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"EUROPE" IN THE WEIGHTLESS ECONOMY

The weightless economy threatens the traditional nation state and is rife with positive externalities for economic growth. Is this a recipe for government intervention? In the third installment of his regular column, Danny Tyson Quah looks at some European experiences, and concludes not.

Just as on the Internet no one can tell if you're a dog, in the weightless economy no one should care if you earn your living logged in from Dulwich. Or from Silicon Valley for that matter. In the modern weightless economy, economic activity should disrespect location, geography, and distance. And, mathematically, the traditional nation state is just a topological deformation of physical distance. Pop journalism is rife with stories of how the twin forces of technology and globalization have fed off each other and undermined the sovereignty of traditional nation states.[1] In appropriate circumstances, it is natural and right for the traditional nation state to fight back—as it would be for any other player in the modern economy.

Moreover, characteristics of the weightless economy previously described in this column and elsewhere veer close towards standard notions of public goods. Indeed, in another guise, early versions of these ideas were linked to endogenous growth from spillovers and externalities—then, private actions of profit-seeking agents would lead to under-investment and slower growth than optimal. Shouldn't that give governments yet further reason for intervention?

The nation state and its economic geography

Sure, there was a time when economics bowed to geography. Farmers having grown their leeks (or corn or rice or soy) could not rely on neighbors buying all their produce. Indeed, typically, most of those neighbors had their own leeks to unload. Even the most intrepid, after all, eat only so much leek a year. Thus, leeks had to be transported from wherever they had just been produced to wherever they would ultimately be consumed. For a representative consumer, leeks might not seem to weigh all that much, but count up all the leeks you would like to eat in a year (granted, presumably not that many), multiply that by the number of people living in London or in all of the UK, and soon you're talking real transportation costs. Given transportation costs, someone—whether it be the farmer, the consumer, or the automagical workings of the marketplace—will need to ensure that the distribution of economic activity across geographical space is deliberate and efficient. Location matters.

Swap "industrialists" for "farmers" and "earth-moving, chemicals-processing, fabric-weaving, car-assembling, house-building machinery"—heavy metal—for "leeks", and the location problem simply scales up. For the producer, there always remains the tension between settling on the fertile land, or near the coal mines or waterways, and locating near the customer or the distributors. For the consumer, there always remains

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[1] To be clear, there is nothing wrong with this: It's the same principle taught to economics undergraduates when either fiscal or monetary policy is pronounced ineffective for affecting either prices or interest rates under this, that, or the other exchange rate regime.

the tension between working where one is most appreciated and living where one most appreciates. When economic activity was less specialised and one produced only for the consumption of one's family and fellow villagers, such tensions were correspondingly less pronounced. But then, as economies grew and technology allowed specialisation, opposing forces in the balance grew differentially in strength. The economic landscape changed accordingly.

This is a simple story, but it helps us understand the evolution of locational geography from Nebuchednezzar and the Sumerians in the Tigris-Euphrates basin all the way up through shopping malls and industrial zones in the late twentieth century. Large empires were cobbled together and fought over, canals built and continents separated, to make an economic landscape just so. Secondary-school history and geography textbooks abound with examples of such locational forces at work. In the US, first railways and then automobiles and highways profoundly influenced the economics and the culture of American society.

In this simple story, when we recognise that being close to customers means different things depending, say, on ruggedness and inaccessibility of the surrounding terrain, we factor into the calculation the idea that relevant economic distance means something a little more subtle than that distance as the crow flies. From there, it is a small step to consider trade tariffs and trade barriers across nation states—on top of road-kilometers or air-miles—as also forming part of a sensible definition of economic distance.

But it is a two-way street when a nation state's policy actions directly influence distance and geography. From an economic perspective, as long as distance, trade tariffs, and other barriers keep the world from being one seamless web, they also help define what nation states are and what nation states can do. Taxes on a citizenry extend only as far as where those citizens can be found, and no further. Without free trade and mobile capital and labour, factor-price equalization fails, and the effective minimum wage in one nation state will differ from that in the next. Without the possibility of cross-country swapping of financial instruments, disparities in risk-adjusted interest rates across nation states need not be arbitraged away. Collecting revenues for the state is easiest and most efficient when tax officials can just wander on down to the closest port of entry, and sit there counting the bales of cotton or casks of wine that trundle from ship to dock.

