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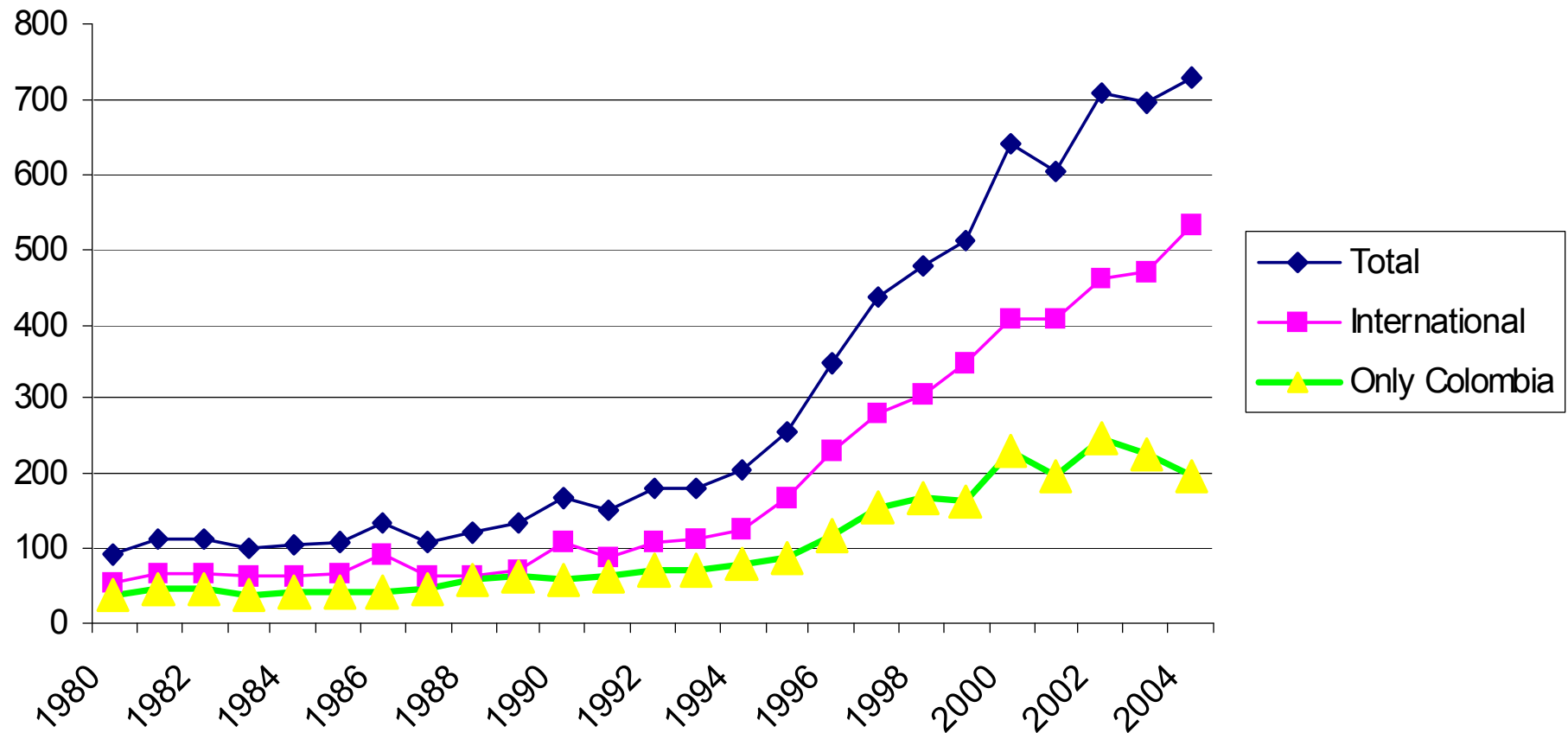
The Impact of Research Collaboration on the Quality of the Research Outputs in Colombia

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Colombian Publications as registered by the ISI Web of Science, SCI 1980-2004





Purpose

- Explore how different institutional arrangements affect Research Output Quality.
- Underlying Theory: Granovetter 1973: 'Strength of Weak Ties'



Individualistic Research



Teamwork Research



Local Collaborative Research



International Collaborative Research

- Research Productivity
- Peer Reviewed Research
- Spillovers
- Innovation
- Relevance/Contribution

Ordonez, Cozzens and Porter,
Colombian Colloquium 2005



Hypotheses

1. Extramural-local research collaboration yields greater publication quality than intramural research.
2. International research collaboration yields greater publication quality than extramural-local research, and therefore than intramural research.



