

RELATIONAL RISK AND RELATIONAL RENTS IN AGRIBUSINESS

**Introducing risks and rents in stakeholders relationships
In beef agribusiness in emerging economies
The Argentinean case.**

*Professor Hector Ordoñez, Co – Director
Professor Hugo Cetrangolo, Director*

**AGRIBUSINESS & FOOD PROGRAMME
SCHOOL OF AGRONOMY
BUENOS AIRES UNIVERSITY**

agroneg@mail.agro.uba.ar

www.agro.uba.ar

**AGRIBUSINESS FORUM
X IAMA WORLD CONGRESS
CHICAGO JUNE 2000**

RELATIONAL RISK AND RELATIONAL RENTS IN AGRIBUSINESS ^{1,2}

Introducing risks and rents in stakeholders relationships in beef agribusiness in emerging economies, The Argentinean case.

ABSTRACT. In this article we offer the results of a local research in beef agribusiness competitiveness. The original set of analysis gives the perception of key local experts on the level of competitiveness on a global basis. The further analysis introduces an emerging issue, the dispersion of the valuation and scoring. The different stakeholders representatives consulted shows that the level of discrepancy in the scoring does not allow the consensus for collective knowledge creation and innovation. In consequence the improbable construction of a common strategy and agenda. The results of the second set of analysis introduces in the research agenda the need of a new focus, oriented to the relational view. In order to understand the high level of relational risk and low level of relational rents, due to discrepancy and dispersion of the diagnoses.

1. INTRODUCTION

Argentine agribusiness has grown and developed competitive advantages during the 90's.³ The institutional change produced in the early 90's based in market oriented rules promoted privatisation, de-regulation, openness of domestic markets, administrative reform of the State. The Convertibility Law - currency board - created the initial conditions to finish with rampant inflation and finally evolved to a fiscal and monetary framework. All the changes converged in a paradigm shift of Argentine society, mainly the relationship between the State and families and firms.

The whole of Argentine economy was involved in a deep process of increasing productivity. The cost reduction went trough the main sectors of the economy. In parallel quality assurance and total quality management was introduced in the main sectors of the local economy. The agribusiness sector ⁴ has been leading this process during the last decade ratifying the "traditional competitiveness" of the comparative advantages augmented by developing innovation and new competitive advantages⁵. Nevertheless the effectiveness and efficiency of the interchange was not so spectacular due to some institutional and organisational constrains.

R. Coase clearly stated this type of situation⁶: "... the productivity of an economic system depends on specialisation. But specialisation depends on exchange. And the lower cost of exchange (transaction cost as they have come to be called) the more specialisation will be,

¹ Professor Hector Ordoñez, Co – Director, Agribusiness & Food Programme, School of Agronomy, Buenos Aires University.

² Professor Hugo Cetrangolo, Director, Agribusiness & Food Programme, School of Agronomy, Buenos Aires University.

³ Ordoñez H. The State Role and the Three Argentines. Changes in Public and Agribusiness Policies. Essay. Agribusiness Unit, SAGPYA, 1996. Partially presented on May, 1998. State Reform in Argentina. PNUD Seminar/Argentine Foreign Office. Zimbabwe.

⁴ Secretariat of Agriculture, Livestock, Fisheries and Food. Argentina, agricultural, agro industrial and fishing. SAGPYA, Argentina. 1998.

⁵ SAGPYA. La Siembra y la Cosecha. Secretaria de Agricultura Ganadería, Pesca y Alimentación, 1997.

⁶ Coase R. Message from Ronald Coase. International Society for New Institutional Economics Newsletter, Spring 1998. Volume 1. Number 1.

the grater the economy and the higher standard of living of people in that economy. However the level of transaction cost depends on the institutions of a country, its legal system, its political system, and its culture...”

Coase quotation puts the key of economic performance - in a way, the key of competitiveness - in the institutional and organisational environment, and in such sense how the rules of the game influence the performance of the players , the different organisations in society.

Traditional studies of competitive strategies have pointed two main sources of competitive advantages, or the sources of super-normal returns.

The first one, Industry Source View associated with Porter⁷, considers the firm membership to an industrial sector and its potential of bargaining and rivalry the main source of competitiveness.

