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WHAT SHOULD THE WORLD DO ABOUT PORT-AU-PRINCE? AN ECONOMIC ASSESSMENT

JACOB VIGDOR*

On 12 January 2010, a major earthquake caused catastrophic damage to the capital of one of the world's poorest nations. Although many communities in the southern portion of Haiti suffered grievous damage, the devastation wrought upon Port-au-Prince was both massive and almost instantly communicated throughout the world. The nation with the lowest GDP per capita in the Western hemisphere now faces a daunting but sadly familiar dilemma – how to rebuild in the face of vastly insufficient resources, without reintroducing the problems that exacerbated natural risk in the first place.

Among the best tools for understanding this dilemma are those found in the economist's toolbox. For each individual, rebuilding decisions rest upon a calculation of costs and benefits. As such, one could imagine an uncoordinated, *laissez-faire* vision of rebuilding, with some individuals deciding that reconstructing their home or business in Port-au-Prince offered greater value than the next best alternative. On the other hand, though, a host of potential market failures suggest that the decentralized solution to the rebuilding problem might be anything but optimal. Even in the most developed economy, one would be concerned about proper investment in infrastructure and other public goods, the potential role of externalities, and the proper allocation of risk. In the Haitian context, we must add to this list concerns about property rights, underdeveloped capital markets, and the competence of government.

Given all these considerations, it appears highly unlikely that a *laissez-faire* process will result in anything that could be considered an 'optimal' recon-

struction in Haiti. Indeed, with the multitude of market failures complicating the process, it is difficult to even contemplate what an optimal reconstruction would look like in Haitian society. At the heart of the uncertainty lies a difficult question: in the face of endemic disaster risk, is a society best off concentrating or dispersing its population? Had the Haitian population been spread more widely throughout its territory, the proportion affected by the earthquake would have undoubtedly been lower. Concentration of the affected population, however, introduces the possibility of exploiting economies of scale in relief and recovery efforts.

This essay proceeds by describing the economic historical context of Port-au-Prince, and considering the various market- and non-market mechanisms that led the city to become by far the largest in Haiti. It then offers some thoughts on the basic tasks that should be high priorities in reconstruction, and then some additional thoughts on the proper spatial distribution of those tasks. What emerges more clearly than anything else is that the best prospects for an economically rational reconstruction process hinge on foreign cooperation. The Haitian government enjoys – and deserves – an exceptionally poor reputation; government corruption and inefficiency is in fact the primary reason that Port-au-Prince became a large city in the first place. The earthquake, tragic though it was, could provide an opportunity to remedy the consequences of decades, if not centuries, of poor planning decisions.

A brief economic history of Haiti and Port-au-Prince

Port-au-Prince was chosen as the site of the capital of the French colony of St. Domingue in 1738, a few decades before Haiti earned its independence in 1804. For more than a century, the city served as one of several transshipment points and administrative centers in an economically undeveloped country. Geographer Georges Anglade, writing in 1982, identified the period between independence and American occupation in 1915 as the era of 'regions',

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where the output of coffee plantations, as well as mahogany wood and other forest products, were sent to one of several regional port towns for export (Anglade 1982 as quoted in Lundahl 1992). Although sugar cane has traditionally been an important crop in Haiti, no sugar whatsoever was exported during this period (Girard 2005).

Anglade (1982) describes the period after 1915 as one of ‘centralization’, as both political power and economic activity were increasingly concentrated in Port-au-Prince. The typical narrative of urbanization in initially agrarian societies begins with agricultural surpluses sufficient to feed a population that does not work the land. Cities begin as centers of trade, and in some cases evolve into centers of production. As technological change proceeds in the agricultural sector, shifting emphasis from subsistence to export, farm labor eventually becomes urbanized industrial labor.

In Haiti, the traditional narrative breaks down along several dimensions. Agriculture and other resource-based industries have declined, in the absence of any clear technological improvements. Haiti has been almost entirely deforested for decades. Subsistence agriculture continues to play a strong role in the economy, while the production of cash crops has dwindled. Coffee has long been the nation’s most important cash crop; however poor agricultural practices have earned the sector’s output a reputation as a low-quality product. In 2009, Haiti exported just USD 35,000 worth of coffee to the United States, while simultaneously importing USD 120,000 worth (US Census Bureau 2010).

