

*SSSE/No.5/March 2017*

# ***Studies in Supply-Side Economics***

---

## **ON VENEZUELA'S SUPPLY- SIDE POTENTIAL**

---

***Steve H. Hanke and Jason Yin***

Johns Hopkins Institute for Applied Economics,  
Global Health, and the Study of Business Enterprise



## On Venezuela's Supply-Side Potential

by Steve H. Hanke and Jason Yin

Copyright 2017 by the authors.

### About the Series

The *Studies in Supply-Side Economics* series explores the potential for tax and regulatory policy changes to provide incentives for the increased production of goods and services. The authors are mainly Fellows of the Institute and students at The Johns Hopkins University in Baltimore who conduct research under the general direction of Prof. Hanke, who was one of President Reagan's original "[supply-siders](#)."

### About the Authors

**Steve H. Hanke** is a Professor of Applied Economics and Co-Director of the Institute for Applied Economics, Global Health, and the Study of Business Enterprise at The Johns Hopkins University in Baltimore. He is a Senior Fellow and Director of the [Troubled Currencies Project](#) at the Cato Institute in Washington, D.C., a Senior Advisor at the Renmin University of China's International Monetary Research Institute in Beijing, a Special Counselor to the Center for Financial Stability in New York, and a contributing editor at *Central Banking* in London, and a contributor at *Forbes*. Prof. Hanke is also a member of the Charter Council of the Society of Economic Measurement and of Euromoney Country Risk's Experts Panel.

In the past, Prof. Hanke taught economics at the Colorado School of Mines and at the University of California, Berkeley. He served as a Member of the Governor's Council of Economic Advisers in Maryland in 1976-77, as a Senior Economist on President Reagan's Council of Economic Advisers in 1981-82, and as a Senior Advisor to the Joint Economic Committee of the U.S. Congress in 1984-88. Prof. Hanke served as a State Counselor to both the Republic of Lithuania in 1994-96 and the Republic of Montenegro in 1999-2003. He was also an Advisor to the Presidents of Bulgaria in 1997-2002, Venezuela in 1995-96, and Indonesia in 1998. He played an important role in establishing new currency regimes in Argentina, Estonia, Bulgaria, Bosnia-Herzegovina, Ecuador, Lithuania, and Montenegro. Prof. Hanke has also advised the governments of many other countries, including Albania, Kazakhstan, and Yugoslavia.

Prof. Hanke has been awarded honorary doctorate degrees by the Bulgarian Academy of Sciences, the Universidad San Francisco de Quito, the Free University of Tbilisi, Istanbul Kültür University, and Varna Free University in honor of his scholarship on exchange-rate regimes. He is a Distinguished Associate of the International Atlantic Economic Society, a Distinguished Professor at the Universitas Pelita Harapan in Jakarta, Indonesia, a Professor Asociado (the highest honor awarded to international experts of acknowledged competence) at the Universidad del Azuay in Cuenca, Ecuador, and a Profesor Visitante at the Universidad Peruana de Ciencias Aplicadas (the UPC's highest academic honor). In 1998, he was named one of the twenty-five most influential people in the world by *World Trade Magazine*.

Prof. Hanke is a well-known currency and commodity trader. Currently, he serves as a member of the Supervisory Board of Advanced Metallurgical Group N.V. in Amsterdam and Chairman Emeritus of the Friedberg Mercantile Group, Inc. in Toronto. During the 1990s, he served as President of Toronto Trust Argentina in Buenos Aires, the world's best-performing emerging market mutual fund in 1995.

Prof. Hanke's most recent books are *Zimbabwe: Hyperinflation to Growth* (2008) and *A Blueprint for a Safe, Sound Georgian Lari* (2010), *Juntas Monetarias para Paises en Desarrollo* (2015), and *Currency Boards for Developing Countries: A Handbook* (2015).

Prof. Hanke and his wife, Liliane, reside in Baltimore and Paris.

**Jason Yin** is a sophomore at The Johns Hopkins University in Baltimore, Maryland pursuing a double major in Computer Science and Economics. He wrote this paper while serving as an undergraduate researcher at the Institute for Applied Economics, Global Health, and the Study of Business Enterprise during Fall 2016. He will graduate in May 2019.

