Correlating Ethical Reputations and Trading Partners: A Preliminary Analysis Applying Social Comparison Theory

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Abstract—This research analyzes the Corruption Perceptions Index (CPI) scores of approximately 160 different countries to test whether countries' major trade partners are fairly similar in terms of ethical reputation. Social Comparison Theory [1] would predict that countries would prefer to trade with similar other countries. In a second analysis, this paper also analyzes the membership make-up of 11 major international trade agreements to determine whether the CPI scores of member countries in trade pacts are more similar than those of non-members. Trade data comes from 2005-2009 with CPI data from 2010. Results partially support the hypotheses that countries are inclined to conduct trade with other countries with similar ethical reputations.

Keywords—Social Comparison Theory, International Trade, Business Ethics.

I. INTRODUCTION

All countries have reputations for having some culture of ethicality. Albeit imperfect, these reputations are dependent on many influences such as government, religious, economic, political among others. While there is no universal standard of ethical behavior, in an international environment these reputations matter, especially in the arena of international trade. Some countries are fortunate to have reputations of a strong ethical culture, while others suffer from having reputations of being less ethical or more corrupt. In a global environment, it would make sense that a country's ethical reputation has implications on its trading policies and practices, most notably in determining its trade partners.

It's impossible to exactly measure ethics at any level, yet for 20 years, Transparency International has attempted to measure and rank the ethical levels of nations with its Corruption Perceptions Index (CPI) [2]. While the CPI is more geared to measuring the corruption levels of national governments, the CPI has become a respected proxy for the overall ethical environment of a country. Scholars in fields relating to international ethics (international trade, international relations, etc.) often cite the CPI as a variable in their empiric research [3], [4].

Since 1954, Leon Festinger's Social Comparison Theory [1]

has been influential in explaining our attitudes and behavior in relationship to others. Because people have a predilection to make comparisons between themselves to others, the theory is helpful in predicting whom they compare themselves to, as well as how they adjust their behaviors in light of how they compare with others. This paper uses Social Comparison Theory at a macro level to study whether countries compare themselves in terms of their ethical reputations, and whether those reputations can predict trading partners. More specifically, it asks whether there is a correlation between countries' CPI scores and their trading partners. This paper is divided into six sections. In section two, there is a discussion of Transparency International and the CPI, followed by section three which will discuss Festinger's Social Comparison Theory [1]. The paper's two hypotheses are presented in section four, followed by an overview of the data and methodology in section five. Results are presented in section six, with a discussion concluding the paper in the seventh section.

II. TRANSPARENCY INTERNATIONAL AND THE CORRUPTION PERCEPTIONS INDEX

The Corruption Perceptions Index (CPI) is one of the most recognized and researched measures of a country's ethical climate [4]. The Index is published annually by Transparency International, an organization based in Berlin that, "gives voice to the victims and witnesses of corruption. We work together with governments, businesses and citizens to stop the abuse of power, bribery and secret deals" [2]. Each year the organization publishes a list of countries ranked by their perceived levels of corruption (or conversely, ranked by their level of ethicality). Transparency International collects data from multiple sources to evaluate the ethical climate of a country, business and government, from which they generate scores and rankings. Scores range from 0 (least ethical) to 100 (most ethical). The data for this research comes from 2010 to match the trade data. Back then, the CPI was based on a ten-point scale. In addition to the CPI, Transparency International publishes its Bribes Payers Index Report, a listing of 28 countries ranked by the prevalence of bribes. Unlike the CPI, this is not published annually with its last edition in 2011. As might be expected there is a correlation between the 28 country's CPIs and their Bribe Payers Index scores [5].

In the twenty years since the first publication of CPI scores, scholars from many fields have used the data in their research.

Some of these fields include, but are not limited to economics, ethics, business, and political science. Over that time, some themes have emerged. Most notably, democratic countries tend to be more ethical than non-democratic countries [6]. Triesman [7] took that further by suggesting longer serving democracies are less corrupt than newer democracies.

Another recurring theme is the positive correlation between economic development and ethical cultures [6]-[10]. Similar to economic development, as countries become more global several studies have shown their ethical climates improve [8]-[10]. Lalountas, Manolas, and Vavouras [11], however, did not find that relationship in their research. Focusing on the relationship between corruption and economic inequality, one study [12] found a U-shaped correlation.