The second one, Resource Based View⁸, that focused the source of outstanding performance not in the industry, but in the firm. Special and distinctive resources and capabilities difficult to achieve and imitate by competitors are the main source of competitiveness. In such a way a firm can developed within its core competences a singular set of dynamic capabilities that explains its superior performance.

Nevertheless the traditional approach is limited for the comprehension of competitiveness in global economy where complex systems are competing between them, corporate or national basis. In both cases strategic alliances and complex inter organisational systems are developed.

Recent studies had explored the possibility that critical resources could span firm boundaries and may be embedded in inter firm routines and processes. This idiosyncratic inter firm linkages may be a source of relational rents and competitive advantage. Developing effective and efficient inter organisational relationships promotes a rent generating process. The Relational View⁹ of competitiveness define the source of critical competences in the relationship, that creates relational rents, however includes also the relational risk as a restriction for superior performance.

The third source of super normal rents, the relational view, focus in cooperative strategies and inter organisational relationship as the key elements of competitiveness. This approach is on line with Coase quotation, in fact there is no key competitiveness of a firm, or an industry that can go beyond the transaction costs of the economic system in a given society. Nevertheless very little field research and case studies had been carried on using this new institutional approach. In fact when competitiveness is discussed the main stream

⁷ Porter M. Competitive Strategy. New York Free Press. 1980. Porter M. La Ventaja Competitiva de las Naciones. Vergara. Buenos Aires.1990.

⁸ Barney J B. Firm resources and sustained competitive advantage. Journal of Management 17:99-120. 1991.

⁹ Dyer J & Singh H The relational view: cooperative strategy and sources of inter organisational competitive advantage. Academy of Management Review. Vol 23 N4 660-679.1996.

theoretical background is focused in the first or the second approach above mentioned, only recently, the relational view has been considered.

The three above mentioned sources of competitive advantages had been analysed and proposed by different academics. Moreover the previous approach, the study of competitiveness and the benchmarking is focused on the firm or the industry. Nevertheless the study of systemic competitiveness at national level should include a more institutional approach. Some recent studies are introducing some of these new issues. This new framework had been explore by industry and consultants in order to promote reengineering and strategic planning in business day life.

This article is promoting a deep thinking, scouting the boundaries, around a competitiveness research project¹⁰ being currently run in the UK on global basis.

2. PROBLEM STATEMENT

In the case of global beef agribusiness an UK Consortium¹¹ (industry, government and industry organisations) managed and founded a research project. A British consultancy company¹² developed a questionnaire and had run the study following the theoretical holistic framework of competitive dynamics approach in the lines of the IMD's model that is used in the competitiveness study of the World Economic Forum in Davos. The study is currently run by the consultancy and the final results are going to be published in the present year.

In order to follow this study with the potential of comparison and benchmarking it was specially requested the use of the same questionnaire in order to fulfil that condition. The Beef Agribusiness Competitiveness Questionnaire consist in a number of critical questions related to factors, grouped as drivers of dynamic competitiveness. The questionnaire includes different aspects of institutional, organisational and technological environment related with beef agribusiness. In fact, going further, including some of the new issues above mentioned.

Nevertheless a final “competitive score” was achieved in our local research, the extremely relevant issue that emerged from the research was the large dispersion of the results. The extreme diversity in different expert's answers, to nearly all the key factors and drivers analysed in the questionnaire.

The results of the interviews to relevant experts (representing the different segments of the main stakeholders involved in the local beef supply chain) showed a remarkable dispersion in the distribution. The dispersion of the results is consequence of the fragmented and particular perception of beef agribusiness reality by the different stakeholders. The contradictory perception determines by the way a lack of consensus of the main strategic

¹⁰ Project Management Services – Institute of Grocery Distribution PMS/IGD Global Livestock Benchmarking Survey 2000. United Kingdom 2000. <http://www.igd.com> or <http://www.prospectmanagement.co.uk>

¹¹ Ministry of Agriculture, Fisheries and Foods MAFF, Meat and Livestock Commission MLC, National Farmers Union NFU, UK Agricultural Supply Trades Association UKASTA, Institute of Grocery Distribution IGD, Dalgety, Elanco, Moy Park, PIC.