## **Introduction**

The World Bank has been rigorously measuring the ease of doing business (DB) in many countries for over ten years, producing a treasure trove of empirical evidence. The Bank publishes its results identifying levels of economic freedom (read: regulatory freedom) each year in a volume entitled *Doing Business*. Ten sets of indicators that capture important dimensions of an economy's regulatory environment are quantified. The accompanying table defines each of the ten quantitative indicators. These are each measured by using standardized procedures that ensure comparability and replicability across the 189 countries studied. For each indicator, the scores range from a potential low of '0' to a high of '100'.<sup>1</sup>

**Table 1**

<b>What Doing Business measures 10 Indicators of Business Regulation</b>	
<b><u>Indicator</u></b>	<b><u>What it measures</u></b>
<b>Starting a business</b>	Procedures, time, cost and paid-in minimum capital to start a limited liability company
<b>Dealing with construction permits</b>	Procedures, time and cost to complete all formalities to build a warehouse and the quality control and safety mechanisms in the construction permitting system
<b>Getting electricity</b>	Procedures, time and cost to get connected to the electrical grid, the reliability of the electricity supply and the transparency of tariffs
<b>Registering property</b>	Procedures, time and cost to transfer a property and the quality of the land administration system
<b>Getting credit</b>	Movable collateral laws and credit information systems
<b>Protecting minority investors</b>	Minority shareholders' rights in related-party transactions and in corporate governance
<b>Paying taxes</b>	Payments, time and total tax rate for a firm to comply with all tax regulations as well as post-filing processes
<b>Trading across borders</b>	Time and cost to export the product of comparative advantage and import auto parts
<b>Enforcing contracts</b>	Time and cost to resolve a commercial dispute and the quality of judicial processes
<b>Resolving insolvency</b>	Time, cost, outcome and recovery rate for a commercial insolvency and the strength of the legal framework for insolvency

Source: Doing Business 2017.

Prepared by Steve H. Hanke, The Johns Hopkins University

---

<sup>1</sup> "Doing Business: Answers to Frequently Asked Questions." Doing Business.  
<http://www.doingbusiness.org/FAQ/Doing-Business-FAQs-answered.pdf>. Page 15

Table 2

**Doing Business Scores and Rank for 2016: Venezuela <sup>2</sup>**

Indicators	Rank	Doing Business Score	Country with Best Performance
<b><u>Overall</u></b>	<b><u>187</u></b>	<b><u>33.37</u></b>	<b><u>New Zealand - 87.01</u></b>
Starting a Business	189	32.94	New Zealand (99.96)
Dealing with Construction Permits	137	61.65	New Zealand (87.40)
Getting Electricity	186	16.85	Korea, Rep (99.88)
Registering Property	129	52.36	New Zealand (94.46)
Getting Credit	118	40.00	New Zealand (100)
Protecting Minority Investors	175	31.67	New Zealand (83.33)
Paying Taxes	185	22.49	Qatar (99.44)
Trading Across Borders	187	7.93	Austria, France (100)
Enforcing Contracts	137	48.97	Korea, Rep (84.15)
Resolving Insolvency	165	18.80	Finland (93.89)

Source: Doing Business Report 2017.

Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

<sup>2</sup> World Bank. 2017. Doing Business 2017: Equal Opportunity for All. Washington, DC: World Bank. DOI: 10.1596/978-1-4648-0948-4. License: Creative Commons Attribution CC BY 3.0 IGO. Page 14.

