

Econ 309

Sustainability Report of Dominican Republic



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The Economics of a Sustainable Society

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May 5, 2012

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This semester in Econ 309, Economics of a Sustainable Society, the class surveyed many case studies of societies that were sustainable and societies that were not sustainable. On a few occasions the class observed societies on islands ranging in size from small to large, supporting small to large populations. An island nation of interest is the Dominican Republic who shares the eastern two thirds of the island of Hispaniola with Haiti on the left third of the island. With preliminary research, according to the Happy Index 2.0, which was developed by the New Economics Foundation NEF, a think and do tank, rated Dominican Republic as the 2nd happiest country on the planet with a score of 71.5 (NEF, 2009). This factoid is the primary reason for the study of the sustainability of Dominican Republic (DR) and also to be set apart from other island nations that were studied in class. Then begs the question, what is the Happiness Index and what is it consist of? The answer to this question as well the study of the sustainability of DR will be brought to light in this report.

History

DR was the first spot of land that Christopher Columbus landed on in his 1492 voyage. He encountered the native Taino people who openly welcomed him only to later become exploited and taken over by European settlers. In 1503 the Spaniards introduced African slaves to the island to ensure crop yields. The next wave of settlers was the French who gained the western end of Hispaniola after Spain relinquished the land in 1697. Over the next century by 1844, the whole island eventually became conquered by Haiti. Forces under the lead of Juan Pablo Duarte drove out the Haitians from the east of the island. Ironically after that effort, in 1861 the people of Dominican Republic bequeath Spain temporary control of their land as part of their empire only to give Dominican Republic its independence in 1865. The US lent its hand in 1916 with occupation after economic instability, threat of European intervention, and ongoing internal disorders. Eight years later after order was settled, the US left Dominican Republic (DR) to allow formation of a democratic government in 1924. The weak democratic government fell suspect to Rafael L. Trujillo, a prominent army commander establishing autocratic power.

He led by monocratic rule for 30 years under which the people were repressed. Trujillo had a failed attempt to conquer Venezuela by unsuccessfully assassinating President Romulo Betancourt. This hostile takeover drew attention of the Organization of American States (OAS) which imposed sanctions on DR. These sanctions persisted until the assassination of Trujillo in May 1961, which also drove out Trujillo's family to exile. The following January, democracy was formed from the Trujillo opposition party. The leader of this opposition party, Rafael E. Bonnelly became the interim president after ousting Trujillo's subordinate Joaquin Balaguer. Consequently the OAS withdrew sanctions on DR in this same month of January 1962 after the development of a new democracy. A year later in January 1963, Juan Bosch of the leftist Dominican Revolutionary Party became the first president that was inaugurated. In 1963 three right wing leaders assembled a militia to head a coup to take control of the country setting up a triumvirate. Two years later in the April Revolution of 1965, leftist leader Bosch amongst his junta rebelled violently against the triumvirate in another coup to regain control of the country. During this time there was political instability making it difficult to establish order, this instability prompted US President Lyndon Johnson to send in marines to establish order and evacuate US and other foreign nationals. After the US establishing order in June 1966, Joaquin Balaguer the leader of the Reformist Party (now called the Social Christian Reformist Party – PRSC) became president after winning the election. The next few decades DR went through challenging economic and political times. Their democratic government had its trials from Balaguer repeatedly becoming president and ruling with an iron fist (State Dept, 2012). During the years from 1960 to 1984, DR went through an inward-oriented industrialization which put the country in a position where the responsiveness of their demand exceeded unit elasticity, meaning that imports were greater. The elastic demand caused a higher rate of economic growth. The following period of years from 1985 to 2005, DR went through an outward directed industrialization, which affected its demand conversely. This outward direction caused lowered net exports slowing down the economy for this period (Grullon, 2011).

The history of DR could be set as a backdrop to understand and get a better sense of how Dominican Republic became the country it is today. It could better perhaps explain how DR became the

second happiest country in the world according to the New Economical Foundation (NEF). NEF makes their assessment based on three indicators that supposedly can embody the pillars of sustainability. The Happiness Index is based on three criteria that the NEF chose which are life satisfaction, life expectancy, and ecological footprint. Do these factors mean that DR is a sustainable country? Are they comparable to the indicators of the three pillars of sustainability, which are economy, social, and environment? These are some of the questions that this paper will be addressing while surveying the various indicators of sustainability. DR is a sustainable country as it confirms the Happiness Index assessment because of their economic system, social equity, and environmental effort.

Economics Pillar

In order for a country to survive in this world, it has to be able to provide for itself. There would have to be enough jobs for the citizens to provide for themselves. The livelihood of the country depends on its sustainability.