¹² Thelwall D. PMS Prospect Management Services. 1999. <http://www.prospectmanagement.co.uk>

problems affecting the business. Therefore the subsequent agenda is also very contradictory. Therefore, it is not possible to develop a common agenda under this circumstances. The reality is perceived different, the identified problems are different, and the proposed solutions are different.

This situation promotes suspicion instead of trust, opportunism instead of credible commitments, and overall this situation determines a business environment that promotes poor inter – relationships. From the relational view, this conditions determines:

“low rents and high risk, further more, this conditions are real constrains for developing dynamic capabilities of collective knowledge creation and in the end for co – innovation and value creation. In such scenario is not feasible to create competitiveness, moreover, in such environment the result is lack of competitiveness”.

In several recent studies developed around the systemic competitiveness of beef agribusiness in Argentina has been pointed as key constrains for creating sustainable competitive advantages the institutional and organisational environment¹³. This multidimensional interaction determines at the end lack of co-operation¹⁴ in supply chain processes in beef agribusiness in a complex business environment with rampant tax evasion and low technological innovation.^{15 16}

The lack of co-operation generates poor inter-relations between the different stakeholders in the supply chain in local beef agribusiness. Poor interrelationships determines poor innovative capabilities and limited value creation.

This business environment overlooked through the relational view and the social capital paradigms introduces the concept of risk and rents in stakeholders relationships as one of the key issues for research and intervention in this type of situations.

In emerging economies, specially the Argentinean case of beef agribusiness, the relational approach of risk and rents is increasingly explaining the value creation restrictions due to the poor conditions of developing social capital under particular institutional and organisational environment.

3. OBJECTIVES

The main original objective was to determine through a questionnaire to local experts the “level of competitiveness” of local beef agribusiness following the procedure developed by PMS/IGD project in the UK with the future potential of benchmarking.

¹³ Ordoñez H. Alternative Chain Management in Beef Agribusiness. The PRINEX Case. Concurrent Session 8A. VIII IAMA World Congress Food & Agribusiness. Punta del Este. Uruguay. June 1998.

¹⁴ Duran, H. La importancia de la integración de la cadena carnica. Plan Agropecuario. Montevideo. ROU. 1996.

¹⁵ AAIC. Evaluación de la competencia desleal a través de la evasión fiscal en ganados y carnes. Asociación Argentina de Industrias de la Carne. Buenos Aires, Argentina. Septiembre 1997. AAIC. Modernización en el consumo de carne vacuna. Asociación Argentina de Industrias de la Carne. Buenos Aires, Argentina. Agosto 1996.

¹⁶ Direccion de Alimentos. Carne Bovina. Cadenas Alimentarias. Alimentos Argentinos. N3. SAGPYA. Julio 1997. Moavro E. Carne Bovina. Cadenas Alimentarias. Alimentos Argentinos. Edición Especial Sial Mercosur 99. SAGPYA. Julio 1999.

Due to the singular dispersion verified in the answers and scoring to different factors and drivers of competition that emerged from the different selected local experts it was not enough the usual traditional approach to competitiveness and strategy.

The present objective is to suggest the introduction of the concept of relational risk and rents. The remarkable dispersion of the data that emerged, imposed the need of a further analysis. It opens the opportunity to introduce the relational view of competitiveness introducing risks and rents in stakeholders relationships. The lack of consensus and common perception of the reality are main drivers involved in developing poor inter - relationships, and consequently its relevant influence in generating rents, risk and competitiveness along the beef system in the local market.

4. PROCEDURES.

The method used consists in personal interviews with relevant experts representing the different segments of the main stakeholders involved in the local beef supply chain. The personal interview will go over an extended questionnaire, previously answered; to ensure its full and accurate completion and to seek profound further relevant information.

The questionnaire was submitted to local agribusiness leaders from academia, industry and government, seeking the opinion of their expertise and report their collective views by scoring the answers from “0 to 10” score scale of response. The proposal was to determine by an extended local study, the domestic view of beef competitiveness, moreover a global study was simultaneously runned by the UK Consortium.