Cultural dimensions have been integrated with CPI data to find correlations between a country's cultural orientation and its level of corruption [13]. One finding is that horizontal individualist cultures tend to be the most ethical [14]. From a 'Big-5' personality perspective, Connelly and Ones [15] found that countries that scored low on neuroticism and high on extroversion had better CPI scores.

III. SOCIAL COMPARISON THEORY

Social Comparison Theory [1] is one of the most referenced theories in the field of social psychology. For over sixty years, it has helped explain how people use comparisons with others to determine how their attitudes – how they feel – and how they act by predicting whom people will use for comparative purposes. In a nutshell, people tend to gravitate towards situations where others are more similar. When they're in a situation in which they don't feel similar, they will be motivated to minimize the differences perhaps by seeking a new situation where they feel more similar, thus comfortable, with others.

It is worth noting that this is not the complete theory and simplifies the portion relevant to the research presented. In fact, in its original form, the theory contained nine hypotheses and multiple corollaries and derivations. In this research, social comparison theory is being applied at a macro, or national, level in which the subjects of analysis are countries. Trade is the activity and trade partners are the comparison others. The countries' ethical reputations are the points of comparison, thus asking the question: based on ethical reputations, can Social Comparison Theory predict a country's trading partners?

Since its initial publication in 1954, Social Comparison Theory [1] has been one of the social sciences must studied theories. Not only has it been the base of much research, other theories have evolved from it. J. S. Adams [16] was highly influenced by Social Comparison Theory when he developed Equity Theory, a theory of motivation. The versatility of Social Comparison Theory is evident when one considers the broad range of topics to which it has been applied. Smith-Jackson & Reel [17] used the theory to study weight gain in college freshmen, and it's been used multiple times [18], [19] to study corporate career progressions. In the leadership literature, van Quaquebeke, van Knippenberg, and Eckloff, [20] studied followers' perceptions of their leaders. In terms

of adolescent psychology, Suzuka and Muto [21] studied the self-concepts of high school students. Wadsworth [22] used sex as the subject for analysis while Aronsson & Johansson-Stenman [23] used income tax rates as the subject of their study. According to Nabi and Keblusek [24] Social comparison Theory explains feelings of envy people feel in relation to media figures or celebrities. In 1988 Charles O'Reilly and his colleagues [25] used Social Comparison Theory to predict CEO pay by comparing it to the pay of outside board members. Based on this project's literature review, this is the only research that combines Social Comparison Theory with International Trade.

Just as Social comparison Theory predicts that individuals will associate with similar people, this paper predicts that countries will associate with similar countries. The characteristic that will analyzed is a country's ethical reputation as measured by CPI scores. In this study, association is through trade, so I will be testing whether countries are more inclined to trade with similarly ethical countries as Social Comparison Theory would suggest. More detailed descriptions are in the next section where I highlight the hypotheses'

IV. HYPOTHESES

In Social Comparison Theory, Festinger wrote, "A person will be less attracted to a situation where others are very divergent from him than to situations where are close to him for both abilities and opinions' [26]. In other words, people will be more apt to participate in situations with people who are similar to them. Using countries in lieu of people, CPI scores as the object of similarity, and trade as the activity in question, the first hypothesis for this paper is:

Hypothesis 1: Countries will be more inclined to trade with other countries that have similar CPI scores.

The second hypothesis focuses on trade agreements and the similarity of countries in such pacts. While trade agreements are frequently based on geographic proximity (e.g., the European Union), not all countries in those geographic locations are members. For example, not every European country is a member of the EU. Some choose to, and they have to be accepted by the other member countries. In other words, there's a measure of self-selection in joining such a trade agreements. Hypothesis two considers this self-selection and predicts that countries will join trade alliances in which the member countries are more similar than non-members.

Hypothesis 2: Member countries in trade agreements will have more similar CPI scores with member countries than they will with non-member countries.

The following section will outline the data and methodology used to test these two hypotheses.

V. DATA AND METHODOLOGY

Corruption Perceptions Index scores come directly from Transparency International's website. For this project I am using 2010 data during which time there were 178 countries ranked and measured on a score of 1-10. I am using 2010 data since it aligns best with the trade data (2005-2009). Even though the CPI scores and rankings shift from year to year, the shifts are very minor with very few countries scoring significantly differently. In 2010, the three most ethical countries were Denmark, New Zealand and Singapore each scoring 9.3/10. For comparison purposes, the US was ranked 22nd with a score of 7.1. Somalia with a score of 1.1 was the most corrupt country that year.