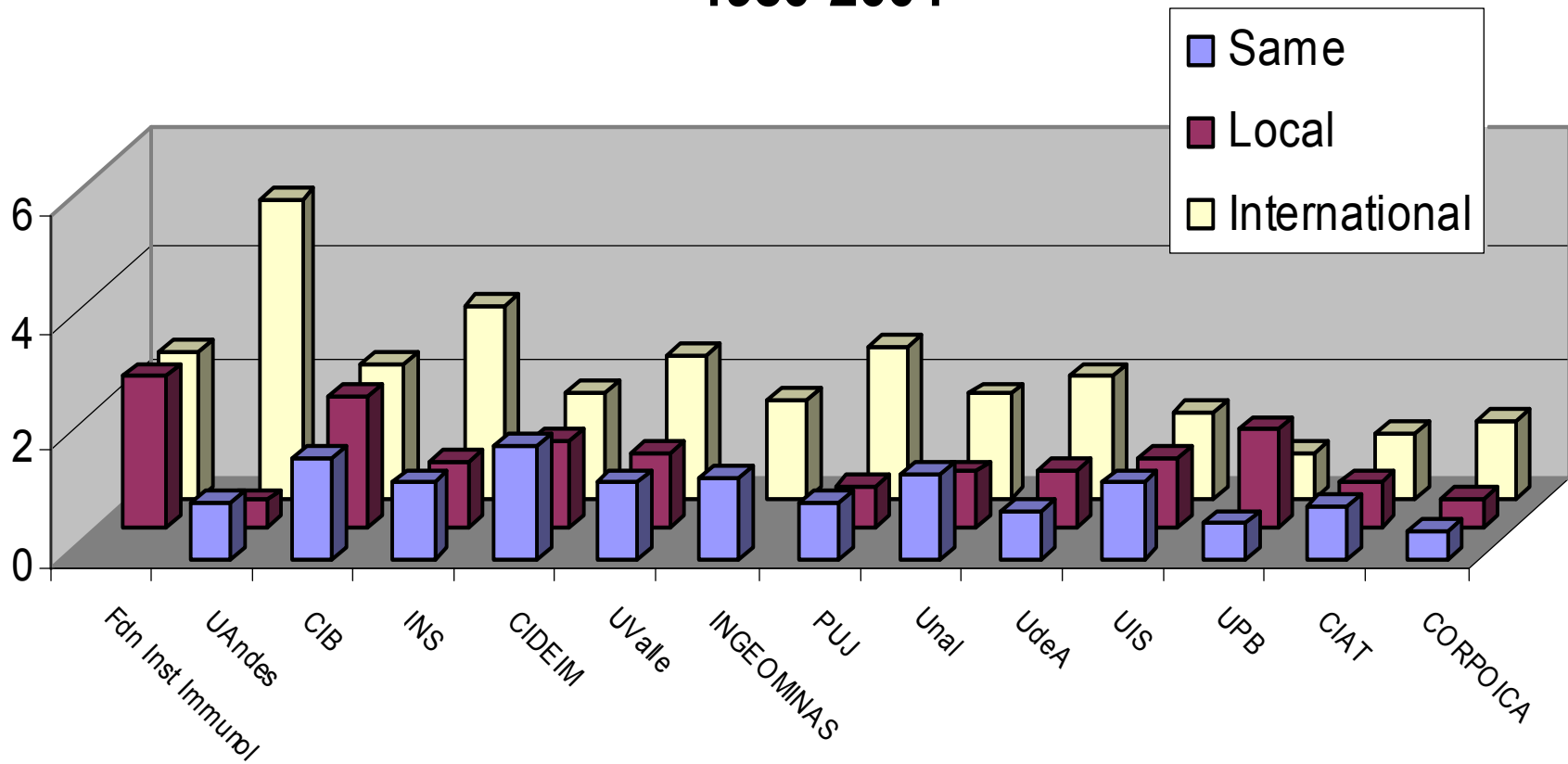
A Narrow but still Telling approach to Research Output Quality Measurement

- The importance of Where you publish your work, and Who evaluates it: The Journal Impact Factor.
- The influence of your work: Citations.
- The Contribution of your work to increase Universal and Country-specific Understanding.