In the 1960s and 1970s, Haiti produced over 4 million tons of sugar cane per year. This output increased in the 1980s. Sugar refineries were present in several cities, and collectively produced tens of thousands of metric tons around this time. In more recent years, though, the sugar industry has essentially vanished. Haiti exported no sugar to the United States in 2009, while importing USD 378,000 worth. In 2009, Haiti’s primary agricultural exports to the United States were fruit – predominantly mangoes – and tree nuts. Total exports of agricultural products to the United States amounted to 16.5 million US dollars, against USD 53 million worth of agricultural imports (US Census Bureau 2010).

Even setting agriculture aside, Haiti’s resource endowment is quite poor. The nation has no proven

oil or natural gas reserves. Bauxite mining was a fairly prominent industry in the nation’s southeast for a time; the nation produced 650,000 tons of ore per year in the early 1980s and exported most of it (Tata 1982). By 2009, however, trade statistics for the United States – Haiti’s most significant trade partner by a wide margin – show that the nation exported neither ores nor primary metal manufactures. The nation’s sole metal export to the United States amounted to USD 5,000 worth of heavy-gauge metal tanks (US Census Bureau 2010).

The disastrous performance of resource-based industries in Haiti can be attributed to a combination of fate, poor decision-making and political instability. The nation has few resources to exploit and only 28 percent of its land area is considered arable. Mismanagement of forestry resources and of coffee plantations can be blamed in those sectors. The nation’s political woes have often carried negative economic repercussions. The 1991 military coup which deposed president Jean-Bertrand Aristide, for example, led to a trade embargo associated with simultaneous economic contraction and inflation.

Consistent with the traditional narrative, the rise of Port-au-Prince can be attributed in part to the emergence of a manufacturing sector in that city. The nation’s apparel industry, which accounts for some 93 percent of the value of exports to the United States, is concentrated in Port-au-Prince. Upon closer inspection, though, the role of industry in the capital’s expansion is quite minor. Haiti’s manufacturing sector overall is astonishingly small. The nation’s total exports to the United States in calendar year 2009 amounted to about 550 million US dollars. By contrast, the Dominican Republic, which occupies the same island and has a population of comparable size to Haiti, exported 3.3 billion US dollars to the same partner in the same year. For every dollar in income received through exports, Haiti receives about USD 2.50 in remittances. In a very real sense, then, Haiti’s most significant export is labor.

Port-au-Prince’s emergence as Haiti’s leading manufacturing center cannot be attributed to any natural advantage.¹ Fabric used to create apparel is almost

¹ Puzzlement at the location of the capital dates back at least two centuries. British historian Marcus Rainsford, writing in 1805, opined that “It must have been one of the unaccountable caprices that sometimes direct the settlement of towns, that could have obtained for [Port-au-Prince], indefensible at all points, the distinction it received” (Heinl and Heinl 1978, 31).

exclusively imported. While the city does have container port facilities, it is not necessarily the most obvious choice for shippers. Cap Haitien, on Hispaniola's northern coast, is closer by sea to Miami, and during the era of bauxite production the port at Miragoâne handled a larger volume of exports.

If not for natural advantages, what explains Port-au-Prince's rise to primacy in manufacturing? In a word, the proximate cause is infrastructure. Tata (1982, 64) remarks that Port-au-Prince in the early 1980s was "the only real choice for a modern manufacturing plant". Port-au-Prince possessed the nation's only runway longer than 1,600 meters, the only modern dock facilities and the most reliable electricity generation.

These infrastructural advantages, in turn, reflect the investment decisions of Haitian government. The tendency for population to cluster in the capital cities of nations with unstable governments is both general and widely noted (Ades and Glaeser 1995). Several hypotheses explain the link. When governments are corrupt, proximity to the seat of power may facilitate business and rent-seeking – indeed, Tata (1982) notes that the ease of acquiring necessary government licenses as one factor leading Haitian manufacturing towards Port-au-Prince. Governments may favor infrastructure investments in the capital because the hinterland is weak, or because access to superior infrastructure helps guard against uprisings in outlying areas. Ultimately, then, the emergence of Port-au-Prince as a manufacturing hub is far more clearly attributable to these political considerations than to any innate locational advantage.