Data regarding trade came from MIT's Media Lab's Observatory of Economic Complexity. The Observatory of Economic Complexity accumulates trade data and calculates countries' ECI, or Economic Complexity Index. The ECI measures a country's economic activity regarding trading partners, products exported, products imported, etc. Not only does the Observatory of Economic Complexity aggregate the data, it presents it visually in a very clever manner. MIT and the Observatory of Economic Complexity share the data publicly asking only for recognition of the site and its creators [27], [28].

Trade data for this project come from the year 2005-2009. I selected the top trading partners for every country in the sample, distinguishing the top three export countries (destinations where the focus county sends its products) and the top three import countries (where the focus country purchases its imports). The OEC lists the top twenty import and export countries, however this research considers only the top three export and import countries. Concentrating on only six countries (three import and three export), the research focuses on only a country's most significant trading partners. Often a country was a top import partner as well as a top export partner; in which case they were mentioned twice. One example is Canada for the United States. Canada is the U.S.'s largest export partner and the second largest import partner behind China. For the first Hypothesis, once the largest import and export partners were determined, I cross-listed their CPI scores and correlated their CPI scores with focus country's CPI, which I did for all 159 countries in the sample.

For the second hypothesis, two methods were used to determine whether the CPIs of trade pact members were more similar than to those countries outside the trade pact. First, I conducted an independent samples t-test whether the average CPI of trade pact members was more similar than for non-members. This determined whether the average CPIs were, in fact, different. The second test of Hypothesis 2 considered the similarity of CPI scores within trade-pacts. For this analysis, I compared the standard deviations of CPI scores of countries within a trade pact to all other countries not in the trade pact using Levene's Test for Equality of Variance. This research considers eleven trade pacts, they are: the World Trade Organization (WTO) the largest with 141 members in the

sample set; the European Union (EU) with 28 members; ASEAN Free Trade Area (AFTA) with ten members from Southeast Asia; the Central European Free Trade Agreement (CEFTA) consisting of seven non-EU countries in Eastern Europe; the Free Trade Agreement of the Commonwealth of Independent States (CISFTA) consisting of eight member countries including Russia and other former Soviet republics; the Common Market for Eastern and Southern Africa (COMESA) consisting of 19 member nations; the Greater Arab Free Trade Area (GAFTA) with sixteen members in the sample; The Cooperation Council for the Arab States of the Gulf (CCASG) consisting of six members; the North American Free Trade Agreement (NAFTA) consisting of Canada, Mexico and the United States; the South Asian Free Trade Area (SAFTA) with six member states including India an nearby counties, and the Central American Integration System or its Spanish translation of Sistema de la Integración Centroamericana from whence it gets its acronym of SICA with seven members.

VI. RESULTS

In Table I, I provide the results of regressing the CPI of a country with its three largest export partners individually, three largest import partners individually, all three export partners combined, all three import partners combined, and all six export and import partners combined. The results are promising with all the correlations significant to the .05, meaning that there exist correlations between the ethical reputation of a country and those of its trading partners. On the other hand, none of the R-square values was very large thus limiting the explanatory value of the analysis. From an individual trading partner perspective, the highest R-square occurred for a nation's largest import partner (0.099), and the lowest R-square was for a country's largest export partner (0.026).

Country Predictors	N	F	Sig.	R²
1ˢᵗ Export Partner	159	4.267	0.041	0.026
2ⁿᵈ Export Partner	159	12.118	0.001	0.072
3ʳᵈ Export Partner	159	7.847	0.006	0.047
1ˢᵗ Import Partner	159	17.405	0.000	0.099
2ⁿᵈ Import Partner	159	15.026	0.000	0.087
3ʳᵈ Import Partner	159	5.675	0.018	0.035
Export Partners Combined	159	8.872	0.000	0.147
Import Partners Combined	159	17.111	0.000	0.248
Import & ExportPartners Combined	159	16.759	0.000	0.246

Export Partners Combined	B	SE	t	Sig
(Constant)	-0.074	8.101		-.009	0.993
2ⁿᵈ Export Partner	0.311	0.081	0.286	4.918	0.000
3ʳᵈ Export Partner	0.203	0.080	0.192	2.178	0.012
1ˢᵗ Export Partner	0.177	0.083	0.161	5.258	0.035

Import Partners Combined	B	SE	t	Sig
(Constant)	-12.541	7.596		-1.651	0.101
1ˢᵗ Import Partner	0.406	0.077	0.371	5.258	0.000
2ⁿᵈ Import Partner	0.402	0.082	0.348	4.918	0.000
3ʳᵈ Import Partner	0.162	0.074	0.152	2.178	0.031