IFs of Colombian 'Elite' Research Institutions

- Focus on Research Articles (>5000) 1980-2004.
- Research Institutions with more than 60 articles indexed during the period 1980-2004 (>70%)
- Measurement of Average Institutional IFs using thresholds in function of total output size and number of articles published by journal.
- Software VantagePoint developed by Georgia Tech and Search Technology Inc.

Average IF by type of Collaboration and Institution: 1980-2004



Findings: IF Institutions

Multiple Comparisons

Dependent Variable: IMPACT

LSD

(I) COOPTYPE	(J) COOPTYPE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-,0742	,30275	,808	-,6877	,5392
	3	-1,0017*	,29729	,002	-1,6040	-,3993
2	1	,0742	,30275	,808	-,5392	,6877
	3	-,9274*	,29729	,004	-1,5298	-,3251
3	1	1,0017*	,29729	,002	,3993	1,6040
	2	,9274*	,29729	,004	,3251	1,5298

*. The mean difference is significant at the .05 level.

1= No-Collaboration

2= Collaboration with other Colombian Institutions Only

3= International Collaboration Only

Dependent Variable: Impact Factor as measured by the ISI web of Science 2003

Findings: IF Clinical Medicine

Multiple Comparisons

Dependent Variable: IMPACT

LSD

(I) COOPTYPE	(J) COOPTYPE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	,0985	,50882	,849	-,9860	1,1830
	3	-1,6160*	,50882	,006	-2,7005	-,5315
2	1	-,0985	,50882	,849	-1,1830	,9860
	3	-1,7145*	,50882	,004	-2,7990	-,6300
3	1	1,6160*	,50882	,006	,5315	2,7005
	2	1,7145*	,50882	,004	,6300	2,7990

*. The mean difference is significant at the .05 level.

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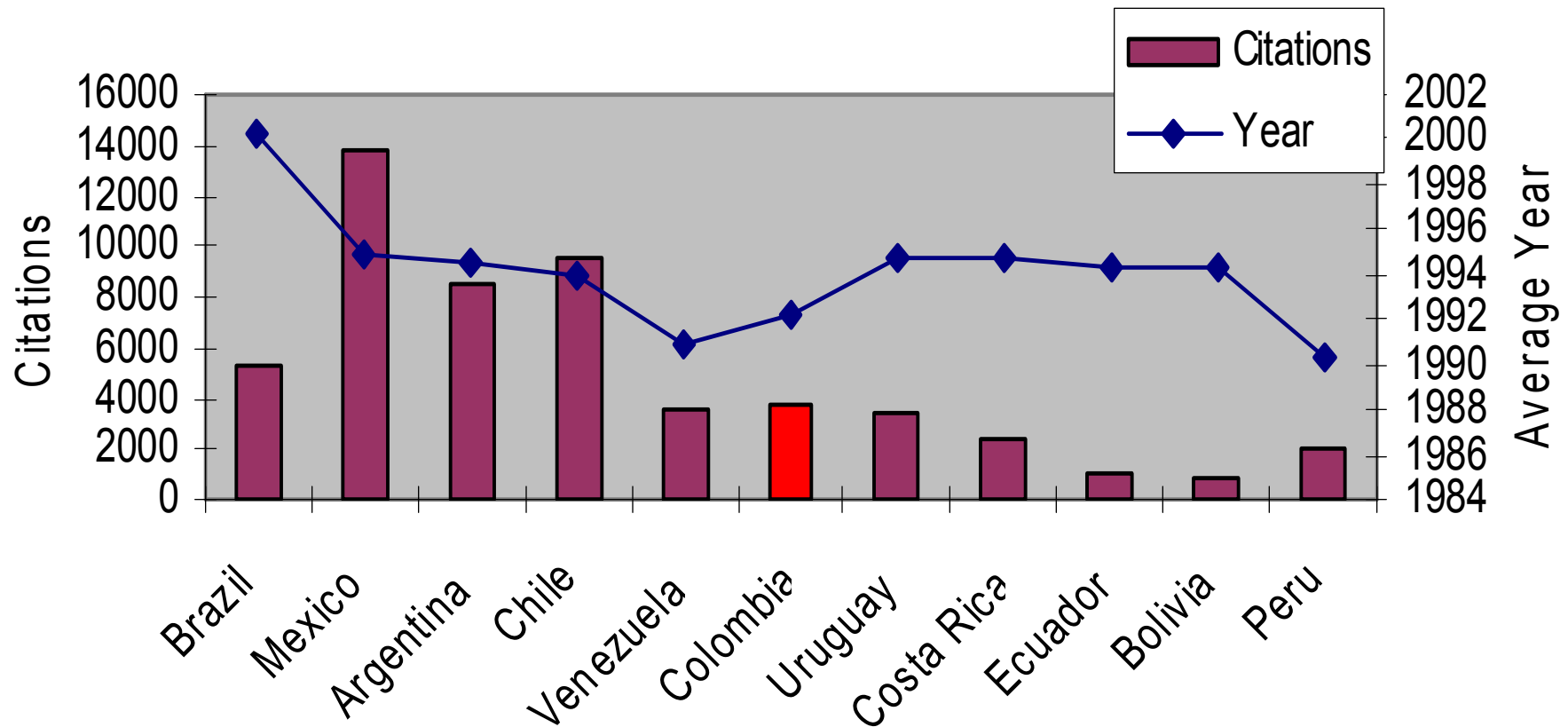
Dependent Variable: Impact Factor as measured by the ISI web of Science 2003