The greatest share of employment in the Port-au-Prince region associates not with manufacturing, but with services. The rapidly growing metropolis has supported a significant construction sector, transportation and communication services, education and health care, and banking and insurance. Once again, these sectors have gravitated towards Port-au-Prince not because of any innate advantage in providing them there, but because they must closely track the distribution of the population more generally, and must appeal to the same government-allocated resources that drive industrial location decisions. Haitian service industry has followed people to Port-au-Prince, not the other way around.

Thirty-five years into Anglade's period of centralization, Port-au-Prince was by any measure a modestly sized city. In 1950, at the time of Haiti's first official census, the Port-au-Prince metropolitan area, which at that time essentially consisted of the city itself and the nearby suburb of Petionville, counted 144,000 inhabitants in a nation of just over 3 million (Institut Haïtien de Statistique et d'Informatique, Division d'Analyse et de Recherches Démographiques 1983). Nearly half of these residents had been born elsewhere in the country (Lundahl 1992). Seven of every eight Haitians lived in rural areas at that time, the vast majority engaged in subsistence agriculture. Haiti in 1950 was still a quintessential pre-industrial society.

By the time of the nation's third Census, in 1982, the metropolitan region counted 720,000 inhabitants in a nation of just over 5 million – over 32 years, the share of national population in the capital city rose from under 5 to over 14 percent. In the early 1980s, the Port-au-Prince region was home to two-thirds of Haiti's manufacturing establishments and over 90 percent of all manufacturing employees (Tata 1982).

In the early 1980s, the Haitian government evaluated the prospects of establishing industrial facilities in the outlying population centers of Cap Haitien and Les Cayes (Tata 1982). These efforts did not lead to any break in the trend toward primacy in Port-au-Prince. Population estimates from 2009 suggest that the capital region was home to about 28 percent of the nation's population. Over the six decades between the nation's first census and the devastating earthquake of 2010, the Port-au-Prince region grew at an average annual rate of 4.8 percent, more than twice the growth rate of the population as a whole. This era witnessed the emergence of suburban slums that would become household names in the aftermath of the quake: Cite Soleil, established in the 1950s, Carrefour, a former coastal tourist destination and artist colony that tripled in population between 1982 and 2009, and Delmas, which was not even enumerated in the 1982 Census but was home to 359,000 people by 2009.

The earthquake of 12 January 2010 wrought destruction on a city that owed its existence, above everything else, to the actions of government. The region's infrastructure, which made Port-au-Prince the only feasible location for most export-oriented activity,

was decimated. Indeed, the destruction of critical infrastructure undeniably worsened the human toll of the earthquake, as facilities to offload cargo containers were rendered unusable, and the single-runway Port-au-Prince airport was quickly overwhelmed.

Port-au-Prince's population has dispersed into a countryside where subsistence agriculture is by and large the only economic activity – the sustainability of which is severely threatened by a combination of poor prior practice and vulnerability to further natural calamity. The country is now in a precarious position, and does not possess the resources to pull itself up by its own bootstraps.

Reinvesting in Haiti: what needs to be done?

Haiti's precarious position prior to the earthquake creates great uncertainty regarding the pace and form of recovery. From an economic perspective, there are several important questions to ask about the recovery process. What are the most sensible investments to make in Haiti? Should these investments be geographically concentrated, to mirror the economic situation in 2009, or would it make more sense to disperse them? There are a few common-sense answers to the first question, but the second one is actually quite difficult.

Some of the most sensible investments in Haiti would undo the damage inflicted by the mistakes of earlier eras. Deforestation has created incredible problems for the country; the soil has been damaged by erosion and has greater difficulty retaining rainwater. As a consequence, hurricanes are now more likely to lead to catastrophic flooding and mudslides. A proposal to allocate United States government resources to the reforestation of Haiti was introduced in the Senate in June 2009, and to the House of Representatives in December, but these legislative bodies have taken no definitive action on the proposals.