Figure 1

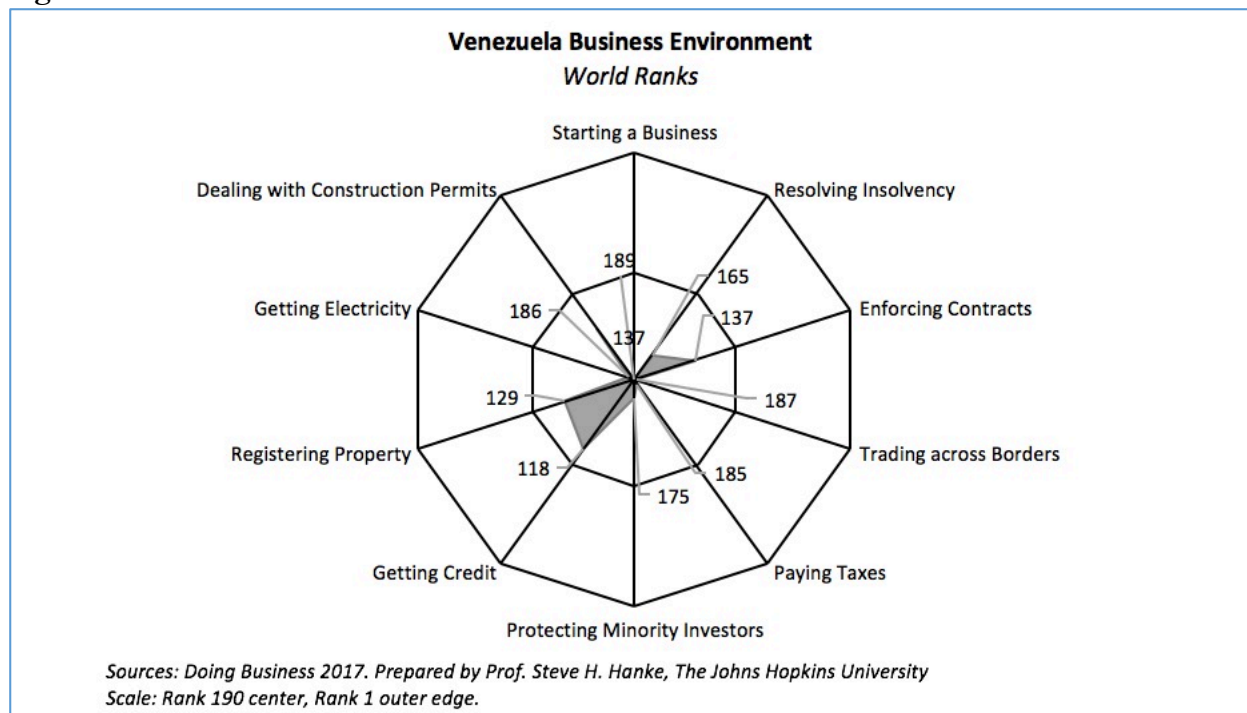
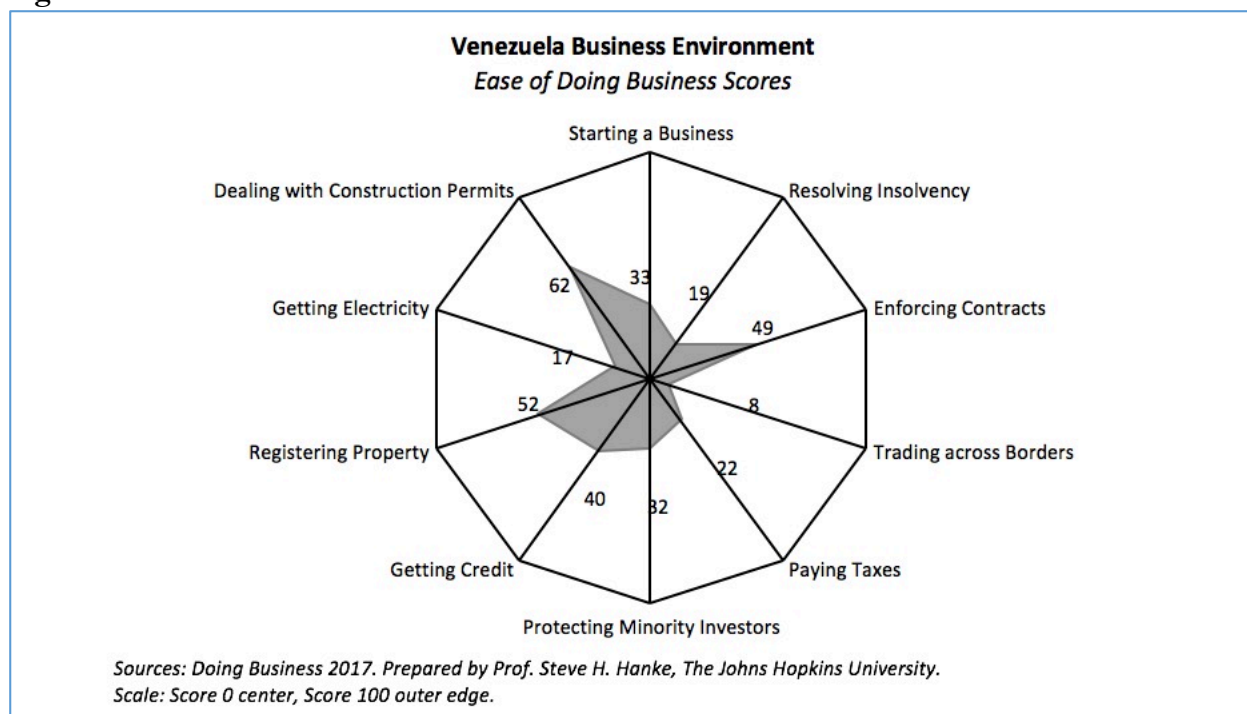


Figure 2



### **Methodology Review of *Doing Business* and Frontier Analysis**

Initially, **distance to frontier (DTF)** for each sub-indicator is calculated:

$$= \frac{(\text{worst score by a country}) - (\text{score of country of interest})}{(\text{worst score by a country}) - (\text{best score by a country AKA the frontier value})} * 100$$

For example, the DTF value for procedures in Venezuela, which requires 20 procedures, would be  $[(20 - 20) / (20 - 1)] * 100 = 0$  out of a maximum value of 100

\*Notice that if the score of country of interest is equivalent to the frontier value, then the distance to frontier value (aka. Doing Business score) would be the maximum 100 for the indicator.

