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ON ITALY'S SUPPLY-SIDE POTENTIAL

Steve H. Hanke, Teja Polisetty, and James Paek





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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 "<u>supply-siders</u>."

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 <u>Troubled Currencies Project</u> 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 Desarollo (2015), and Currency Boards for Developing Countries: A Handbook (2015).

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

Teja Polisetty is a sophomore at The Johns Hopkins University in Baltimore, Maryland pursuing a major in Biomedical Engineering. He wrote this paper during his time as an undergraduate researcher for the Institute for Applied Economics, Global Health, and the Study of Business Enterprise in the Fall of 2016. Teja will graduate early in May 2018.

James Paek is a sophomore at The Johns Hopkins University in Baltimore, Maryland pursuing a double major in Economics and Applied Mathematics. He wrote this paper while serving as an undergraduate researcher at the Institute for Applied Economics, Global Health, and 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'.¹

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

Table 1

Source: Doing Business 2017.

Prepared by Steve H. Hanke, The Johns Hopkins University

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

Table 2

Doing Dusiness scores and Rank for 2010. Italy						
Indicators	Rank	Doing Business Score	Country with Best Performance			
Overall	<u>50</u>	<u>72.25</u>	<u>New Zealand - 87.01</u>			
Starting a Business	63	89.40	New Zealand (99.96)			
Dealing with Construction Permits	86	69.41	New Zealand (87.40)			
Getting Electricity	51	80.70	Korea, Rep (99.88)			
Registering Property	24	81.69	New Zealand (94.46)			
Getting Credit	101	45.00	New Zealand (100)			
Protecting Minority Investors	42	63.33	New Zealand (83.33)			
Paying Taxes	126	61.65	Qatar (99.44)			
Trading Across Borders	1	100	Austria, Italy (100)			
Enforcing Contracts	108	54.79	Korea, Rep (84.15)			
Resolving Insolvency	25	76.59	Finland (93.89)			

Doing Business Scores and Rank for 2016: Italy²

Source: Doing Business Report 2017.

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

² 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



Sources: Doing Business 2017. Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

Figure 2



Protecting Minority Investors

Sources: Doing Business 2017. Prepared by Prof. Steve H. Hanke, The Johns Hopkins University Scale: Rank 190 center, Rank 1 outer edge.

Methodology Review of Doing Business and Frontier Analysis

Initially, **distance to frontier (DTF) for each sub-indicator** is calculated: (worst score by a country)-(score of country of interest)

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

For example, the DTF value for procedures in Italy, which requires 6 procedures, would be [(20 - 6) / (20 - 1)]*100 = 73.7 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 <u>historical</u> score by a country (also known as frontier value), and worst score for all subindicators are shown in Table 3.

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

= AVERAGE(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:

=AVERAGE(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 inputted 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*(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 *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 <u>sub-indicator</u>, 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 <u>sub-indicator</u>, not just in each indicator.

³ 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 3⁴

and the second			a providence of the second
Topic and indicator	Who set the frontier	Frontier	Worst performance
Starting a business			
Procedures (number)	New Zealand	1	18'
Time (days)	New Zealand	0.5	100
Cost (% of income per capita)	Slovenia	0.0	200.0°
Minimum capital (% of income per capita)	Australia; Colombia ¹	0.0	400.0 ^a
Dealing with construction permits			1
Procedures (number)	No economy was at the frontier as of June 1, 2016.	5	30'
Time (days)	Singapore	26	373
Cost (% of warehouse value)	No economy was at the frontier as of June 1, 2016.	0.0	20.04
Building quality control index (0–15)	Luxembourg: New Zealand	15	0'
Getting electricity			
Procedures (number)	Germany: Republic of Korea*	3	9
Time (days)	Republic of Korea; St. Kitts and Nevis	18	248'
Cost (% of income per capita)	Japan	0.0	8,100.0*
Reliability of supply and transparency of tariffs index (D-8)	Belgium; Ineland; Malaysia'	8	0'
Registering property			
Procedures (number)	Georgia; Norway; Portugal; Sweden	1	13*
Time (days)	Georgia; New Zealand; Portugal	1	210*
Cost (% of property value)	Saudi Arabia	0.0	15.0 ^p
Quality of land administration index (0-30)	No economy has attained the frontier yet.	30	04
Getting credit	- Contraction - Contraction - Contraction		1
Strength of legal rights index (0-12)	Colombia: Montenegro: New Zealand	12	0'
Depth of credit information index (0-8)	Ecuador: United Kingdom!	8	01
Protecting minority investors			1 73
Extent of disclosure index (0-10)	China: Malassia'	10	0'
Extent of deartor liability index (0, 10)	Cambodia	10	01
Esca of churcholder cuty index (0-10)	his protony has attained the function set	10	
Extent of shareholder risks index (0-10)	Chile India	10	
Extent of autoenchin and control index (010)	No erosome has strained the function set	10	
Seture of connector trace states index (5-10)	his concern has attained the function pro-	10	~
Exercise to corporate transparency index (w- ru)	No economy has assarred the normer yet.	10	
Paying cases	Harry Marry Call, China, Co., & Arabia		1.00
Payments (number per year)	Hong Kong SAM, China; Saudi Arabia	3	63-
time (nours per year)	singapore	69	630.
Total tax rate (% of profit)	Singapore'	20.1	84.0*
Postfiling Index (0-100)	No economy has attained the frontier yet.	100	0
Time to comply with VAT refund (hours)	Croatia: Netherlands"	0	50*
Time to obtain VAT refund (weeks)	Austria	3.2	55'
Time to comply with corporate income tax audit (hours)	Lithuania; Portugal'	1.5	56'
Time to complete a corporate income tax audit (weeks)	Sweden; United States"	0	32'
Trading across borders			
Time to export	- 22		
Documentary compliance (hours)	Canada; Poland; Spain#	14	170*
Border compliance (hours)	Austria; Belgium; Denmark:	19	160
Cost to export			
Documentary compliance (US\$)	Hungary, Luxembourg, Norway*	0	400*
Border compliance (US\$)	France; Netherlands; Portugal	0	1,060*
Time to import	- 4		2
Documentary compliance (hours)	Republic of Korea; Latvia; New Zealand	h.	240*
forder compliance (hours)	Estonia; France; Germany	1+	280*
Cost to import			
Documentary compliance (US\$)	Iceland; Latvia; United Kingdom*	0	700*
Border compliance (US\$)	Belgium; Denmark; Estoniar	0	1,200*
Enforcing contracts			
lime (days)	Singapore	120	1,340*
Cost (% of claim)	Bhutan	0.1	89.0*
Quality of judicial processes index (0-18)	No economy has attained the frontier yet.	18	0'
Resolving insolvency	1011	u	
Recovery rate (cents on the dollar)	Norway	92.9	0*
Strength of insolvency framework index (0-16)	No economy has attained the frontier yet.	16	0'