The study had a principal output, “some sort of score” for different drivers and factors related to local beef competitiveness. The group of around 30 experts¹⁷ that were involved in the research are locally very well considered. In the data processing work raised a side output - a collateral emerging issue - that in the follow up of the research ended to be the most important result of the such investigation.

The multiple questionnaire items are presented in 7 sections - drivers - with a number of factors each, that totalise 157 questions related to different dimension of competitiveness. Each factor was converted into a positive statement, for which a high level of agreement indicates competitiveness. The group of drivers under study were the following:

1. Farm Economy, detailed evaluation of the agfood economy.(25 factors).
2. Food Processing Economy, detailed evaluation of the processing sector’s performance.(29 factors).
3. Domestic Market, strength and vibrancy of domestic market as spur to competitiveness; on the grounds that a strong domestic market helps companies to build a firm base before exporting.(25 factors).

¹⁷ The 30 experts were selected between well known local agribusiness leaders in academy, industry and government that had been currently involved in beef agribusiness chain management. The core group of the private sector was involved in animal breeding, farming, processing industry, local retailing and international trade. Government officers were involved in policy making and state agencies of regulation and control. The academics included a group of Ms. Sacs. students involved in chain management research, students were involved also in government and industry professional work. Research Coordinated H. Ordoñez. Food & Agribusiness Programme. Buenos Aires University. Summer 2000.

4. Management and people, extent to which agfood companies are run in an innovative, profitable and responsible way. Availability and quantity of human resources.(25 factors).
5. Infrastructure, degree to which natural, technical and communication resources positively influence primary food chain competitiveness.(11 factors).
6. Government, how far government policy, practice and legislation assists competitiveness.(27 factors).
7. Science and technology, the scientific and technological capability and capacity.(15 factors).

The original analysis and data processing was oriented to achieve a “ competitiveness score” of beef agribusiness around the seven selected drivers with a final score identifying the national level of competitiveness. The answers and score to the group of factors included in each driver was analysed through the following descriptive statistics: the mean, the standard deviation, the coefficient of variation and the median.¹⁸. This last one appeared to reveal the consistency of a determinate score for the factor in analysis.

Lastly, the final and further analysis went through a more detailed procedure taking each of the 157 factors. The scoring to each answer by the nearly 30 experts involved was analysed through the following descriptive statistics: the mean, the standard deviation and the coefficient of variation.

5. RESULTS AND DISCUSSION.

The first set of analysis oriented to a competitiveness score results from the aggregate of the different items -factors - included in each driver as they were scored by the different experts consulted. The results of the final scoring for the different drivers of competitiveness was:

DRIVER	MEAN	STD DEV	CV	MED
1. FARM ECONOMY	4.14	1.32	31.95	3.93
2. FOOD ECONOMY	3.87	1.51	39.04	3.71
3. DOMESTIC MARKET	4.00	1.64	41.02	3.63
4. MANAGEMENT	3.34	1.30	38.86	3.04
5. INFRASTRUCTURE	6.30	2.18	34.58	5.70
6. GOVERNMENT	4.62	1.85	40.05	4.25
7. SCIENCE & TECHNOLOGY	4.02	0.93	23.09	3.89
TOTAL COMPETIVENESS SCORE	4.17	0.70	16.80	4.00

The result above summarised indicates that the local experts consulted perceived a medium low competitiveness for nearly all the drivers studied. The poorest average scored is related to industrial processing performance and the highest related to local natural resources expressed through infrastructure that are in fact well know weaknesses and strength of the

¹⁸ All the statistics were calculated using the PROC UNIVARATE of SAS.

local beef agribusiness. It is interesting to point that the local perception of competitiveness looks poorest than the wide spread opinion of argentine beef agribusiness competitiveness.

The level of the statistics analysed, standard deviation and coefficient of variation does not show a relevant dispersion.

The further research appeared when the aggregate was splitted into a singular statistical analysis of each one of the 157 factors. In the second set of analysis the drivers were splitted into the different factors. In a detailed analysis that can be observed in tables 1 to 7 in the ANNEX a remarkable dispersion of the scoring done by the different experts consulted.

In each of the seven drivers analysed it can be observed more than 70% of the answers with anomalous values of dispersion expressed in the standard deviation and the coefficient of variation. In some case it have been observed that for the same factor the different experts scored from 0 to 10 with a very irregular distribution of the scoring.