Export & Import Partners Combined	B	SE	t	Sig
(Constant)	-12.244	7.666		-1.597	0.112
1ˢᵗ Import Partner	0.408	0.078	0.373	5.246	0.000
2ⁿᵈ Import Partner	0.400	0.082	0.346	4.857	0.000
3ʳᵈ Import Partner	0.156	0.076	0.145	2.061	0.041

Table I regression results of a country's CPI with those of its trading partners

When clustered together in a stepwise regression, a

country's top three export partners combined for an R-square of 0.147 with all three coefficients being significant. By comparison, the explanatory power of the three import countries combined was considerably larger with an R-square of 0.248 with all three coefficients significant.

When the three import partners and three export partners were combined and entered into a single stepwise regression, only the three import partners were significant and that R-square was 0.246.

In review, there are significant correlations between a country's individual top three import partners, and individual top three export partners. Combinations of the top three import partners correlate significantly a country's CPI, as do combinations of the top three export partners. However, when the top three export partners and the top three import partners are combined in a single stepwise regression, only the import countries have significant correlations. R-squares for all the analyses were modest ranging from a low of 0.026 to 0.248.

Table II presents the results for Hypothesis 2 which compared the similarity of countries' CPIs within a trade alliance, and those countries outside of the alliance. Because this was a very different analysis from that of Hypothesis 1, there were fewer missing data cells, thus resulting in a slightly larger sample size. There were 171 countries in the Hypothesis 2 analysis compared to 159 in the Hypothesis 1 analysis. Of the eleven comparisons, differences were significant at the 0.05 level: WTO, EU, CEFTA, CISFTA, and

COMESA. Two comparisons neared significance at the 0.10 level: CCASG and NAFTA. While the results were not universally supported, it is important to note that there were very large differences in group sizes which complicates the analysis and reduces the likelihood for statistical significance.

The second analysis for Hypothesis 2 compared the variances of trade alliance members to countries not in the alliance. Assuming members join trade groups with other similar members as Social Comparison Theory would predict, there should be less variance among those in the group. Again, results were mixed. Of the eleven trade groups, the results were significant and as predicted for four of them (CEFTA, CISFTA, COMESA, and SICA). For an additional four trade groups (GAFTA, CCASG, NAFTA, and SAFTA) the results were in the predicted direction although insignificant. For two groups, (EU and AFTA) the results were opposite the predicted direction although statistically insignificant. For the World Trade Organization, the results were significant yet in the opposite direction of what was predicted. In other words the standard deviation of CPI scores for non-members was less than that of members. Considering the global nature of the WTO and the number of members is far larger than the number of non-members (141 to 30), these results should not be surprising. Like in the first analysis of Hypothesis 2, the significantly different populations between group members and non-group members makes statistical analysis difficult.

Trade Group	N Members	N Nonmembers	Members' CPI Mean	Nonmembers' CPI Mean	T score	Std Dev Members	Std Dev Nonmembers	Levene's F
WTO	141	30	42.986	27.900	5.163**	21.709	12.487	14.826**
EU	28	143	62.500	36.000	6.824**	19.238	18.706	0.770
AFTA	10	161	36.200	40.596	-0.636	23.328	21.072	0.014
CEFTA	7	164	33.571	40.628	-2.936**	4.541	21.546	9.290**
CISFTA	8	163	24.375	41.123	-8.014**	3.543	21.358	11.092**
COMESA	19	152	28.842	41.776	-4.509**	9.856	21.768	13.409**
GAFTA	16	155	38.375	40.542	-0.389	17.614	21.533	0.795
CCASG	6	165	55.667	39.782	1.818*	12.242	21.230	2.114
NAFTA	3	168	63.667	39.923	1.942*	29.687	20.865	0.479
SAFTA	6	165	31.833	40.648	-1.002	13.197	21.357	2.785
SICA	7	164	33.714	40.642	-0.845	9.742	21.484	5.191**

* Significant at 0.1, ** significant at 0.05

Table II comparison of CPI scores and standard deviations of alliance members and non-members

VII. CONCLUSION

Results for this research were, if not conclusive, showed promising support that Social Comparison Theory can be used to predict trading partners based on a country's Corruption Perceptions Index score. For preliminary research, this is hopeful. Regression analysis confirms that countries tend to trade with other countries whose ethical reputations are similar. On the other hand, R-square values were modest, with the largest being 0.248. This means that although there is a statistically significant correlation, the ability to explain the

variance is limited, thus CPI scores aren't terribly good predictors of a country's trading partners.