\*\*The best historical score by a country (also known as frontier value), and worst score for all sub-indicators are shown in Table 3.

**The Doing Business for each indicator (ex. Starting a Business)** is calculated by assuming that every sub-indicator is of equal weight/importance:

$$= \text{AVERAGE}(\text{DTF values for all sub - indicators of the indicator})$$

For example, the distance to frontier score for Starting a Business in Ecuador would be the average of the distance to frontier score for # of Numbers of Procedures (35.3), for Time (49.74), for cost (88.98), and for paid-in capital (100), which is roughly 68.5 out of a maximum score of 100.

**The overall Doing Business score for a country** is calculated by assuming that every indicator is of equal weight/importance:

$$= \text{AVERAGE}(\text{DB scores for all indicators})^3$$

Using the DB scores, we can determine whether there is a relationship between a freer regulatory environment (a high DB score) and prosperity as measured by GDP per capita. The DB scores for every country is plotted with their respective GDP/capita from the *World Economic Outlook Database* to estimate the affluence the frontier would generate in terms of GDP/capita. This is done by fitting an exponential trend-line to the plots and inputting the Frontier score of 100 (or any other score of interest) into the equation of the trend-line to estimate the generated income/capita. For the year 2016, the GDP/capita is modeled as approximately equal to  $44.691 * e^{(0.0773 * (\text{DB Score}))}$ .

The semi-log plot of GDP/capita vs. Doing Business Scores shows that there is a strong, positive relationship between DB scores and prosperity. A logarithmic scale is used on GDP per capita to respond to skewness towards large values, caused by the exponential trend in data.

The Frontier represents the combination of each sub-indicator with the best observed performance across all economies in the Doing Business sample in which data were collected for the indicator. To emphasize, a country would set the frontier value with the best performance in a sub-indicator, NOT indicator and NOT overall. For example, New Zealand is ranked #1 in the Starting a Business indicator with a DB score of 99.96, not 100, because the country received a DTF value of 100 (by performing the best and setting the frontier) for the sub-indicators Procedures and Time, but did not receive 100 for Cost and Minimum capital as Slovenia and Australia/Columbia performed better in those areas. The Frontier is an ideal amalgamation of all the best practices in each sub-indicator, and therefore is a perfect 100 DB score in all sub-indicators, and therefore indicators and overall. A perfect score of 100 would mean a country was the best performer in every single sub-indicator, not just in each indicator.

---

<sup>3</sup> World Bank. 2013. Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises. Washington, DC: World Bank Group. DOI: 10.1596/978-0-8213-9984-2. License: Creative Commons Attribution CC BY 3.0. Page 155-158.