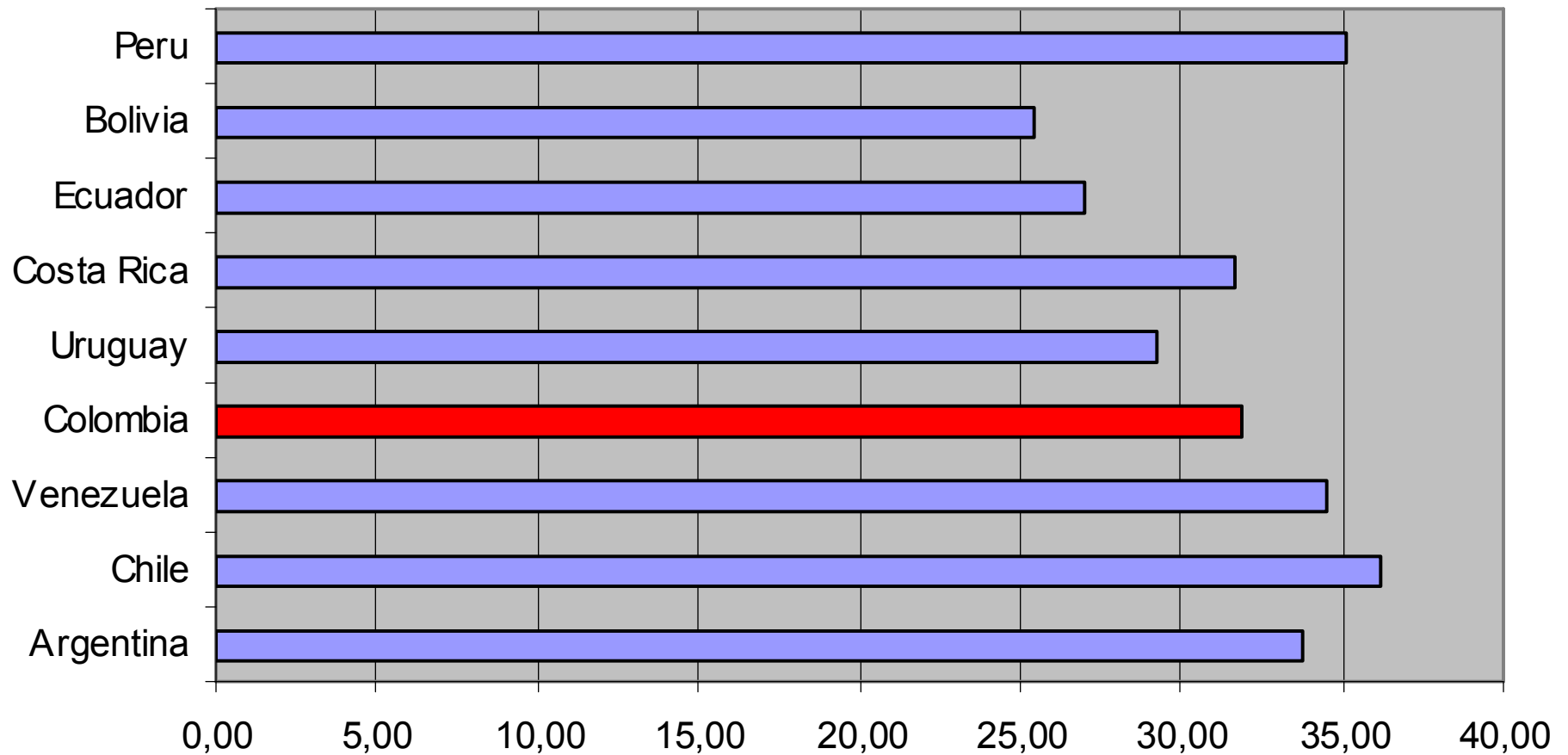
Influence

- Total Citations received by the Top 10 articles (minus Top 1).
- Year of Publication of the Top 10 articles.