An unanticipated finding of the research was that countries' import partners were better predictors than their export partners (R-squares of 0.248 compared to 0.147). This could be a focus of further study. Are countries more careful about selecting trade partners from which to buy products than they are when selecting trade partners for selling their products? One possible explanation comes from a colleague who suggested, "We'll sell to anyone, we're more careful about who we buy from."

The analysis of trade group members had promising although mixed results. The mean CPIs of group members were different in seven of the eleven trade group comparisons (of those five were significant at the 0.05 level and two were nearly significant at the 0.10 level). That trade groups are often geographically based, future research concentrating on regional effects of CPI scores would be fruitful.

The results of this study raise additional questions regarding the mechanism of how countries determine trade partners. While the results presented here offer statistical correlations, it doesn't address *how* countries actually decide upon its trading partners. Qualitative research with experts such as trade representatives would complement the quantitative research presented here. How much do the decision makers regarding trade consider the ethical reputation when establishing trade agreements? This would be very beneficial for future research.

There exist other opportunities for future research. An additional variable that this project did not consider was the actual commodities being traded. Are there certain products that are associated with more or less ethical trade practices? Such a finding would certainly enhance these results and move this research forward. Moreover, this is very possible. The Observatory of Economic Complexity identifies not only a country's top trading partners, but it also identifies the top imported and exported products of each country.

An additional variable that might be helpful in future research is distance. However, one could argue that distance is implied when studying regional trade pacts. Nevertheless, it makes sense that a country would prefer to trade with closer neighbors when possible. It would be interesting to compare geographic proximity with ethical reputation when selecting trade partners.

Being an exploratory study, the analysis included all data of the variables studied. Using an art example, I used a wide brush to paint a simple picture. Subsequent research should use more detailed brushes to paint a more comprehensive and nuanced picture. For example, future iterations of this work should consider and control for some of the anomalies found in this research. For example: there are certain countries that are so large and powerful that they have an inordinate effect on the findings. Most notably is China, a country with a relatively poor ethics reputation (3.5/10 and a rank of 78). Yet China is the largest importer to New Zealand and Singapore, and the third largest importer to Denmark. These three countries had the highest CPI scores in the world. Simultaneously, China was also the third largest importer to Somalia the most corrupt country. Controlling for the effects of countries like China and other international power-houses would certainly provide a more detailed account of the effect of a country's ethical reputation on trade.

As an exploratory study, this project shed some light on the relationship between trade and ethical reputations. Like a lot of preliminary analyses, the results presented here aren't overwhelmingly conclusive. Nevertheless, there were some statically significant correlations when looking at trade partners, and some statistically promising results comparing the ethical reputation of trade pact members to non-members. There is something here. It's good to know that ethical reputations matter, and Festinger's (1954) Social Comparison Theory [1] can be applied in studying international trade. Like many exploratory analyses, this research offers limited insight on its topic, ethical reputations and trading partners. The results were generally, if not overwhelmingly, positive. However, the results were robust enough to encourage more research integrating Social Comparison Theory with international trade.

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REFERENCES

[1] L. Festinger, "A theory of social comparison processes," *Human Relations*, vol. 7, no. 2, pp. 117–140, May 1954.

[2] Transparency International - Our history. (n.d.). Retrieved Jul. 31, 2014, from http://www.transparency.org/whoweare/history.

[3] S. Andersson, and P. M. Heywood, "The politics of perception: Use and abuse of Transparency International's approach to measuring corruption," *Political Studies*, vol. 57, no. 4, pp. 746–767, Dec. 2009.

[4] K. Ko, and A. Samajdar, "Evaluation of international corruption indexes: Should we believe them or not?" *Social Science Journal*, vol. 47, no. 3, pp. 508–540, Sep. 2010.

[5] Transparency International - What we do. (n.d.). Retrieved Jan. 13, 2015, from http://www.transparency.org/whatwedo

[6] M. Paldam, "The cross-country pattern of corruption: economics, culture and the seesaw dynamics," *European Journal of Political Economy*, vol. 18, no. 2, pp. 215–240, Jun. 2002.

[7] D. Treisman, "The causes of corruption: a cross-national study," *Journal of Public Economics*, vol. 76, no. 3, pp. 399–457, Jun. 2000.

