify such expensive projects.

Harvard economics professor [Edward L. Glaeser](#) pummeled high-speed rail in a series of columns in *The New York Times*, arguing with the “dull arcana of rail costs and direct benefits” that a hypothetical 240-mile HSR line from [Dallas to Houston](#) can’t be justified financially. I’ll spare you some micro-ciphering, but Glaeser builds his thesis on such projections as: Operating expenses will run about 30 cents a passenger mile, or some \$72 per passenger for the 240-mile trip; the Texas route might attract 1.5 million trips a year (about as popular as all airplane flights between the two cities today); track maintenance could cost \$200,000 a mile per year (or \$648 million); and the train, traveling at 150 mph, would save riders just one hour over the same airline flight, even allowing for the airport delays on both ends.

After running his numbers, Glaeser says the annual capital costs will be more than six times his projected “benefits” (\$102 million), thus exposing “the cruel arithmetic faced by people, like myself, who would love to be pro-rail.”

Not to be outflanked by those who say high-speed rail’s hard-to-quantify “social benefits” are what make it so valuable, Glaeser conjures up the average fuel consumption per mile of each passenger on a domestic airline flight (about 0.022 gallons), throws in 157 pounds of carbon dioxide produced on a 240-mile car trip, and a fair-minded guess that one-half of the rail riders used to take cars and one-half used to take airplanes, and arrives at this: Each 240-mile train trip would rid the atmosphere of 113 pounds of carbon dioxide for each passenger, implying, Glaeser says with a drum roll, “that trains are green.”

Argument over, right? “Trains reduce carbon emissions, and the world should reduce its carbon footprint,” Glaeser writes, “but those two facts don’t make the case for rail. Trains make sense only if they are a cost-effective means of reducing carbon in the atmosphere.”

He’s not done. Using a liberal estimate that removing a ton of carbon dioxide emissions creates an “environmental benefit” of \$50, Glaeser says the total global-warming benefit of taking those 1.5 million Dallas-to-Houston rail riders out of their cars and planes is some \$4.24 million a year. Add in another \$8.73 million in safety benefits by taking 750,000 drivers off the road and an equal amount for reducing local air pollution, gasoline dependency and road repair, and Glaeser determines that “the environmental and mortality benefits of rail are real, but the magnitude of the social benefits from switching [to high-speed rail] seems quite small relative to the cost of the system.”

Unimpressed, [Yonah Freemark](#), a Yale research fellow who writes about urban development for websites such as [The Infrastructurist](#), says Glaeser’s analysis is “a sorry mix of omission, oversimplification, distortion and deficiency.” I also can’t do justice to Freemark’s full rebuttal here, but essentially he says Glaeser underestimates the future growth of Dallas and Houston and the potential number of high-speed rail riders and uses an unrealistic rail route that doesn’t account for regional air passengers who would ditch planes for trains. (I also think Glaeser underestimates down time at both airports.) Freemark predicts that the Texas high-speed train would have annual construction and maintenance costs of \$810 million and “benefits” totaling some \$840 million — a decent profit.

In these debates on rail economics, it seems that numbers can be shaped to please almost anyone. Here’s a favorite of rail critics that I must admit has the ring of truth: In a March 2009 [study](#), the Government Accountability Office said researchers have found that, in dozens of transportation studies involving rail projects, projected costs were underestimated while potential ridership was overestimated. But the reality is that high-speed rail cost projections are all over the map throughout the world and vary greatly depending on factors like the terrain of the rail route (tunnels and earthquake zones get expensive), labor costs and the price of right-of-way. In Spain, construction costs ranged from \$37 million to \$53 million per mile, and in Japan, one route (Takasaki to Nagano) ballooned to an estimated \$143 million per mile due to bridges and mountainous terrain. But rail critics don’t often mention that the no-frills high-speed rail projects in Korea and China are considerably cheaper.

And high-speed rail’s more intangible benefits — its ability to rejuvenate blighted urban areas or attract urban professionals to small-town hospitals, universities and high-tech centers — are far more difficult to quantify. Just gauging real estate prices and sales tax revenues doesn’t seem to capture the healthy social impact of smart trains. How does one properly value the anxiety and loathing now associated with airline travel, compared to the relative joy of riding trains?