- Proportion of articles never cited (up to Nov. 15, 2005).

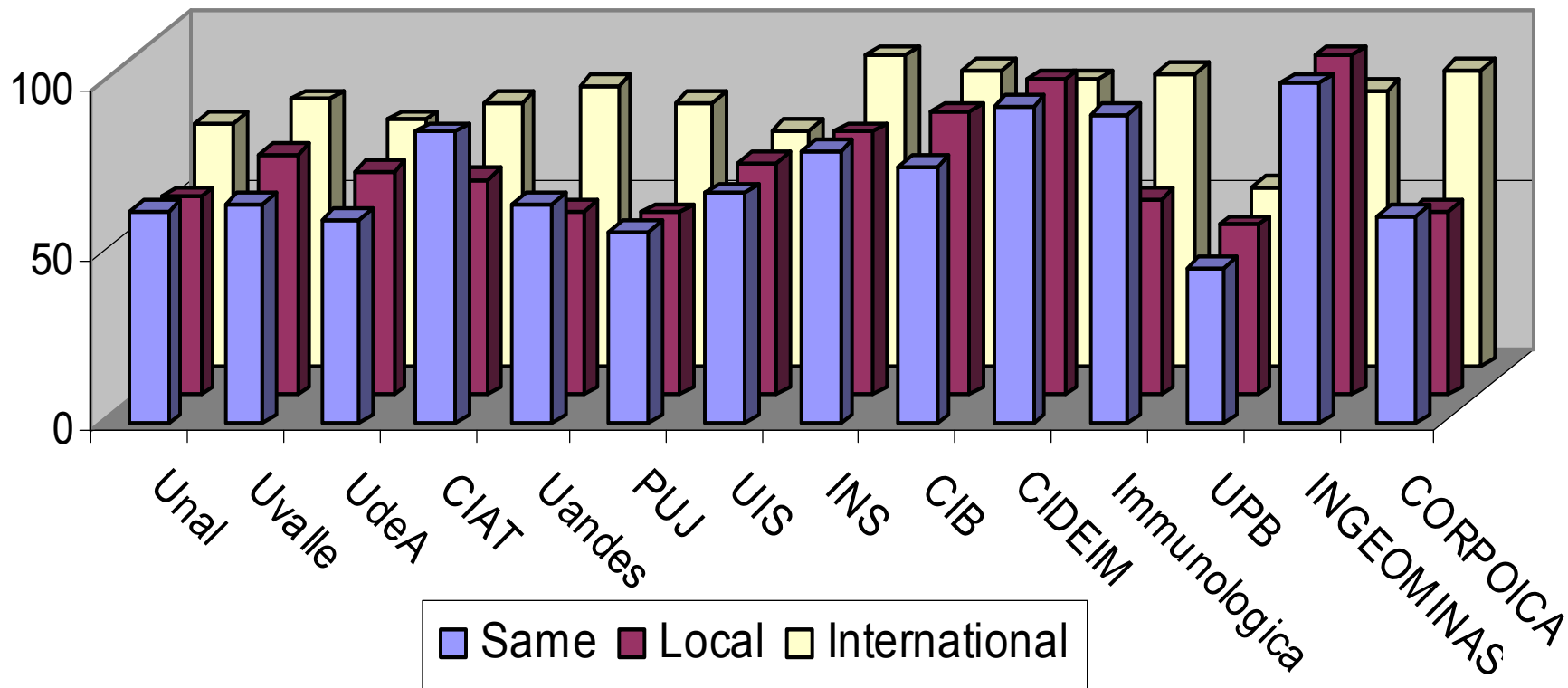
Total Citations Top 10 Articles (except Top 1) ISI 1980-2004 (11-14-05)