The dispersion emerged suggested that was enough evidence to assume that the discrepancy in the scoring was due to a different perception of reality. The lack of consensus yields interesting interpretations.

The most striking lack of consensus was observed with key factors related with competition that included several alternatives strategies. This finding is consistent with the idea that a different perception of reality, is cause of poor interrelationships. In away is not an incentive for collective actions of knowledge creation and innovation. Therefore it is assumed that no collective strategy or agenda can be built in this environment. In such business scenario relational risk is presumed to be high and relational super normal rents presumed to be low.

On the other hand having a high level of consensus (i.e. low dispersion) contributes to assume high level of inter relationships, and thereby reduces the probability of relational risk augmenting the potential of relational rents

The results of the second set of analysis is consistent with the local “ average public opinion knowledge” of the beef agribusiness system. The public opinion refers to this agribusiness sector as very badly co-ordinated and with poor co-operation between the different stakeholders.¹⁹

Moreover, it has been proposed by industry, farmers and the government the development of a “Private Beef Board” to promote competitiveness and the quality of argentine beef on global basis. The firsts meetings took part in early 1997, several proposals were discussed and different Law Projects were elevated, but until nowadays there have not been a final result. The different sectors involved in beef agribusiness represented in the “future Beef Board” can not arrive to a common strategy and agenda for launching the project. The long

¹⁹ Vaccarezza L & Wallace G.. Situación del sector de la carne vacuna en la Argentina. Dirección de Mercados Ganaderos. SAGPYA. Informes varios 1993/1999.

ineffective and inefficient recent history of that project is on line with the results of this research and with the common public opinion of this issues.

It has been mentioned in recent studies (quotations 11 & 12) that the institutional and organisational environment could be the cause of this low level of relationship between beef agribusiness stakeholders. The dual and ambiguous institutional environment,²⁰ distinguished by low enforcement conditions and the prevailing collective action of interest group seeking rents from this particular conditions of weak and complex rules of the game, determines a high risk and low rents conditions in the competitive scenario.

The institutional environment defined as the rule of the game determines that the different stakeholder, the players, creates special inter – relationships paradigm that determines low resources exchange main cause of the risky and non-profitable situation.

6. PENDING ISSUES: THE RESEARCH AGENDA

The discrepancy observed in the second set of analysis suggests that a relational approach should guide future research on beef agribusiness in Argentina. The original questionnaire was focused in more traditional approaches even though some of the no orthodox competitive framework was used. The PMS/IGD questionnaire moved forward from the usual benchmarking of performance and included different criteria similar to the holistic competitive dynamics studied developed by IMD. Nevertheless the original questionnaire is not focused in the relational approach.

In order to understand this pending issues i.e. relational view, the future research agenda should include and explore the following drivers as suggested by Dyer & Singh (already quoted) that are determinants of relational rents :

- * Relation on specific assets, duration of safeguards and volume of inter-firm transactions.
- * Knowledge sharing routines, partner specific absorptive capacities and incentives to encourage transparency discouraging free riding.
- * Complementary resources and capabilities, ability to identify and evaluate potential complementarities and the role of organisational complementarities to access benefits of strategic resource complementarity
- * Effective governance, ability to employ self enforcement rather than third parties and the ability to employ informal versus forma self enforcement governance mechanism.

On the other side the effects of trust in the interrelationship and relational risk should be also included as key drivers. Recent studies²¹ had tested the effect of trust and governance

²⁰ Ministerio de Economía. Evasión y competitividad en el mercado de la carne. (Tax Evasion and Competitiveness) www.mecon.ar/sicym/cndc/doc3f.htm. 1999.

²¹ Nootebom HB & Nooderhaven NG. Effects of trust and governance on relational risk. *Academy of Management Journal*. Vol 40. N2 308-33. 1997.

on the risk perceived by stakeholders. Trust was an effective reducer of transactions cost and was directly related with low levels of relational risk.

Finally should also be included in further research the implications of rent seeking, opportunistic behaviour, the information cost, the enforcement costs, the limits of enforcement and the value of trust in market exchange. All this drivers and factors were deeply studied related to rational cooperation in stakeholders relationships²².