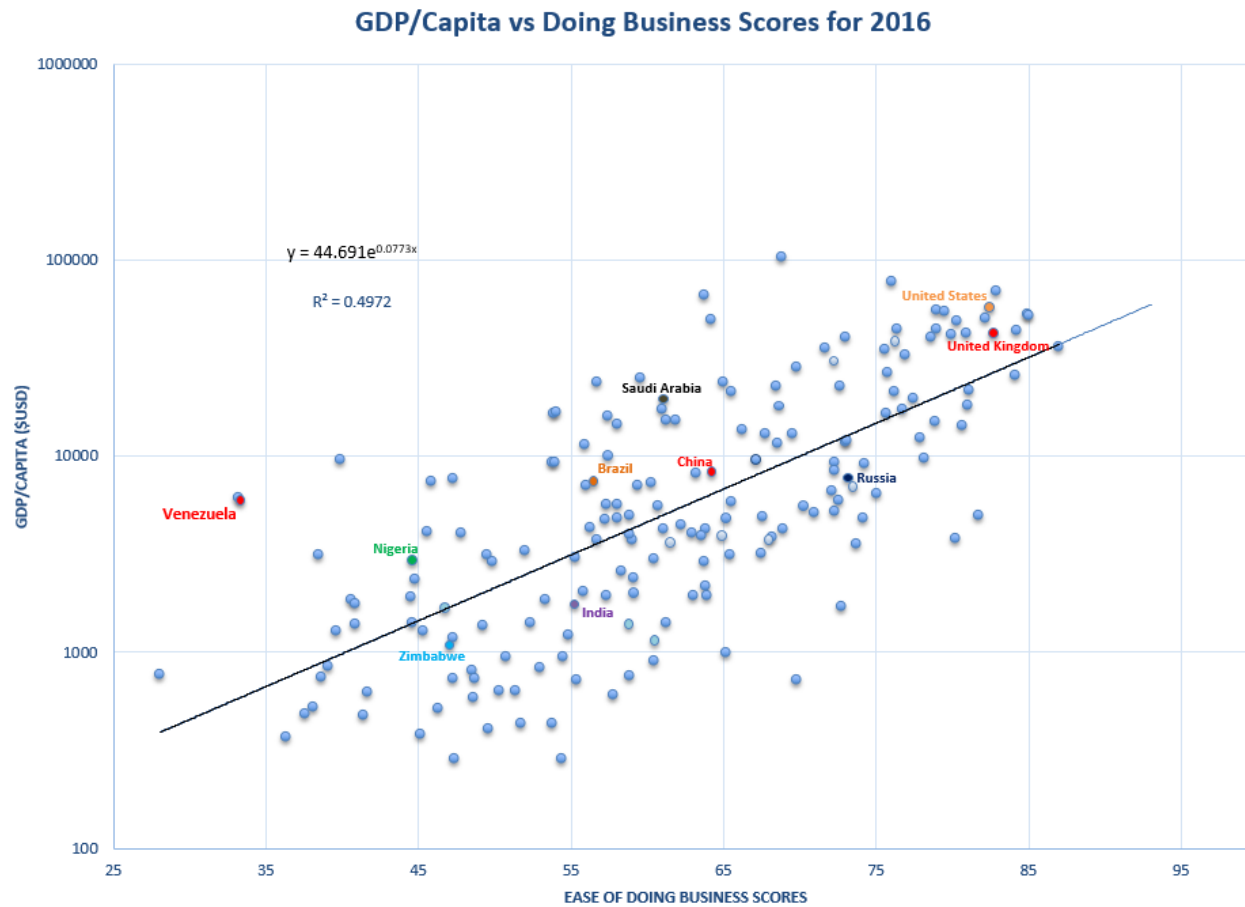
Table 3 <sup>4</sup>

TABLE 14.1 What is the frontier in regulatory practice?			
Topic and indicator	Who set the frontier	Frontier	Worst performance
<b>Starting a business</b>			
Procedures (number)	New Zealand	1	18 <sup>a</sup>
Time (days)	New Zealand	0.5	100 <sup>a</sup>
Cost (% of income per capita)	Slovenia	0.0	200.0 <sup>b</sup>
Minimum capital (% of income per capita)	Australia; Colombia <sup>c</sup>	0.0	400.0 <sup>b</sup>
<b>Dealing with construction permits</b>			
Procedures (number)	No economy was at the frontier as of June 1, 2016.	5	30 <sup>a</sup>
Time (days)	Singapore	26	373 <sup>b</sup>
Cost (% of warehouse value)	No economy was at the frontier as of June 1, 2016.	0.0	20.0 <sup>b</sup>
Building quality control index (0–15)	Luxembourg; New Zealand	15	0 <sup>d</sup>
<b>Getting electricity</b>			
Procedures (number)	Germany; Republic of Korea <sup>a</sup>	3	9 <sup>a</sup>
Time (days)	Republic of Korea; St. Kitts and Nevis	18	248 <sup>b</sup>
Cost (% of income per capita)	Japan	0.0	8,100.0 <sup>b</sup>
Reliability of supply and transparency of tariffs index (0–8)	Belgium; Ireland; Malaysia <sup>f</sup>	8	0 <sup>d</sup>
<b>Registering property</b>			
Procedures (number)	Georgia; Norway; Portugal; Sweden	1	13 <sup>a</sup>
Time (days)	Georgia; New Zealand; Portugal	1	210 <sup>b</sup>
Cost (% of property value)	Saudi Arabia	0.0	15.0 <sup>b</sup>
Quality of land administration index (0–30)	No economy has attained the frontier yet.	30	0 <sup>d</sup>
<b>Getting credit</b>			
Strength of legal rights index (0–12)	Colombia; Montenegro; New Zealand	12	0 <sup>d</sup>
Depth of credit information index (0–8)	Ecuador; United Kingdom <sup>g</sup>	8	0 <sup>d</sup>
<b>Protecting minority investors</b>			
Extent of disclosure index (0–10)	China; Malaysia <sup>a</sup>	10	0 <sup>d</sup>
Extent of director liability index (0–10)	Cambodia	10	0 <sup>d</sup>
Ease of shareholder suits index (0–10)	No economy has attained the frontier yet.	10	0 <sup>d</sup>
Extent of shareholder rights index (0–10)	Chile; India <sup>a</sup>	10	0 <sup>d</sup>
Extent of ownership and control index (0–10)	No economy has attained the frontier yet.	10	0 <sup>d</sup>
Extent of corporate transparency index (0–10)	No economy has attained the frontier yet.	10	0 <sup>d</sup>
<b>Paying taxes</b>			
Payments (number per year)	Hong Kong SAR, China; Saudi Arabia	3	63 <sup>b</sup>
Time (hours per year)	Singapore	49 <sup>j</sup>	696 <sup>b</sup>
Total tax rate (% of profit)	Singapore <sup>k</sup>	26.1 <sup>l</sup>	84.0 <sup>b</sup>
Postfiling index (0–100)	No economy has attained the frontier yet.	100	0
Time to comply with VAT refund (hours)	Croatia; Netherlands <sup>m</sup>	0	50 <sup>b</sup>
Time to obtain VAT refund (weeks)	Austria	3.2	55 <sup>b</sup>
Time to comply with corporate income tax audit (hours)	Lithuania; Portugal <sup>n</sup>	1.5	56 <sup>b</sup>
Time to complete a corporate income tax audit (weeks)	Sweden; United States <sup>o</sup>	0	32 <sup>b</sup>
<b>Trading across borders</b>			
<i>Time to export</i>			