Wh/ither the nation state?

To continue the story, now replace "leeks" with software, mathematical algorithms, designs, and database content. How do these travel?

The flip answer of course is very well, thank you. Converted into logic bits of zeroes and ones, these products scurry across the globe practically instantaneously. In package-switched transit, they are indistinguishable from any other zeroes and ones also zipping through the networks. And, without knowing how they are to be put back together again, those zeroes and ones that we sent are completely meaningless to the unsuspecting onlooking third party. However, when reconstituted into their error-checked manifestations at the receiver's end, they comprise *exact* copies of what had been originally transmitted. These commodities are not icebergs that melt along the way

in transportation. Neither are they are objects that a fiscal authority can easily tote up and impose a fiscal burden on—to tax just digital bits, independent of what value those bits carry, violates every sensible principle of public finance I know.

It is a naï ve but natural extension of this reasoning to conclude from this that the nation state will wither away. In this reasoning, the nation state, as we know it, will soon become neither necessary nor viable.

Stories abound, some probably apocryphal, of how modern communications technology have altered power relations between governments and those they control. Nevertheless, of the 30 million people around the world in 1994 capable of reading the Internet-loaded Zapatist communiques out of the Mexican state of Chiapas, most would have been likely too apathetic or too insignificant to do much to help those rebels against government opression. But the few that weren't feeble certainly did alter world public opinion and made a difference. Similarly, a 2400-baud modem or two, judicially distributed around Czechoslovokia, surely helped to communicate, organise, and coordinate in 1989—with the heavy hand of the Communist state too unhip to understand how those instruments of new technology might matter.

Now, if anything, the nation state pokes its head into everything having to do with new technology. The US government auctioned off the radio spectrum (someone had to), and—after consulting the best economists in the business on how to do this—actually did a pretty good job, all agree. Drawing on the example of the government's success at building national highways, the federal government has also looked into constructing analogous pipeways for transmitting those digital bits of information.

It is unclear that private enterprise could not do by itself a pretty good job on this. Building highways when only national governments had the clout to amass the necessary resources is one thing. Crowding out what profit-seeking private agents can now do quite willingly is another. Already it is a private consortium that provides much of the world's satellite communications services via high-altitude geostationary orbit. Sure, each of the 200 such commercial satellites now circulating Earth cost US$250m to build and launch, but then every one of these can also bring in US$3m per year on each of the 52 transponders borne aloft. Separately, Motorola and Teledesic (the latter in collaboration with Microsoft and Boeing) have been working on putting in place alternative low-orbit satellite service for video and voice communications. Having a global range as any such operation must do involves the delicate task of getting the approval of a sufficiently large coalition of different sovereign countries. It is informative that the bloc unified in favor of these operations comprised mostly the poorer emerging countries, arrayed against the Europeans and Japanese. Half the world's population still live in countries with less than one telephone per 100 inhabitants—there are more telephone lines in Tokyo alone than in all of the African continent. Here, profit-seeking private enterprise might well do a good job of bringing high tech to the poor—indeed, in this regard, why should high tech be different from anything else?

However, in the US the outstanding example of nation state intervention in these matters has been on the issue of privacy of those logic bits whizzing around communications channels. Debate surrounding the Clipper Chip—key-escrow encryption technology—has been heated, with the federal government seeking to retain the technical ability to decrypt every conceivable communication, whether it be by voice

phone or data transmission. Opponents—ranging in political persuasion from simple-minded religious extreme right to breathlessly jejune flower-power left—credibly organized against big-brother government. The right to free (i.e., uncensored) communication is always tricky for a government to challenge, even if the challenge is more imagined than real.

Where does Europe slot in to the Net?

Governments could, of course, do worse.

European information society initiatives (the Information Society being the EU counterpart to the US National Information Infrastructure, or to the less nationalistic and thus more universal "information superhighway") abound, and some of these projects will likely do good. Now that 80% of the new jobs created in Europe in the last five years have been recognized as information-related, here's where someone might think European government resources could go on pump-priming stimulus, killing two birds—furthering modern technology and smoothing out sluggish, premodern, Eurosclerotic labour markets—with one stone.