The main output of this article is suggesting that discrepancy in the diagnosis was leading to the improbable collective strategy and agenda. In consequence, that was a key constrain for competitiveness and it should effectively push a new research agenda based on the relational view of competitiveness. This new approach could open new opportunities for a deeper knowledge of the poor competitive performance of beef agribusiness in the last decade.

AKNOWLEDGMENTS

The authors recognises the theoretical support of the Biometric and Breeding Group of the Graduate School of the Agronomy School of the University of Buenos Aires under the leadership of R.J.C. Cantet PhD; and the collaboration of Ing. Agr. A. W. BirchMaier in the statistical analysis included in this article.

The authors recognises the co-operative attitude of D. Thelwall of Prospect Management Services of the UK that allowed the use in this research of the Competitiveness Questionnaire developed by the PMS/IGD Project.

²² McClennen E. Trust and Market Exchange. Second World Congress of ISNIE International Society New Institutional Economics . Washington, September 1998.

1. FARM ECONOMY				
Var	N	Mean	Std Dev	CV
R1	28	3.61	3.76	104.37
R2	28	2.57	3.18	123.63
R3	28	3.04	3.29	108.51
R4	28	4.14	2.93	70.67
R5	28	4.14	3.06	73.95
R6	28	3.07	2.23	72.49
R7	22	4.45	3.17	71.24
R8	25	5.28	3.03	57.48
R9	28	2.89	2.56	88.43
R10	28	3.50	2.98	85.01
R11	28	2.61	2.88	110.65
R12	28	3.07	2.34	76.19
R13	28	6.46	3.23	49.90
R14	28	3.86	2.97	76.88
R15	27	3.93	3.94	100.39
R16	28	3.39	2.79	82.33
R17	27	6.11	2.34	38.33
R18	27	3.56	3.03	85.21
R19	28	4.11	2.91	70.86
R20	28	2.29	2.69	117.79
R21	21	4.62	2.77	59.87
R22	28	5.32	2.84	53.41
R23	28	4.25	2.65	62.29
R24	28	7.61	2.75	36.19
R25	26	6.04	2.72	45.04

2. FOOD PROCESSING ECONOMY				
Var	N	Mean	Std Dev	CV
R26	28	3.71	3.39	91.19
R27	27	3.15	2.98	94.76
R28	28	3.79	2.81	74.14
R29	27	3.22	2.49	77.15
R30	28	2.25	2.55	113.23
R31	28	4.71	2.88	61.06
R32	28	4.54	2.73	60.15
R33	27	6.22	2.49	39.95
R34	28	6.54	2.70	41.33
R35	28	4.89	3.56	72.81
R36	28	3.18	3.12	98.02
R37	28	5.54	3.02	54.63
R38	28	2.75	2.10	76.42
R39	28	2.54	2.10	82.78
R40	28	5.61	3.54	63.16
R41	27	5.00	3.05	61.02
R42	25	2.72	2.32	85.25
R43	25	3.80	3.11	81.82
R44	27	2.74	2.67	97.38
R45	28	2.57	2.27	88.19
R46	28	3.04	2.80	92.08
R47	28	1.18	1.68	142.45
R48	28	1.93	1.61	83.40
R49	28	8.07	2.79	34.54
R50	28	3.93	3.01	76.50
R51	28	4.54	3.49	76.96
R52	28	4.04	2.80	69.26
R53	28	3.36	3.01	89.62
R54	27	2.41	2.29	95.18

3. DOMESTIC MARKET				
Var	N	Mean	Std Dev	CV
R55	28	6.00	2.26	37.68
R56	28	2.29	2.48	108.39
R57	28	3.32	2.83	85.18
R58	26	5.92	2.43	41.06
R59	28	3.07	2.84	92.48
R60	28	4.11	2.74	66.71
R61	28	7.25	2.74	37.84
R62	28	3.14	3.19	101.62
R63	28	2.29	2.51	109.69
R64	28	6.57	2.89	43.91
R65	28	5.21	3.50	67.12
R66	28	2.29	2.35	103.02
R67	28	1.86	1.88	101.23
R68	28	3.75	3.16	84.21
R69	27	3.63	3.39	93.32
R70	28	1.93	1.92	99.72
R71	28	3.11	2.95	94.88
R72	28	6.86	2.53	36.96
R73	28	5.43	3.18	58.56
R74	28	5.25	3.15	59.93
R75	28	2.18	2.63	120.51
R76	28	2.39	2.31	96.74
R77	28	3.64	2.86	78.44
R78	28	5.36	3.21	59.94
R79	28	3.29	2.65	80.67