Documentary compliance (hours)	Canada; Poland; Spain <sup>p</sup>	1 <sup>q</sup>	170 <sup>b</sup>
Border compliance (hours)	Austria; Belgium; Denmark <sup>r</sup>	1 <sup>q</sup>	160 <sup>b</sup>
<i>Cost to export</i>			
Documentary compliance (US\$)	Hungary; Luxembourg; Norway <sup>s</sup>	0	400 <sup>b</sup>
Border compliance (US\$)	France; Netherlands; Portugal <sup>t</sup>	0	1,060 <sup>b</sup>
<i>Time to import</i>			
Documentary compliance (hours)	Republic of Korea; Latvia; New Zealand <sup>u</sup>	1 <sup>q</sup>	240 <sup>b</sup>
Border compliance (hours)	Estonia; France; Germany <sup>v</sup>	1 <sup>q</sup>	280 <sup>b</sup>
<i>Cost to import</i>			
Documentary compliance (US\$)	Iceland; Latvia; United Kingdom <sup>w</sup>	0	700 <sup>b</sup>
Border compliance (US\$)	Belgium; Denmark; Estonia <sup>x</sup>	0	1,200 <sup>b</sup>
<b>Enforcing contracts</b>			
Time (days)	Singapore	120	1,340 <sup>b</sup>
Cost (% of claim)	Bhutan	0.1	89.0 <sup>b</sup>
Quality of judicial processes index (0–18)	No economy has attained the frontier yet.	18	0 <sup>d</sup>
<b>Resolving insolvency</b>			
Recovery rate (cents on the dollar)	Norway	92.9	0 <sup>d</sup>
Strength of insolvency framework index (0–16)	No economy has attained the frontier yet.	16	0 <sup>d</sup>

<sup>4</sup> World Bank. 2017. Doing Business 2017: Equal Opportunity for All. Washington, DC: World Bank. DOI: 10.1596/978-1-4648-0948-4. License: Creative Commons Attribution CC BY 3.0 IGO. Page 165-166.



**Figure 3: GDP/Capita vs. Doing Business Scores**



Source: Doing Business Report 2017.

Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

In addition to the strong, positive relationship between regulatory freedom (ease of doing business) and prosperity (GDP per capita), deregulation yields increasing returns. Each incremental increase in the DB score yield larger and larger gains in GDP per capita. Venezuela is at the bottom of the pack with a DB score of 33.37 and GDP per capita of \$5,908<sup>5</sup>, but there is still exponential potential for returns (prosperity) by continuing to simplify procedures and slash regulations.

<sup>5</sup> Gross Domestic Product per Capita, current prices (US Dollars) (World Economic Outlook Database Report for October 2016)

**Figure 4: Life Expectancy vs. Doing Business Scores**



Source: Doing Business Report 2017 and World Health Organization.

Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

Economic prosperity affects life expectancy through many channels: higher individual and national incomes produce favorable effects on nutrition, on standards of housing and sanitation, and on health and education expenditures. Since a freer regulatory environment is associated with higher levels of GDP per capita, we should observe that a freer regulatory environment (a higher DB score) is associated with higher life expectancies. The accompanying plot shows a strong and positive relationship between DB scores and life expectancy — albeit one characterized by diminishing returns (given additional increments in DB scores yield smaller and smaller gains in life expectancy.)