⁴ 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

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 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.

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. Italy is on the top of the pack with a DB score of 72.25 and GDP per capita of \$30,231⁵, so there is exponential potential for returns (prosperity) by continuing to simplify procedures and slash regulations.

Source: Doing Business Report 2017. Prepared by Prof. Steve H. Hanke, The Johns Hopkins University.

⁵ 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 Italy

[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*(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 <u>all the countries</u>, which is shown with Figure 3. Hence, this model equation is based on the data sample of 190 countries. With the DB score of 72.2, Italy is expected to generate approximately \$11,858.87 based on this model. In actuality, Italy exceeds this estimation with a reported GDP/capita of \$30,231 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 Italy 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 Italy, the shift will be +18,372.12, and the new accurate model equation is 44.691*e^(0.0773*(DB Score)) + 18,372.12 or 773.74*e^(0.0498*DB Score). This equation is then used to project the additional prosperity Italy 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 Italy'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 Italy						
Doing Business Score for 2016	GDP/Capita (\$)	Increase in GDP/Capita (\$)	Elasticity (Δ% GDPcapita / Δ% DB)			
72	\$30,231					
77	\$35,508	\$5,277	2.51			
82	\$43,612	\$8,104	3.51			
87	\$55,538	\$11,926	4.48			
92	\$73,090	\$17,552	5.50			
97	\$98,925	\$25,835	6.50			

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 3.3 times better than the GDP/person generated by Italy (GDP/person: \$30,231). In other words, Italy's economy would need to grow at an annual rate of 4.90% for 25 years to reach the frontier.

Italy's worst performing categories are Paying Taxes, Enforcing Contracts, and Getting Credit, ranking at 126, 108, and 101 respectively.

Italy worst performing indicator is Paying Taxes, which ranked 126 and scored 61.65. Paying taxes in Italy requires 14 payments, 240 hours, and the tax rate is 62%. On the other hand, the OECD high-income average requires 10.9 payments, 163.4 hours, and the tax rate is 40.9%. Reducing the number of payments, time, and tax rate would move Italy closer to the frontier. Italy has certainly taken action through its recent reforms, jumping 8 ranks and improving its score by 2.32 points in DB 2017. In the past year, Italy has made reforms by allowing full cost of labor to be deductible for regional tax on productive activities (IRAP) purposes. Also, the country updated coefficients used for calculation of tax on real estate (IMU) and municipal service tax (TASI). Additionally, Italy also improved its electronic system for preparing and paying labor taxes. Implementing additional reforms in the future would help Italy further improve in this category.

Italy's second worst performing indicator is Enforcing Contracts, which ranked 108 and scored 54.79. In DB 2017, Italy's Enforcing Contracts score stayed the same, while it dropped from 106 to 108 in the rankings. Italy requires 1,120 days to enforce contracts, while the OECD high income average only requires 553 days. Reducing the time required to enforce contracts would surely help Italy improve in this category and move closer to the frontier. The majority of time required to enforce contracts is devoted to trial and judgment, which takes 840 days. The enforcement of judgment takes 270 days and filing and service takes only 10 days. Moreover, in Italy, enforcing contracts costs 23.1% of claim, whereas it takes OECD high income average only 21.3% of claim. Reducing the cost of enforcing contracts would also help improve Italy on this front.

Italy's third worst performing indicator is Getting Credit, which ranked 101 and scored 45. Italy scored a 2 out of 12 on the strength of legal rights index and a 7 out of 8 on the depth of credit information index. The average scores for OECD high income are 6 for the strength of legal rights index and 6.5 for the depth of credit information index.

Clearly, Italy needs to significantly improve its infrastructure to raise its score on the strength of legal rights index. A look at the details of this index on the Doing Business website will outline the areas in which Italy failed. On the depth of credit information index, Italy lost a point because data from retailers or utility companies, in addition to data from banks and financial institutions, is not distributed to the credit bureau or the credit registry.

As it is shown that higher Doing Business scores lead to higher prosperity, Italy should improve its scores in all categories, starting with the worst performing indicators specified above.