Programs of reforestation have been tried in the past, without substantial success. Legal uncertainties regarding land ownership have impeded efforts (Oppenheimer 2010b). The widespread use of wood for cooking fuel leads to situations where trees are consumed as rapidly as they are planted. The finance minister of the Dominican Republic, Morales Tonosco, has suggested the replication of a Do-

minican program implemented in the 1960s: the distribution of subsidized natural-gas cook-stoves (Oppenheimer 2010a). Of course, in a nation with no natural gas reserves, such a program would only exacerbate an already burdensome reliance on imported fuel. The deforestation of Haiti represents a classic negative externality problem, however, and actions to correct it would almost certainly pay dividends in the long run.

What Haiti needs more than any commodity, however, is a stable government. A stable, democratic, representative government would face stronger incentives to properly guide investments of the nation's own public resources. The government's past reputation for corruption and incompetence serves as a substantial impediment to policy and planning in the wake of disaster. A stable government would not only credibly guide the actions of private citizens, but also encourage investment by foreign firms.

Unfortunately, stable government is perhaps the most difficult thing to bequeath a nation. The presence of a United Nations Stabilization Mission in Haiti since 2004 has undoubtedly helped to stabilize the country, but preventing armed conflict is not exactly the same as ensuring stability in government. Foreign intervention may need to be a significant aspect of Haitian governance for many decades to come.

Haiti has, in fact, experienced two periods of intense foreign intervention in the past century. The first American occupation, between 1915 and 1934, yielded incredible investments in infrastructure. A country with 5 kilometers' worth of highway in 1915 had nearly 2,000 by the end of occupation. Irrigation canals dating to the colonial era were renovated, and investments in urban water supply and hospitals improved health. Most strikingly, these investments were accomplished largely without the use of foreign-source revenue. The occupiers diverted the flow of domestic revenue from the pockets of bureaucrats to infrastructure (Girard 2005). Much of this infrastructure crumbled after the end of occupation, however, for want of maintenance. By 1971, three-quarters of the American-built road infrastructure was no longer passable in all weather conditions (Heinl and Heinl 1978).

The first American occupation had its flaws. The occupying force was entirely white and insensitive to the country's racial history. Many roads were built

with unpaid labor, as the occupiers enforced a law on the Haitian books since the 1860s, which required all citizens to contribute to road-building with either taxes or physical work. Investments in educational institutions were also not well-aligned with the needs of a largely illiterate, Creole-speaking population (Girard 2005).

The second American occupation of 1994–95, which had the primary goal of re-establishing Jean Bertrand Aristide as president, earned much higher marks in terms of cultural sensitivity but accomplished comparatively little in the way of investment. The ideal form of foreign intervention would couple the first American focus on efficient investment with the second American attention to cultural sensitivity.

Where should reinvestment take place?

The notion that redevelopment efforts should aim to disperse population away from Port-au-Prince is as old as the nation itself. Jean-Jacques Dessalines, the self-styled first emperor of Haiti, reportedly desired to abandon the city (Heinl and Heinl 1978). These plans were lost with his assassination in 1806. More recently, Georges Anglade concluded his 1982 Atlas of Haiti with a call to decentralize the population – a call that echoed the government’s own study of development outside the capital. Since that time, of course, the proportion of Haitians living in Port-au-Prince has doubled.

As noted above, there is no natural reason for Port-au-Prince to be the center of export activity. Given the devastation to the capital region’s infrastructure, it might well be less expensive in the long-run to develop the region around an alternative port. Cap Haitien, the most frequently cited alternative port facility, is itself in a seismically active zone, afflicted by an earthquake most recently in 1842, and lies along a fault that some consider overdue for a major quake. From a seismic perspective, the safest portion of the country lies near the geographic center, north of Port-au-Prince along the Golfe de la Gonâve.

The small city of St. Marc is perhaps the most promising location in this zone. St. Marc traces its origins to the colonial era. Its immediate environs have not been directly affected by any recorded earthquake since the 17th century. At one time, the

city enjoyed a rail connection to Port-au-Prince, though Haiti is now entirely devoid of rail service. St. Marc now serves as a minor port, with a small wharf in the city center. The harbors of Port-au-Prince, Cap Haitien and Miragoane are naturally deeper and thus more amenable to modern shipping, but each lies in a more seismically active zone.²

St. Marc is hemmed in by modest 200m hills. Just 10 km by road across those hills, however, lies the flat and sparsely inhabited plain of the Artibonite river, where it is not difficult to imagine the creation of an entire city, replete with airfields and other commercial amenities.³

Even if building an entirely new city were cheaper than rehabilitating a devastated one, however, the question remains whether the concentration of population in one city is in any sense optimal. Urban economists have devoted much attention to the question of optimal city size. Larger cities are desirable to the extent that they permit the realization of economies of scale in labor-intensive industries, and create other benefits associated with greater specialization in production and consumption, or agglomeration economies rooted in knowledge spillovers, labor market pooling, or other mechanisms. On the other hand, larger cities incorporate diseconomies of scale associated with congestion, pollution, and other maladies. The ‘optimal’ city size equates the marginal costs and benefits of population expansion.