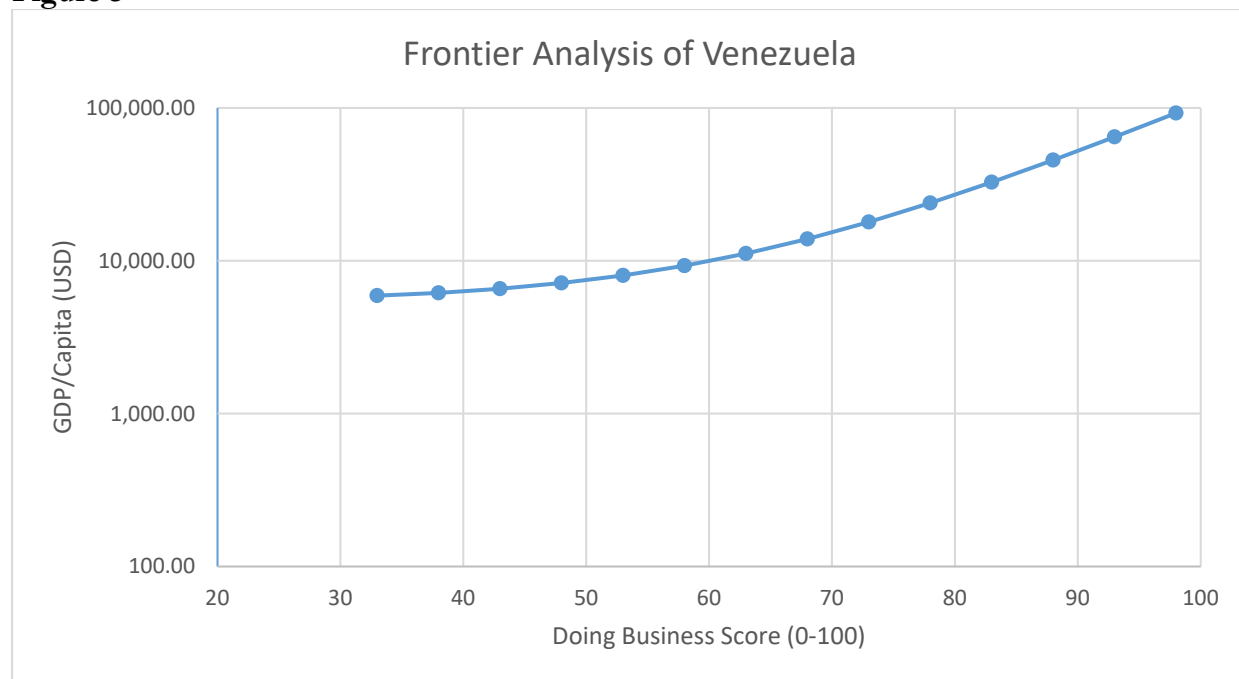
## Frontier Analysis of Venezuela

[See page 5 for Frontier]

To reiterate, for the year 2016, the GDP/capita is modeled as approximately equal to  $44.691 * e^{(0.0773 * (\text{DB Score}))}$ . This model was generated by fitting an exponential trend-line to the plot of 2017 Doing Business Score and 2016 GDP/capita of **all the countries**, which is shown with Figure 3. Hence, this model equation is based on the data sample of 190 countries. With a DB score of 33.37, Venezuela is expected to generate approximately \$589.5 based on this model. In actuality, Venezuela exceeds this estimation with a reported GDP/capita of \$5,908 according to the *World Economic Outlook (WEO) Database*. This difference is also visually observed in Figure 3 with the distance from the trend-line to the labeled data point for Venezuela in the semi-log plot.

In order to perform analysis on an individual country, we will shift this trend-line to reduce the error of the model equation and to give more significance for the country of interest. The shift differs with countries because it is equal to the amount of discrepancy between the reported data from WEO and the model estimate for each country. For Venezuela, the shift will be +5318.5, and the new accurate model equation is  $44.691 * e^{(0.0773 * (\text{DB Score}))} + 5318.5$ . This equation is then used to project the additional prosperity Venezuela would generate if they were to improve their DB score by improving the ease of doing business.

Figure 5



Source: Doing Business Report 2017.

Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

Elasticity is a measure of a variable's sensitivity to a change in another variable. In this case, we are interested in measuring the change in GDP/capita in relation to DB movements. The following chart shows an incremental analysis and elasticity measurement on Venezuela's path to achieving the frontier (a DB score of 100). Calculations show that prosperity becomes more elastic with incremental changes in DB scores.