Percentage of Articles Never Cited ISI 1980-2004 (11-15-05)



Citation Rate 'Elite' Colombian Institutions 1980-2004



Findings: Influence Institutions



Multiple Comparisons

Dependent Variable: INFLUENC

LSD

(I) COOPTYPE	(J) COOPTYPE	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	5,7764	5,30615	,283	-4,9563	16,5091
	3	-5,4050	5,30615	,315	-16,1377	5,3277
2	1	-5,7764	5,30615	,283	-16,5091	4,9563
	3	-11,1814*	5,30615	,042	-21,9141	-,4487
3	1	5,4050	5,30615	,315	-5,3277	16,1377
	2	11,1814*	5,30615	,042	,4487	21,9141

*. The mean difference is significant at the .05 level.

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3= International Collaboration Only

Dependent Variable: Influence as measured by the Citations Received 1980-2004



Relevance/Contribution

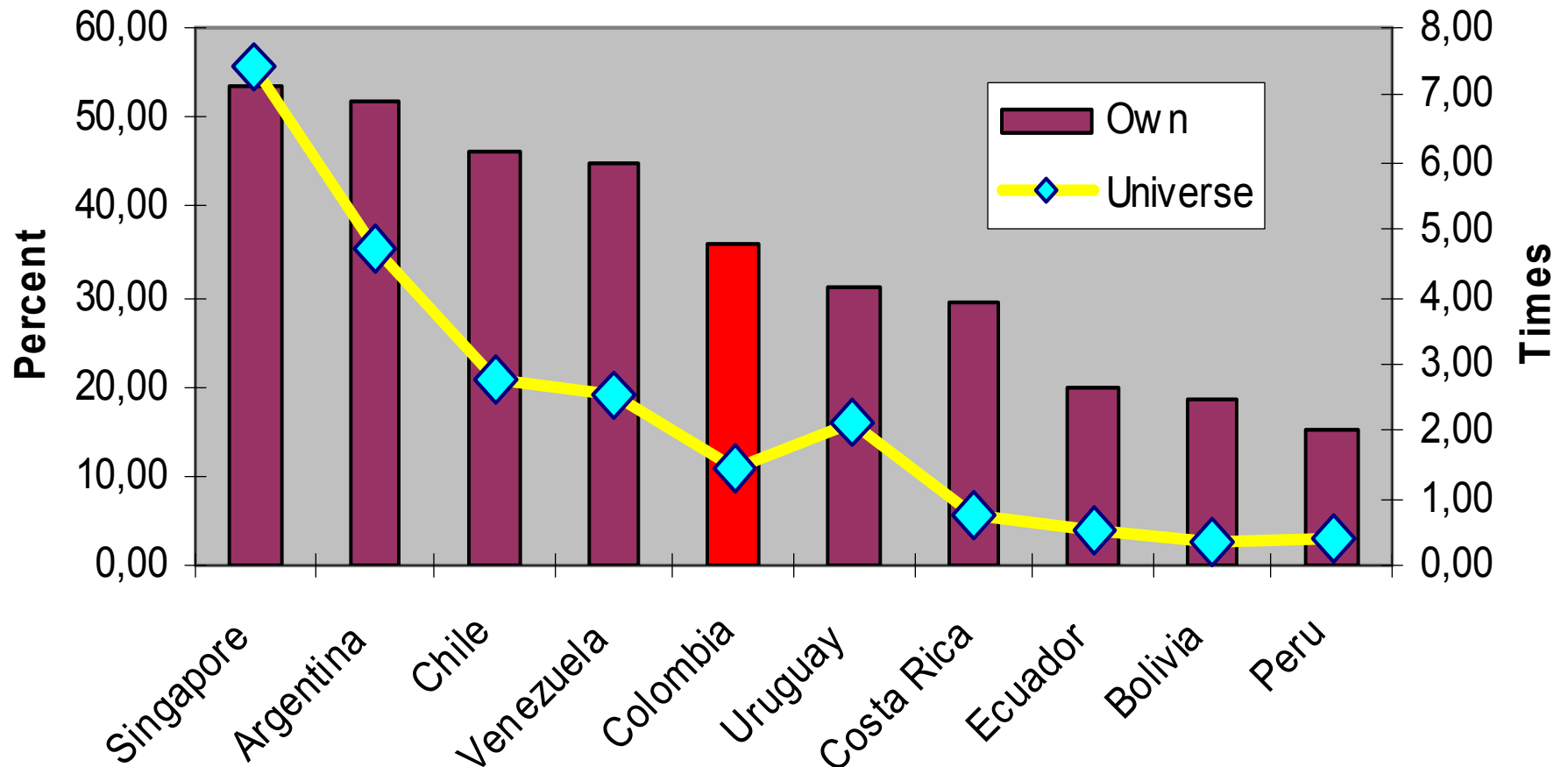
- ISI- Web of Science 1980-2004, more than 5500 journals covering more than 80 academic fields.
- Address: Argentin*; Bolivi*; Colombia*; Korea* NOT North Korea; Costa Rica*; Chile* OR Chilian; Ecuador OR Ecuadori* OR Ecuador* NOT Equator*; Peru* NOT Perusal; *Mexi* OR Mejic*; Singap*; Taiwan*; Uruguay*; Venezuel*.