“Economic sustainability is often seen as a matter of intergenerational equity, but the specification of what is to be sustained is not always straightforward. The addendum explores the relationship between distributional equity, sustainable development, optimal growth, and pure time preference” (Anand & Sen, 2000).

The indicators for this country should give a sense if DR fits this definition of economic sustainability. The Happiness Index used life expectancy as a factor when evaluating happiness. It represents how long a person could live given the economic situation the country has to offer. The index reported 71.5 years of life expectancy of an average resident of Dominican Republic (NEF, 2009). Is this indicator that they are using a good representative of a sustainable economy? The research and data will give a better understanding of DR's economic sustainability. It had been recorded for a long time now that DR has primarily been an exporter of sugar, coffee, and tobacco as agriculture being its main industry, but in recent years the service industry has really taken over due to growth in sectors such as telecommunications, and tourism.

Another contributing factor to this growth in service could be attributed to the free trade zones. As of 2011 DR's GDP is 4.5% ranking 87th in the world in comparison to the US at 1.5% ranking 172nd. With all this growth, it would be hard to imagine that DR has a high poverty rate, yet it has a poverty line of 42.2% compared to the US at 15.1% (CIA, 2012). The wealth disparity could be better explained by the GINI coefficient, "which is a measure of aggregate inequality of income" (Rogers, Jalal, & Boyd, 2008). The coefficient is a number between 0, being composed of a population of completely equal and 1, of a population being completely unequal (Rogers, Jalal, & Boyd, 2008). The CIA world fact book converted the coefficient into a percentage. Dominican Republic's GINI coefficient is 48.4 which mean that the proportion of inequality is about 48.4% (CIA, 2012). The disparity in this country is a moderately high largely due to continuing growth as indicated by the GDP. Large income differences amongst the population can be especially hard for the less fortunate to get opportunity advancement. It is hard to encompass these given figures with just the life expectancy indicator, as done in the NEF assessment.

Social Pillar

Now that income inequality is apparent, this gives us a better understanding of some of the societal problems in DR. This leads to the aspect of social sustainability, which is an evolving definition because social sustainability could have different meanings depending on the region of the world, whether a country is developing or developed and it is still evolving as there is more parameters that can explain it. However, a presentable definition of social sustainability would be:

"design and operation of human and industrial systems to ensure that humankind's use of natural resources and cycles do not lead to diminished quality of life due either to losses in future economic opportunities or to adverse impacts on social conditions, human health and the environment" (Hutchins & Sutherland, 2008).

Given such a definition, does the Happy Planet Index one parameter of Life Satisfaction cover the social sustainability pillar of DR? The Life Satisfaction attained by gallup poll for 143 countries

worldwide in particular for DR was 7.6 out of scale of 10 and Costa Rica scoring the highest of 8.5. According to NEF the Gallup poll responses accounts for size and strength of an individual's social networks, relationship status, level of education, presence of disability, as well as with an individual's material conditions, such as income and employment (NEF, 2009).

As mentioned in the history, DR now has a democratic government. This government has become more of a representative democracy recently since 1996 after Leonel Fernandez Reyna defeated the domineering and consecutive running President Balaguer. Citizens of DR have more input into their government more than ever, which leads to one of NEF's criteria for life satisfaction for allowing citizens participate in their community. However, DR is ranked 70th on the Economist's Democracy Index with a score of 6.2 out 10 in comparison to the US ranking 19 with a score of 8.11 (Economist Intelligence Unit, 2011). Perhaps, with the recent changes of the DR government the perception of democracy is elevated due to higher democratization over time.

A more substantive index that draws from three categories such as health, education and income is the Human Development Index (HDI). This index gives more of a humanistic account of an individual per capita than the Gross Domestic Product (GDP). The HDI score for DR is 0.689 which ranks them 98 out of 187 countries. This ranking puts them in the Medium Human Development range and their average ranking is lower than their regional counterparts. DR has a lot of work to do in order to improve its democracy. However, DR has made some gains in which they have increased 2 positions up the rankings (United Nations Development Programme, 2011).

One aspect a country can grow in terms of the HDI is its education system would have to be making positive gains towards its society. A couple of parameters were taken into consideration, which were the Public Expenditure on Education and Adult Literacy Rates to evaluate DR's contribution to its own HDI score. In 2009 and 2011, the percentage of GDP spent on Public Education was 2.2% and 5.9% respectively. Furthermore, in 2009 and 2011 the Adult Literacy Rates was 87% and 88.2% respectively (CIA, 2012; United Nations Development Programme, 2011). Correlating those figures together can perhaps explain the increased 2 spots in the HDI rankings.