Everyone should, of course, welcome any reallocation of resources into what are clearly growth sectors and away from moribund declining economic activities. But private agents do that well. Why get in their way and take away entrepreneurial opportunity? Such government interventions are in sharp contrast to, say, the US where, after early war-related beginnings, all high-tech development valued by consumers has been carried forward by profit-seeking private enterprise. Being contrary is, of course, no guarantee of error, but then neither does it assure success.

In the early 1990s, the French government and the European Community poured US$120m into the Advanced Computer Research Institute (ACRI), newly established in Lyons. One goal, presumably, was to try to grow some of that same creative fire igniting California's Silicon Valley. The ACRI paid top prices to hire managers, scientists, and engineers quickly. Staff surplus to requirement were taken on, partly because ESPRIT funding (ESPRIT was the European Union's principal programme for information-technology R&D subsidies) was based on staffing targets—but surely over-manning could do no harm. And it's an easy way to create jobs.

The ACRI project went nowhere. No product ever came to market; the Institute went bankrupt in six years. Its closest global competitor, Convex Supercomputer in the US, brought out *its* own machine in half the time and for a quarter of what ACRI spent.[2]

This example is instructive. Why, when the new technology is geography-blind, do places like Silicon Valley, Massachusetts's Route 128, and Utah's software concentration between Salt Lake City and Provo succeed so spectacularly, while others—with arguably better financial support and government backing to boot—fail?

First, all those successful regions in the US are close by top universities churning out highly-motivated, success-driven software and hardware engineers; industry in the new technology relentlessly feeds off this creativity and brainpower. By contrast, in a

[2] I know because in 1993 when I needed the most powerful University of London supercomputer around for some econometric simulations, there it was, a Convex machine.

1996 survey, 50% of France's youth said they wanted to be civil servants. Sure, it doesn't matter that you're in Bangalore, India, bouncing off a satellite your code destined for a software house in California—but you have to want to do it, and someone had had to find you as you were graduating from university in the first place.

Second, all the successes began lean, mean, and hungry. No one had a luxurious direct lien to an ongoing supply of resources with which you could buy unneeded equipment and people. If you don't give people what they want, you're out of the game. Start over.

The binding constraint in this business is the shortage of human capital—whether it is for providing artistic design and content or for cutting code or for laying tracks on silicon. This is why in the 1990s in the US real wages have risen 13–20% for programmers, while the median wage has instead fallen; why US high-tech headhunters scour the globe for skilled software engineers; and why high-tech companies consider the shortage of human talent the greatest potential threat to successful, ongoing growth in their industry—more than any problem on the demand side for their products.

Unleashed, European private industry does very well in the global competitive weightless-economy market place. Nokia in Finland and Ericsson in Sweden continue to dominate the world in cellular global telephony. (Remember, Finland is that country whose income fell by 50% in a single year in the early 1990s.) It might, of course, seem strange to think of "Ericsson in Sweden" since Ericsson employs 17,000 engineers in 40 research centres distributed across 20 countries in the world. It has 90,000 employees in total, active in over 130 countries. After designers in Australia and England have worked to their satisfaction on an Ericsson blueprint, that design plan is simply and transparently made available to a factory in China for final production. The logic chips in their excellent telephones are just as likely to be designed in Nice using software tools developed by Ericsson in Houston, produced in Japan and Dallas, and tested in Taiwan. But, unquestionably, Ericsson remains a Swedish company. Similarly, "Nokia in Finland" employs more than 34,000 people in 45 countries.

Psion in the UK is widely recognized to make the world's best handheld computers. Forty percent of the world's most successful video games have been written and designed by British programmers. Likely the same kind of freewheeling creative genius that made Douglas Adams's Hitchiker's Guide to the Galaxy such a runaway success will carry over to his *The Digital Village*, exploring online entertainment. In France, Gemplus, founded by engineers out of Thomson Semiconductor, developed the first microprocessor-equipped smart card and, in the process, launched a billion-dollar industry, of which it still owns more than a third. Over 90% of the world's smart cards are currently in use in Europe, although estimates are that US consumption of them will grow dramatically in the coming decade.

Success in the weightless economy comes from letting winners emerge, and getting out of their way when they do so. It's the same silver bullet as in the regular economy. Even if no one cares that you're logged in from Dulwych, what you're doing had better be useful and valued.

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http://econ.lse.ac.uk/~dquah/
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