What Glaeser, one of high-speed rail’s more civil critics, ultimately suggests is what Europe already knows: Perhaps passenger rail will have to be subsidized by the government, not unlike our Social Security, NASA, thousands of libraries and fire departments and all our roads and airports. This hardly elicits cries of nanny-state socialism in Europe, where government-run, comprehensive health care has been in place for decades, but in America it has become a call to arms for libertarians and “fiscal conservatives” who insist that high-speed rail must pay for itself, while ignoring the massive subsidies received by the auto and airline industries.

The Heritage Foundation’s [Ronald Utt](#) is typical of many rail critics. Often citing the work of other right-leaning think tanks such as the

Cato Institute or the Reason Foundation, Utt dismisses high-speed rail as a massive waste of money that “pander[s] to key constituencies: environmentalists, rail hobbyists, and labor unions.” Yes, Utt is bothered by the prospect of high-speed trains that provide real middle-class jobs to American workers who might belong to unions, a threat to the country, one surmises, only surpassed by the unbridled political might of ... rail hobbyists.

Back on Earth, one wonders why fiscal watchdogs fail to see the full picture on federal transportation subsidies. Aviation not only receives billions for basics like Federal Aviation Administration operations, airline security, noise mitigation funds for homeowners, and air service to small communities, but airports themselves benefit from tax-free financing on everything from cargo buildings to retail stores — not to mention that the FAA covers 75 to 95 percent of airport planning and development costs in outright grants.

Still more curious is why anti-rail critics don't concede the fact that our nation's highways are subsidized with every gallon of gasoline we buy, yet — despite conventional wisdom to the contrary — they rarely pay for themselves. (The federal gas tax has remained at 18.4 cents a gallon since 1993, and the Congressional Budget Office estimates that will produce more than \$40 billion in highway construction and maintenance funds — the Highway Account, part of the Highway Trust Fund – annually through 2011.) How can they fail to have noticed a much-publicized, man-bites-dog study in 2008 from the car-loving [Texas Department of Transportation](#) that boldly stated: “There is not one road in Texas that pays for itself based on the tax system of today. Some roads pay for about half their true cost, but most roads ... pay for considerably less.” (In fairness, one possible motivation for the iconoclastic Texas study could be Republican governor and White House-aspirant [Rick Perry](#)'s open love of toll roads.)

[The Highway Trust Fund](#) was actually depleted by 2008 and required its own congressional bailout of some \$8 billion, but fans of concrete can hardly say they've been shortchanged over the years. Since 1983, mass transit has only received about one-eighth of those highway taxes, and none went to true high-speed rail because, to date, the U.S. has no true high-speed trains. (Why the federal highway fund is empty is another story. Failing to index the federal gas tax to inflation was a “colossal error of judgment,” writes [Melissa Lafsky](#) on *The Infrastructurist*, noting that Congress, motivated by “political gain rather than public good,” hasn't the guts to raise the tax on such a daily meat-and-potatoes item for most Americans.)

That silent pervasive tax at the gas pump (including state taxes) has made America's interstate highway system the envy of the world, yet the colossal appetite for highway funding — most states, like Texas, prevent their highway gas taxes from funding anything but roads — has crippled passenger rail in America. There's no quicker way to make a rail fan weep than to imagine a portrait of an America that funded passenger rail slowly but surely for the past 30 years with, say, just 20 percent of the highway funds collected annually. Thanks to the 2009 stimulus bill, there will be an injection of billions of dollars into U.S. passenger rail, but whether that represents the start of a rail renaissance or a one-time fiscal anomaly may depend, weirdly enough, on how many tourists want to take the train to Disney World.

It's an unusually cold and blue spring morning in Orlando, Fla., but inside the wide hallways of a new Hilton, amid the understated charm of the Walt Disney World and Convention Center ghetto, there's plenty of heat radiating from an earnest crowd of developers, lobbyists, public relations people, elected officials and local TV news crews. They're here for a conference sponsored by the Washington D.C.-based [U.S. High Speed Rail Association](#), and without impugning the infrastructural altruism of such attendees as [DLA Piper](#), reputedly the largest law firm in the world (3,500 lawyers, 29 countries), or [Hill & Knowlton](#), once the planet's largest PR firm, it certainly seems that a lot of them are on the make.

“Whenever I see this many lawyers in one place, I know someone smells money,” a European construction firm manager jokes. Suggesting as much, the [Center for Public Integrity](#) reported that more than 50 public and private groups were actively lobbying Congress on high-speed rail policy in late 2009, a threefold increase from a year earlier.