Table 4

Incremental Analysis of Venezuela			
Doing Business Score for 2016	GDP/Capita (\$)	Increase in GDP/Capita (\$)	Elasticity ( $\Delta\% \text{ GDPcapita} / \Delta\% \text{ DB}$ )
33	5,908.00	--	--
38	\$6,161.67	\$253.67	0.28
43	\$6,559.50	\$397.83	0.49
48	\$7,145.03	\$585.53	0.77
53	\$8,006.82	\$861.79	1.16
58	\$9,275.23	\$1,268.40	1.68
63	\$11,142.09	\$1,866.86	2.33
68	\$13,889.78	\$2,747.69	3.11
73	\$17,933.88	\$4,044.10	3.96
78	\$23,886.08	\$5,952.19	4.85
83	\$32,646.64	\$8,760.56	5.72
88	\$45,540.61	\$12,893.97	6.56
93	\$64,518.22	\$18,977.61	7.33
98	\$92,449.86	\$27,931.64	8.05

Source: Doing Business Report 2017.

Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

### Commentary

The 2016 frontier (Doing Business score of 100) generates GDP/person of ~\$100,000, which is 16.9 times better than the GDP/person generated by Venezuela (GDP/person: \$5,908.22). In other words, Venezuela's economy would need to grow at an annual rate of 11.98% for 25 years to reach the frontier.

Venezuela's worst performing categories are Starting a Business, Getting Electricity, and Trading Across Borders, which rank at 189, 186, and 187 respectively.

Starting a Business in Venezuela requires 20 procedures which take 230 days and cost 136.4% income per capita. For OECD high income, the averages are 4.8 procedures taking 8.3 days at 3.1% of income per capita. It takes 4 days to reserve a company name, 3 days to obtain an approval for the company name, 34 days to register at the local mercantile registry, 130 days to register for social security at a local regional fund, 28 days to obtain fire approval and undergo inspection, and 50 days to obtain an industrial or commercial license from the municipality. On the frontier in New Zealand, starting a business requires just one online procedure which takes less than a day. Venezuela's numerous long processes required for starting a business, which includes a legal assessment that costs 50,000-100,000 VEF, is causing clear damage to its DB score, which at 32.94, ranks it at 189 out of 190 economies. Since the DB2011 report, Venezuela has done nothing to make starting a business easier. In fact, most recently in 2016 Venezuela raised the value of the tributary unit and lawyers' fees and set further limits on the public sector work schedule.

Getting Electricity in Venezuela requires 6 procedures which take 208 days and cost 18,867.2% of income per capita. Venezuela scored 0/8 points on the reliability of supply and transparency of tariff index. For OECD high income, the average was 4.8 procedures taking 76.2 days at 62.5% of income per capita, and 7.5/8 on the reliability index. Procedures required include hiring a certified electrician to prepare a design and submit an application to Corpoelec (local utility), which takes 85 days and costs 456,987 VEF, and paying an estimate and awaiting completion of the external works by the electrician, which takes 30 days and costs 13,861,250 VEF. Venezuela also received no points on the reliability of supply and transparency of tariff index. Other than by reducing the overall frequency and duration of outages per customer each year, Venezuela could raise its index score by having its distribution utility use automated tools to monitor outages and restore service, by allowing for a regulator that is separate from the utility to monitor the utility's performance and reliability, by making the utility pay compensation to customers or face fines for outages exceeding a certain cap, and by listing effective tariffs online. Additionally, Venezuela should pass policy that would facilitate cheaper costs for hiring electricians and installing external works, which currently incur a cost of 188 times income per capita for businesses.

The below table shows the times and costs of border/documentary compliance when importing and exporting in Venezuela. Compared to the average for OECD high income, Venezuela is severely lagging behind in its ease of Trading Across Borders, which puts Venezuela's DB score for that category at 7.93 and makes it rank at 187 out of 189 economies. There is much room for improvement, and in order to raise DB scores for Trading Across Borders Venezuela must find ways to cut down on the time required for border and documentary compliance and cut down on the costs that it charges businesses.

Indicator	Venezuela, RB	Latin America & Caribbean	OECD high income
Time to export: Border compliance (hours) ⓘ	288	63	12
Cost to export: Border compliance (USD) ⓘ	1,250	527	150
Time to export: Documentary compliance (hours) ⓘ	528	56	3
Cost to export: Documentary compliance (USD) ⓘ	375	111	36
Time to import: Border compliance (hours) ⓘ	240	65	9
Cost to import: Border compliance (USD) ⓘ	1,500	685	115
Time to import: Documentary compliance (hours) ⓘ	1,090	83	4
Cost to import: Documentary compliance (USD) ⓘ	400	120	26

*Source: Doing Business in Venezuela, RB - World Bank Group. (2016). Doingbusiness.org.*

Jason Yin  
12/7/16  
Baltimore, Maryland