Coming back to the life satisfaction statistic that reported by the Happy Index, this statistic accounts for both men and women. The empowerment of women has to be an important factor in order for the women of DR to be happy. Some statistics about women are that their life expectancy is 108% of males, their adult literacy rate is equal to males, their enrolment rate in secondary school is 113% of males, and their maternal mortality rate is 100 per 100,000 live births (UNICEF, 2012). The infant mortality rate has dropped from 48 in 1990 to 22 in 2010 (UNICEF, 2012). This is a good sign for the mothers of DR as efforts of reducing malnutrition, disease, dehydration from diarrhea and other disease has lowered the infant mortality rate. The home life is equitable between a husband and wife and family with having family and extended family as the basis Dominican culture (National Endowment for the Arts, 1994). Employment amongst women has been very weak “with only 30.9% of women earning an income and 51.2% of unemployed women looking for work” (Bossin, 2009). Another disadvantage for women in Dominican Republic is the huge disparity of income from employed males that are actually making at least 66% or more in wages (Bossin, 2009). It is evident that women are still regarded as the care taker amongst family and domestically and not considered equally among employers. This aspect may have been missed on the radar by the Happiness Index.

Environmental Pillar

The last indicator on the Happiness Index was Ecological Footprint in which DR scored 1.5 global hectares. What does 1.5 global hectares mean and does that mean that DR is environmentally sustainable?

“The ecological footprint of an individual is a measure of the amount of land required to provide for all their resources requirements plus the amount of vegetated land required to sequester (absorb) all their CO₂ emissions and the CO₂ emissions embodied in the products they consume. This figure is expressed in units of ‘global hectares’” (NEF, 2009).

NEF calculated 2.1 global hectares (gha/pers) that an average human should be consuming proportionately to their share of the world's resources in what they call "one-planet living". Therefore, an average individual in DR is living more than within its means, beating ecological footprints expectations. This could be a fair assessment. However there are few more indicators that must be considered to assess DR's environmental sustainability. On opposite sides of the spectrum, the assessment conducted by Yale University's Environmental Performance Index (EPI) ranks DR 72nd country. The EPI index is a broader assessment that evaluates various indicators that shape policy such as environmental public health and ecosystem vitality. In a governmental level, these indicators measure the effectiveness of established environmental policy goals. Perhaps Yale's assessment is not a fair comparison, yet it is another perspective. In the EPI assessment DR is listed as a country that is both high performing and improving according to their EPI performance score versus trending score. To give an idea of what countries are trending, Switzerland is number 1, US is 49th and while India is 125 (Emerson, et al., 2012). DR has a decent score on their forest category of the EPI with 93.2 and ranking 32nd in that category. Ironically, this score can be attributed to the strong iron fist of Joaquin Baleguer who preserved the forest as national parks. His actions to save the forests at the time were very unpopular however they ended up helping DR in the long run (Diamond, 2005).

There is one known unfortunate instance of pollution that has happened in Haina, DR and it was known to be one of the ten most polluted in the world. There was a battery smelting plant that closed in March of 1997. Near and surrounding the closed plant there was up to 146 children found to be poisoned with lead due to the left behind waste materials and real fine lead dust permeated in the surrounding air (Faulk, 2003). The study that was done in August of that year revealed that 28% needed immediate treatment, and 5% of these children had acute levels of lead poisoning that they were at risk of severe neurologic sequelae (Kaul, Sandhu, Depratt, & Reyes, 1999). These children were destitute so they were not able to be moved suffering consequences of high concentrations of lead in their body. Many of them are still alive however painfully living with eye problems, seizures, severe learning deficiencies and having blank stares. The cleanup efforts have failed to happen due to the utter lack of will of the

government allowing more children to continue to get lead poisoning. This lack of effort by government was failing the community due to corruption and the aversion to foot the cleanup bill. The affected area was so big due to the factory being located on top of a hill surrounded by boroughs which were affected by run off rain. The contamination site was so big that it was considered to be easier to relocate the 80,000 residents (Robles, 2007). Then five years later, the very same company that was responsible for leaving behind a closed down smelting factory, Metaloxa, was forced by the neighborhoods, environmentalists, the international community, academia, the business sector and government. Metaloxa spent about \$500,000 to cleaned up and turn their hazardous waste site into a park covered with grass “decorated with cobblestone and surrounded by a painted mural of the neighborhood activists who spent more than 15 years fighting their government and local battery plant to clean up the area” (Robles, Paradise remade: Dominican Republic lead polluter goes green, 2011). However, it is a detriment that the children affected by the pollution are still suffering from the repercussion of having lead in their system without getting any help from the government nor get any special education. The company responsible for this environmental catastrophe changed its name to Meteoro to escape any further legal responsibility. As it turns out, Meteoro has turned around and fully embraced green practices by spending \$8 million dollars to open up an environmentally friendly battery recycling plant that implements a new technology that remove toxins and turn them into inert materials for construction. The publicity that the town of Haina garnered through being third of top ten polluted places on earth listed by Blacksmith Institute helped them get the attention that they needed to help eradicate externalities. (Robles, Paradise remade: Dominican Republic lead polluter goes green, 2011). It has yet to be heard that the children of Haina are being compensated for their sufferings of lead poisoning.