Speaking for many, an Egyptian-born engineer tells me bluntly over morning muffins, “I'm trying to figure out how my company can get a piece of that \$8 billion.” He refers to the first round of Obama's high-speed rail funding, which gave money to some 13 rail projects benefiting 31 states. The big winners were the Midwest (\$2.6 billion to connect Chicago, Detroit, Milwaukee, St. Louis and several Ohio cities with trains running below 125 mph), California (\$2.25 billion for true high speed from Los Angeles to San Francisco, estimated to cost more than \$45 billion), and the Sunshine State, which got \$1.25 billion for what is widely considered the most shovel-ready high-speed rail project in the nation, an 84-mile route from Tampa to Orlando that will operate at speeds up to 168 mph.

You read right. If and when nearly-high-speed passenger rail actually debuts in America, its inaugural route will likely be a petite, almost World's Fair exhibition-like 84 miles, from downtown Tampa to the Orlando airport, with three stops, including Walt Disney World and the Orange County Convention Center. If you're a central Floridian not wanting to fly somewhere, attend a convention or go see Goofy, the

long-awaited rail line may be a bit underwhelming.

“Florida got funded because it’s cheap, straight, flat, and tourists will like it,” our European construction executive says. “It is a bit of a joke, but America has to start somewhere.”

A tourist-heavy rail line will hardly be a total waste — Florida’s many tourists clog the freeways as effectively as natives — but neither will it be a Madrid-to-Seville, life-changing epiphany that siphons hordes of SUVs off roads, makes suburbanites rue their lifestyles and builds a flood of grassroots political support for high-speed rail. Those are the kinds of projects some vocal infrastructure wonks wanted Obama to fund first. Instead, the \$8 billion in seed money is spread politically thin and wide to fund lots of smaller rail-crossing and station-renovation projects, as well as conventional trains.

Though many would have rather seen the 235-mile Orlando-to-Miami leg completed and shown to the nation first, Florida’s mini-route might be a logical baby step for America. Simple to engineer and promising some 15,000 jobs over five years, the Tampa-Orlando line is indeed arrow-straight and pancake flat, and it will fit neatly within the median of crowded Interstate 4, unbothered by expensive tunnels, hills or swamps.

“And the Florida project is a bipartisan effort,” says DLA Piper partner [Mike Bedke](#), a Republican insider who helped shepherd Florida’s successful bid. “In statewide politics, they say, as goes the I-4 corridor, so goes Florida. In a state almost perfectly divided between Republicans and Democrats, the I-4 corridor is the perfect microcosm. And Obama needs Florida, so I think Obama was pretty sharp.”

Florida’s decades-long effort to get high-speed rail featured a litany of legislative starts and stops, illustrating that a lack of political continuity and commitment remains one of the largest obstacles to America ever building a seamless, European-style high-speed rail system. Florida had one of the country’s most advanced plans as far back as 1976 and was close to beginning construction in the late ’80s, but political infighting stalled the project, and in 1998 then-Gov. Jeb Bush redirected high-speed rail funds to roads, killing fast trains. In 2000, seeking a secure source of funding regardless of who ran the statehouse, rail supporters pushed through a state constitutional amendment directing lawmakers to begin construction by 2003. More studies ensued, then Bush vetoed additional high-speed rail funding in 2003, and the newly won state constitutional amendment was repealed. Five years later, under Gov. Charlie Crist, the high-speed train plan was resurrected, and in 2009, Florida got its federal funding.

In most European countries, where centralized governments have taken a far more decisive and cohesive hand in passenger rail projects, there are few of these excruciating state-by-state funding battles that ebb and flow with every change in political control. In America, although HSR support has become slightly more secure as Republicans warm to mass transit, it is not hard to imagine besieged state lawmakers eyeing allocated rail funds as they try to soothe their deficits. Even Obama’s promise to fund high-speed rail over five years only looks as secure as the number of Democrats in Congress after November’s midterm elections.

Political pragmatism says rail fans shouldn’t nitpick Obama’s game-changing gift of \$13 billion. Better to build upon small successes, some say, than reach too high too quickly. Congressmen like [Jim Oberstar](#) (D-Minn.), chairman of the [Senate Transportation and Infrastructure Committee](#), promise billions more for high-speed rail in coming budgets, and some Obama legacy-watchers genuinely think he may become for passenger rail what Eisenhower was for America’s interstate highways.

Yet there are justified fears that our country’s incremental, half-speed approach — rather than a legitimate, man-on-the-moon national campaign guaranteed by decades of continuous funding focused on energy independence, jobs and curbing climate warming — might not be enough to alter the course of a me-first, car-first nation, until, of course, \$8-a-gallon gas does the altering for us.