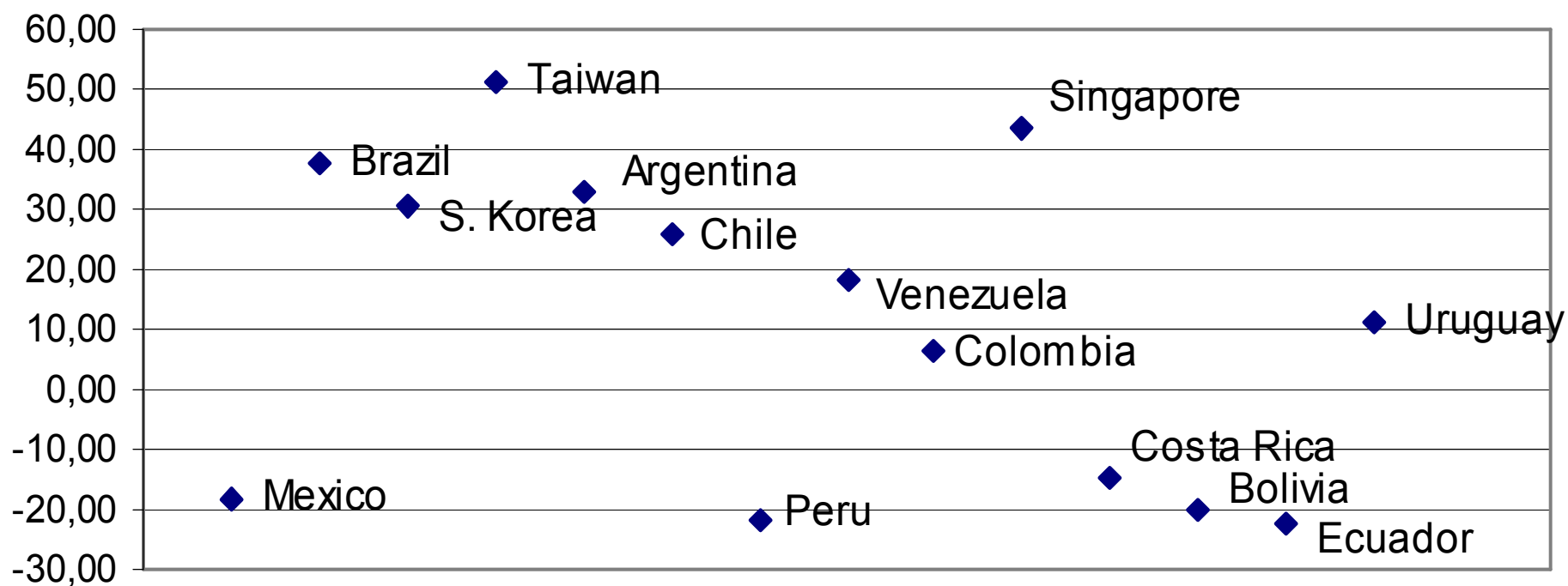
Contribution to Country-Specific and Universal Knowledge.

- “Own Understanding”: How much of what it’s written internationally about us is written by us?
- Universal Understanding: How much of what we write contributes to global knowledge?
- Compared to What?