Another import indicator under the environmental pillar of sustainability that should be considered is the impact of CO₂ emissions into the atmosphere contributing to Global Warming. For the year of 2007 Dominican Republic CO₂ Emissions were 20.76 mega tonnes, while CO₂ emissions per capita and CO₂ Emissions per km² was 2.12 tonnes and 426.52 tonnes, respectively.

Since the established base year by the Kyoto Protocol of 1990, DR emissions have increased 116.9% (United Nations, 2007). DR has been a part of and signed several international treaties which include Climate Change and Climate Change-Kyoto Protocol. Furthermore, they have signed other environmental treaties such as Biodiversity, Desertification, Endangered Species, Hazardous Wastes, Marine Dumping, Marine Life Conservation, Ozone Layer Protection, Ship Pollution, Wetlands and have signed, but not ratified the Law of the Sea (CIA, 2012).

Now consider the carbon footprint of the CO₂ emissions given. These emissions could be interpreted partly from the total ecological footprint that was calculated by the Global Footprint Network (GFN), to be 0.72 global hectares per person (gha/pers) for 2007. The total global ecological footprint as calculated by GFN is 2.7 gha/pers and they calculated that average person footprint in the world should be at 1.8 gha/pers in 2007. As you may recall, the Happiness Index calculated their ecological footprint to be 1.5 gha/pers and as it turns out they are spot on with GFN confirming DR's ecological footprint to be 1.47 gha/pers. However, taking a closer look at the report compiled by GFN, they elude that DR is actually in ecological deficit. DR's total biocapacity is only 0.5 gha/pers having a shortfall of 1.0 gha/pers (Ewing, et al., 2010). The Happiness index was on to something when comparing DR's ecological footprint to the worldwide average of 1.8 gha/pers. On the downside, they didn't consider DR's own biocapacity when evaluating its happiness and livening with its means.

Conclusion

Carefully going through the indicators of a country gives a sense of where the country is standing today and where it could go in the future. After assessing the Happiness Index alongside the indicators of Dominican Republic, there were more details that were added to the picture that the index did not quite cover. NEF's assessment included life expectancy, life satisfaction, and ecological footprint which in this paper were compared to the three pillars of sustainability: economics, social, and environment. Does Dominican Republic meet the triple bottom line of sustainability according to NEF? That is a hard

question to answer depending how DR or any other country is assessed prospectively. In the eyes of NEF DR is a sustainable country, yet after looking at more expressive indicators a different picture is painted. The GDP of DR is 4.5% which is fairly high compared to the US which sounds good economically. Then evaluating the poverty line along with the GINI coefficient, 42.2% and 48.4% respectively, tells the story otherwise. A story of income inequality where 42.2% of the people in Dominican Republic are below “the minimum level of income needed to secure the necessities of life” (Google, 2012) and the prosperity of only the upper-income groups are able to save and while the lower income people are getting just by (Kuznets, 1995). Life satisfaction was lumped into the social pillar of sustainability because satisfaction is judged by society. Though, the life satisfaction score was 7.6 and it was based on gallup polls not on indicators. The democracy has become fairer since Baleguer got out office in 1996. Their education is system is improving with increased government spending and literacy rates increasing, while their education has been on the rise it has also helped increased its HDI score relative to other countries. Their literacy rate is high in the upper 80’s percent. On the downside socially, there is a huge income inequality gap for women who are only 30.9% working and 51.2% are unemployed. When women are employed they significantly earn less than men do by as much as 66%. NEF’s life satisfaction gallup did not go into great detail to capture inequality in women workforce. Lastly, the economics pillar was supposedly reflected by NEF’s indicator of ecological footprint. They did manage to get the right calculation for ecological footprint of 1.5 gha/pers, yet they neglected to account for the biocapacity of DR is only 0.5 gha/pers resulting in an Ecological Footprint to Biocapacity ratio of 3, in which DR is living beyond its means. If only the report was to be considered, then it would not be apparent that there was the 3rd most polluted site in the world in Haina, Santo Domingo, albeit the site cleaned up and was made into a grassy covered park. However, there are still kids suffering from this detrimental externality that are still living in this neighborhood. If NEF is a “Think and Do tank”, then it better do more thinking before doing anymore assessments of the environment, society and economy as it has painted a rosie picture over a dirty picture.

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