In the case of an impoverished and seismically unstable nation such as Haiti, the creation of a large city incorporates risks that became all too apparent in the aftermath of the earthquake. In a society where vehicle ownership is rare, and public transportation networks primitive, urban life requires high population density. The costs of seismic protection increase much more than linearly with density. The cost of seismically retrofitting a large concrete-frame structure in the United States, on a per-square-meter basis, are more than twice that of retrofitting a smaller structure of the same vintage.⁴ Rather than face these higher costs, Haitian builders

² As of 1982, the harbor depths in Port-au-Prince, Cap Haitien, Miragoane and St. Marc were 9.8, 6.4, 5.4 and 3.6 meters, respectively (Tata 1982). The wharf at St. Marc extends only 70 meters from the adjacent shoreline; construction of a larger-scale wharf could potentially ameliorate the depth problem.

³ While the Peligre dam has provided the Artibonite valley with some measure of flood control since 1956, further infrastructure investments would be required to assure flood protection and water supply to any large-scale habitation.

⁴ Estimates can be derived from the US Federal Emergency Management Administration’s Seismic Retrofitting Cost Calculator.

and their clients accepted the risk of catastrophic collapse. From a seismic perspective, it would be much more cost-effective to redistribute the residents of Port-au-Prince into a series of smaller-scale, lower-density cities.

Such a redistribution would introduce other types of costs, however. To make Haiti's new hinterland cities attractive to potential employers, these cities would need to be connected to reliable transportation and electric grids. The absence of these networks was a major factor in the emergence of Port-au-Prince as a prime destination in the first place. This type of tradeoff between economies and diseconomies of scale is inevitable.

Catastrophic but localized risk, such as that associated with hurricanes and earthquakes, introduces another set of arguments into the dispersal issue. Dispersing the population could be seen as a simple risk diversification policy: the best way to avoid a human disaster on the scale of what was seen in Port-au-Prince would be to not have cities as large as Port-au-Prince. The aggregate risk faced by the population might not change much, or could even increase. The correlation in risk across persons would decline, however.

From another perspective, though, the correlated risk introduced by population concentration could bring countervailing benefits, to the extent that there are economies of scale in disaster recovery. For all its flaws, Port-au-Prince benefited from its close proximity to deep water and the nation's longest airstrip. To decentralize the population would be to increase the average citizen's distance from these facilities. In a wealthier country, this disadvantage would be offset by the creation of redundant infrastructure: building more airfields and port facilities outside the capital. Given the scarcity of available funds and more pressing priorities, these sorts of investments are unlikely to take place anytime soon.

Even if a concrete plan for population dispersal were adopted, it may prove difficult to coordinate the actions of independent households and firms to settle in alternative locations. Government could take certain actions to encourage resettlement: improving the infrastructure in regional towns, perhaps even moving some government functions – or the entire operation – away from Port-au-Prince. The prospects for relocation are improved by the fact that many residents of the capital are the children or grandchild-

ren of Haitians born elsewhere, and the fact that many residents are now relocated anyway, because of the general disarray in Port-au-Prince. Absent a concerted effort to change citizens' expectations regarding the future locus of economic activity in Haiti, however, the force of inertia will likely be strong.

In the end, the hypothetical tradeoffs between economies and diseconomies of scale are difficult to conclusively reconcile. What is more clear, however, is that the location of Port-au-Prince is seismically unfortunate and rebuilding the city in a way that mitigates risk of future destruction would be quite costly. Even clearer than this conclusion, however, is the reality that organized, planned recovery in a nation as chaotic as Haiti will be impossible without concerted efforts on the part of the developed world.

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