

The Signaling Function of Transportation Infrastructure: the Theory of the Broken Window

Why is it that when the economy is in distress, and a society is desperately groping for a strategy to rebuild its confidence in the future, societies everywhere instinctively look to rebuild their transportation infrastructure--roads, bridges, ports, airports and rails?

Most free-market pundits respond that because the transportation infrastructure is the conduit of commerce, the better the infrastructure, the more efficiently commerce flows and the more productively resources are allocated, creating prosperity. That is all true.

But I suggest there is another perhaps more potent explanation of the vital linkage between transportation infrastructure and the economy based on what social scientists call the Broken Window Theory.

Social scientists and police officers observe that if a building window is broken and left unrepaired, more windows will soon be broken, because "one unrepaired broken window is a signal that no one cares, and so breaking more windows costs nothing."

Philip Zimbardo, a Stanford psychologist, conducted pioneering experiments testing the broken-window theory. He parked a car without license plates with its hood up on a Bronx street and another on a Palo Alto, California street. A well-dressed, apparently middle-class family, composed of a father, mother and young son, was first to ransack the Bronx car, within 10 minutes of its "abandonment." Within 24 hours, virtually everything of value was removed. Then capricious acts of destruction beset the car --windows were smashed, parts torn off, upholstery ripped. Children used the car as a playground. The Palo Alto car sat untouched for more than a week. Then Zimbardo smashed part of it with a sledgehammer. Within a few hours, the car was turned upside down and destroyed.

The Broken Window theory asserts that seemingly small physical disorders in urban neighborhoods may lead to a cascade of physical and social decline. Minor bruises to the physical infrastructure and public incivilities like drinking in the street, spray painting graffiti, and breaking windows escalate into predatory crime, because predators learn from these expressions of disorder that residents are indifferent to what happens in their neighborhood. "Visual signs of decay silently but forcefully convey messages about the neighborhood. Disorder triggers attributions and predictions in the minds of insiders and outsiders alike, changing the calculus of homebuyers, real estate agents, insurance agents and investors." The degree of disorder may or may not be a function of residents' degree of commitment to the maintenance and improvement of their neighborhood. But it is interpreted as such. Physical disorder is a cue that attracts predators and initiates a roaring cascade of adverse social and economic consequences.

The authors of the Broken Windows Theory describe the waterfall-like decline of neighborhoods that is often triggered where the physical infrastructure is left "untended" even in seemingly minor ways :

"A stable neighborhood of families who care for their homes, mind each other's children, and confidently frown on unwanted intruders can change, in a few years or even a few months, to an inhospitable and frightening jungle. A piece of property is abandoned, weeds grow up, a window is smashed. Adults stop scolding rowdy children; the children, emboldened, become more rowdy. Families move out, unattached adults move in. Teenagers gather in front of the corner store. The merchant asks them to move; they refuse. Fights occur. Litter accumulates. People start drinking in front of the grocery; in time, an inebriate slumps to the sidewalk and is allowed to sleep it off. Pedestrians are approached by panhandlers.

At this point... residents will think that crime...is on the rise, and they will modify their behavior accordingly. They will use the streets less often, and when on the streets will stay apart from their fellows, moving with averted eyes, silent lips, and hurried steps... Such an area is vulnerable to criminal invasion... Drugs will change hands, prostitutes will solicit, and cars will be stripped. Muggings will occur."

I suggest that because our roads, bridges, rails and airports are the omnipresent symbol of the community's solicitude for its own economy, an untended transportation infrastructure signals a community's abandonment of hope for its economic future. For one, it suggests that the pace of economic activity has not only declined, but also there is no hope of recovery, because we would not allow our transportation infrastructure to deteriorate to a substantial degree unless we expected permanently reduced transportation needs resulting from a permanently depressed economy. It suggests misguided priorities, indecision and incompetence by the community and its government. On the other hand, a clean, efficient and modern transportation system telegraphs every day over and over again a collective expectation of and commitment to prosperity. Because we would not invest in the

arteries through which commerce flows unless we believed in a future where lots of commerce will, indeed, flow, it signals a collective faith in a future where highways will carry ever more prosperous families, consumers and producers. And it signals clarity of purpose, sound priorities and competence.

A degraded transportation infrastructure taxes economic activity and depresses it not only by adding to the cost of transporting goods and services, but also because it taxes our sense of economic optimism. When the state signals that it has "abandoned" the infrastructure of personal and commercial mobility, the movement of people and business is burdened with a sense of friction and obstacle.