Contribution to Own and Universal Understanding

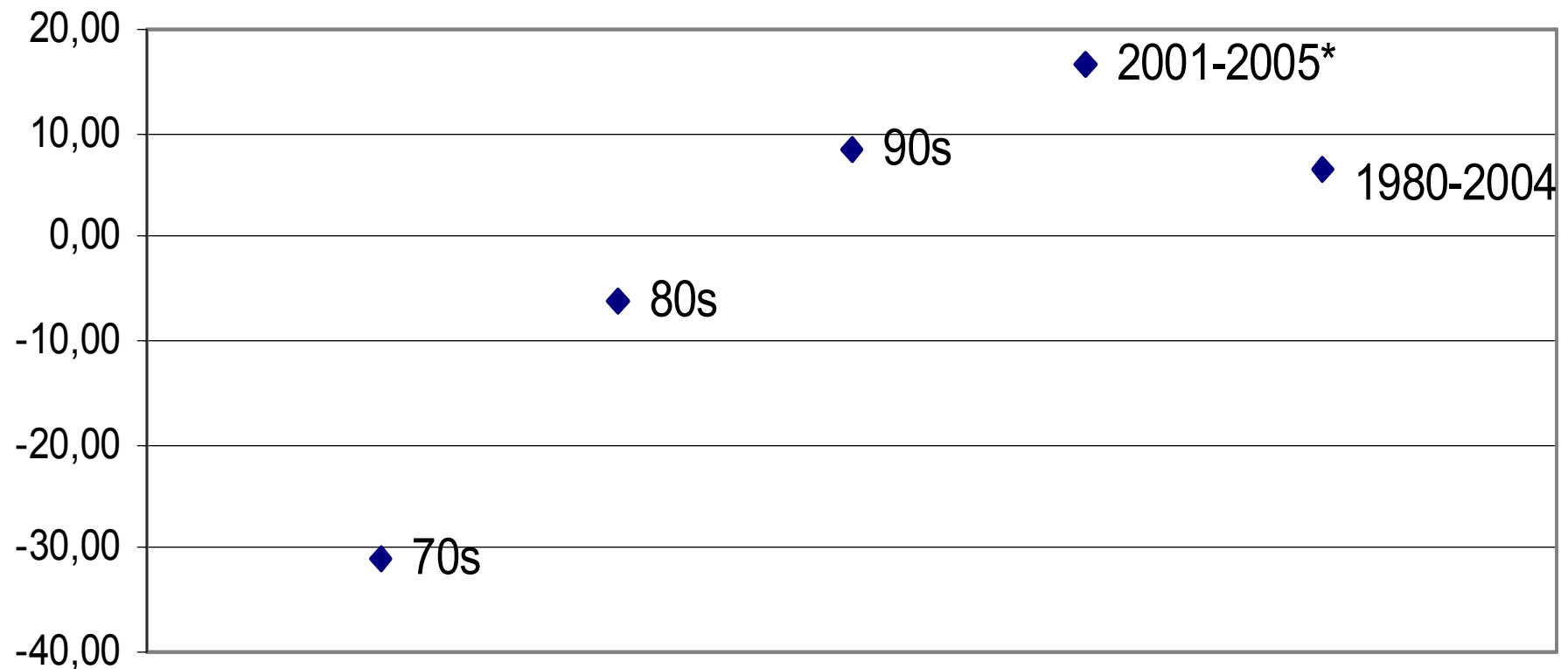


Domestic versus Foreign (USA+) Contribution to own Understanding: ISI 1980-2004



$$[(\text{Domestic}/\text{World}) * 100] - [(\text{USA NOT Country}/\text{World}) * 100]$$

Colombia: Domestic versus Foreign (USA+) Contribution to own Understanding: ISI 1980-2004





Summary of Findings

1. International research collaboration does affect the quality of the Colombian research output as measured by the JIF and Citations count.
2. No statistically significant differences appears to be on the impact of institutional arrangements on research output quality for Clinical Medicine Research.
3. Surprisingly, for some cases identified, extramural-local research collaboration seems to negatively affect the quality of research output. Further research would be needed to understand the causes.



Conclusion

Since quality seems to be associated with visibility, and vice versa, by collaborating with foreign institutions Colombian researchers place themselves in a better position to both benefit from the expertise brought about by international partners, and be identified by their peers in a greater scale.



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Merci!