4. MANAGEMENT				
Var	N	Mean	Std Dev	CV
R80	28	3.86	3.46	89.73
R81	26	3.04	2.72	89.52
R82	27	3.67	3.36	91.71
R83	27	4.48	4.05	90.40
R84	27	3.70	3.30	89.18
R85	27	4.44	3.47	78.03
R86	27	2.59	2.36	90.94
R87	27	3.89	2.89	74.23
R88	27	3.70	3.28	88.55
R89	27	4.00	3.04	75.96
R90	27	5.04	3.03	60.19
R91	27	2.52	2.05	81.20
R92	27	2.26	2.51	10.89
R93	27	2.33	2.00	85.71
R94	27	2.00	1.92	96.08
R95	27	2.26	2.60	14.89
R96	27	1.52	2.28	149.91
R97	27	2.48	2.33	93.76
R98	27	2.67	2.48	93.03
R99	26	2.73	2.49	91.22
R100	28	1.75	2.19	125.02
R101	27	3.26	2.19	67.32
R102	28	2.29	2.34	102.33
R103	28	6.00	3.31	55.18
R104	28	6.89	3.52	51.08

6. GOVERNMENT				
Var	N	Mean	Std Dev	CV
R116	28	3.32	2.34	70.51
R117	28	2.54	2.83	111.79
R118	28	4.25	3.22	75.67
R119	28	6.54	2.50	38.28
R120	28	6.64	2.48	37.37
R121	28	4.61	2.81	60.92
R122	27	7.00	2.59	36.96
R123	28	4.18	2.91	69.56
R124	27	6.56	3.03	46.22
R125	27	6.67	2.69	40.34
R126	27	6.00	3.57	59.56
R127	28	1.93	2.48	128.51
R128	28	5.46	3.20	58.61
R129	27	2.89	2.29	79.36
R130	28	1.11	2.63	237.50
R131	28	7.00	3.39	48.41
R132	28	8.54	2.30	26.96
R133	28	5.79	3.57	61.76
R134	28	3.07	3.23	105.19
R135	28	3.89	3.54	90.98
R136	27	5.89	3.32	56.39
R137	28	2.39	3.12	130.35
R138	26	3.85	3.50	90.87
R139	28	4.00	3.16	79.06
R140	28	2.14	2.73	127.46
R141	28	4.14	3.16	76.25
R142	28	4.61	3.12	67.70

7. SCIENCE AND TECHNOLOGY				
Var	N	Mean	Std Dev	CV
R143	28	4.57	3.16	69.03
R144	28	3.57	2.18	61.17
R145	25	4.28	2.61	60.90
R146	28	2.75	2.53	92.11
R147	27	4.96	3.13	63.10
R148	28	5.18	3.02	58.30
R149	28	4.64	2.95	63.47
R150	28	3.29	2.65	80.67
R151	27	3.11	2.75	88.40
R152	28	2.96	2.63	88.77
R153	27	3.11	2.61	83.79
R154	28	3.68	2.75	74.74
R155	28	3.89	3.13	80.43
R156	26	6.19	2.90	46.81
R157	26	4.27	3.50	82.10

5. INFRASTRUCTURE				
Var	N	Mean	Std Dev	CV
R105	28	8.82	1.76	20.01
R106	28	9.07	1.44	15.86
R107	28	9.14	1.33	14.50
R108	26	8.38	1.77	21.09
R109	28	7.21	3.10	42.91
R110	28	3.61	2.96	82.08
R111	28	5.32	3.06	57.42
R112	27	5.70	3.06	53.67
R113	28	4.68	2.50	53.33
R114	28	3.21	2.53	78.69
R115	28	4.32	2.68	62.05