In combination with other consequences of poor transportation infrastructure like reduced productivity, impaired economic cooperation and less effective exploitation of comparative advantage by less specialized producers, this can trigger a cascade of harmful economic and social effects that cumulatively coalesce into a waterfall-like economic decline, not unlike what we are witnessing today. Thus, seemingly small disorders in the transportation infrastructure, like potholes, asphalt cracks and graffiti may, in turn, initiate a cascade of economic decline much like a broken window triggers a cascade of decay in a city neighborhood.

This should not surprise. Economics instructs that prosperity is vitally connected to consumers' expectations. Consumer expenditures account for more than 6 out of every \$10 spent in the American economy. When consumers are upbeat, they have a higher propensity to spend on goods and services. This increases business revenues, corporate profitability, stock values and government revenues. On the other hand, crumbling consumer confidence means crumbling business sales and profits which, in turn, depresses equities, real estate and other assets. Sound familiar?

The consumer's state of mind and the state of our economy are inextricably intertwined. And the consumer's state of mind is intertwined, in a fundamental way, with the signals communicated by the relative decay or maintenance of the transportation infrastructure.

The signs of physical disorder precipitate a cascade of negative events, motivating residents to move out of their neighborhood. And because people move out only if they have the financial means to do so, outmigration heightens the concentration of poverty among those left behind as well as transience and residential instability. This increased level of residential instability, transience and concentrated poverty, in turn, leads to more crime, disorder, instability and transience. Negative consequences feed on and fuel further negative consequences in an infinite loop.

So too does the disintegration of the transportation infrastructure constitute a highly visible cue to which consumers and businesses respond, triggering a cascade that motivates residents to move out of their community. And, as with disintegrating neighborhoods filled with broken windows, people move out only if they have the financial means to do so. This outmigration thereby increases the concentration of poverty among those left behind. Witness Detroit, the poorest big city in America. Witness Michigan, becoming poorer relative to other states all the time. A social and economic feedback loop is grounded in our investment in our roads, bridges, airports and rails. Our future is vitally threatened by the pervasive decay of our transportation infrastructure.

This whole cascade of events cannot, of course, be traced exclusively to our decaying transportation infrastructure. However, the decay of that infrastructure is a vital component of that dynamic, because it taxes and, therefore, depresses economic activity both by adding to the cost of transporting goods and services and by taxing our sense of economic optimism.

If economic actors broadly share positive expectations about the state's commitment to a high level of maintenance of the physical infrastructure that makes economic transactions possible, if economic actors believe that there is a shared and durable commitment to the principle that hard workers and risk takers will retain the overwhelming share of the fruits of their labor/risk, and the polity is committed to a set of marketplace regulations widely regarded as fair, then investment in new business and job creation will flow. If, on the other hand, economic actors observe that government cannot even maintain Detroit's roads or the New Orleans levees, and the government permits Board members and officers of major corporations to take down huge bonuses and receive government bailouts for self-dealing while shareholders are bankrupted, they hear the message that the government is inefficacious and not committed to fairness and the maintenance of either the physical infrastructure that permits economic cooperation over distance or the rules of a free and competitive market. Under such conditions, consumers and businesses alike hunker down, retreat from risk, spending and investment, and hoard cash and resources as a safety net in the face of

an uncertain future. The result of such public economic disorder is the state of economic emergency that confronts us.

People assign a high value to public order, and feel relieved and reassured when the police help them maintain that order. Similarly, people assign a high value to a safe and efficient transportation infrastructure and feel reassured when the government adequately maintains the infrastructure that makes economic transactions and personal mobility possible.

In the context of the global economy, our nation's economy is vulnerable to a dynamic of withdrawal and decline similar to that of the neighborhood with a broken window when the nation signals, by its cumulative neglect of roads, bridges, airports and rails, by potholes, chunks of cement falling on the hoods of cars from overhead decaying bridges, graffiti lining expressway barriers, asphalt bike paths and cement sidewalks riddled with cracks and the occasional bridge collapse, that the nation has given up in the struggle for leadership in the global marketplace and surrendered ascendancy to other nations. And, in the context of the nation's domestic economy, Michigan signals, by the same neglect, that it has given up in the struggle for jobs and economic growth relative to other states.