[8] A. Ades, and R. Di Tella, "Rents, competition, and corruption," *American Economic Association*, vol. 89, no. 4, pp. 982–993, Sep. 1999.

[9] R. Gatti, "Explaining corruption: Are open countries less corrupt?" *Journal of International Development*, vol. 16, no. 6, pp. 851–861, Aug. 2004.

[10] F. Bonaglia, J. Braga de Macedo, & M. Bussolo, "How globalization improves governance," OECD working paper, Nov. 2001

[11] D. A. Lalountas, G. A. Manolas, & I. S. Vavouras, "Corruption, globalization and development: How are these three phenomena related?" *Journal of Policy Modeling*, vol. 33, no. 4, pp. 636–648, Jul. 2011.

[12] Y. Jong-Sung, and S. Khagram, "A comparative study of inequality and corruption," *American Sociological Review*, vol. 70, no. 1, pp. 136–157, Feb. 2005.

[13] G. Hofstede, *Culture's Consequences, International Differences in Work-Related Values (Vol. 5)*. Beverly Hills, CA: Sage Publications, 1980.

[14] S. Li, H. C. Triandis, & Y. Yu, "Cultural orientation and corruption," *Ethics & Behavior*, vol. 16, No. 3, pp. 199–215, Jul. 2006.

[15] B. S. Connelly, and D. S. Ones, "The personality of corruption A national-level analysis," *Cross-Cultural Research*, vol. 42, no. 4, 353–

385, Nov. 2008.

[16] J. S. Adams, "Towards an understanding of inequity," *The Journal of Abnormal and Social Psychology*, vol. 67, no. 5, pp. 422–436, Nov. 1963.

[17] T. Smith-Jackson, and J. J. Reel, (2012). "Freshmen women and the 'freshman 15': Perspectives on prevalence and causes of college weight gain," *Journal of American College Health*, vol. 60, no. 1, pp. 14–20, Jan. 2012.

[18] F. Ederer, and A. Patacconi, "Interpersonal comparison, status and ambition in organizations," *Journal of Economic Behavior & Organization*, vol. 75, no. 2, pp. 348–363, Aug. 2010.

[19] P. Fischer, A. Kastenmuller, D. Frey, & C. Peus, "Social comparison and information transmission in the work context," *Journal of Applied Social Psychology*, vol. 39, no. 1, pp. 42–61, Dec. 2008.

[20] N. van Quaquebeke, D. van Knippenberg, & T. Eckloff, "Individual differences in the leader categorization to openness to influence relationship: The role of followers' self-perception and social comparison orientation," *Group Processes & Intergroup Relations*, vol. 14, no. 5, pp. 605–622, Sep. 2011.

[21] M. Suzuki, and S. Muto, "Influence of social comparison with an average student on the formation of academic self-concept in high-ability high school students," (English) *Japanese Journal of Personality*, vol. 21, no. 3, pp. 291–302, Aug. 2013.

[22] T. Wadsworth, "Sex and the pursuit of happiness: How other people's sex lives are related to our sense of well-being," *Social Indicators Research*, vol. 116, no. 1, pp. 115–135, Mar. 2014.

[23] T. Aronsson, and O. Johansson-Stenman, "Positional preferences in time and space: Optimal income taxation with dynamic social comparisons," Journal of Economic Behavior & Organization, vol. 101, 1–23, May 2014.

[24] R. L. Nabi, and L. Keblusek, "Inspired by hope, motivated by envy: comparing the effects of discrete emotions in the process of social comparison to media figures, *Media Psychology*, vol. 17, no. 2, pp. 208–234, Apr. 2014

[25] C. A. O'Reilly III, B. G. Main, & G. S. Crystal, "CEO compensation as tournament and social comparison: A tale of two theories," *Administrative Science Quarterly*, vol. 33, no. 2, pp. 257–274, Jun. 1988.

[26] L. Festinger, "A theory of social comparison processes," *Human Relations*, vol. 7, no. 2, p. 123, May 1954.

[27] A. J. G. Simoes, & C. A. Hidalgo (2011) "The Economic Complexity Observatory: An analytical tool for understanding the dynamics of economic development," Scalable Integration of Analytical Visualization: Papers from the 2011 AAAI Workshop (WS-11-17) pp. 39-42.

[28] R. Hausman, C. A. Hidalgo, S. Bustos, M. Coscia, A. Simoes, and M. A. Yildirim, *The Atlas of Economic Complexity: Mapping Paths to Prosperity*. Boston, MA: MIT Press, 2014.

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