

Public-Private Networks as Sources
of Upgrading and Learning:
Parametric Stroll Through the
Argentine Vineyards

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Clusters, Networks, and Upgrading

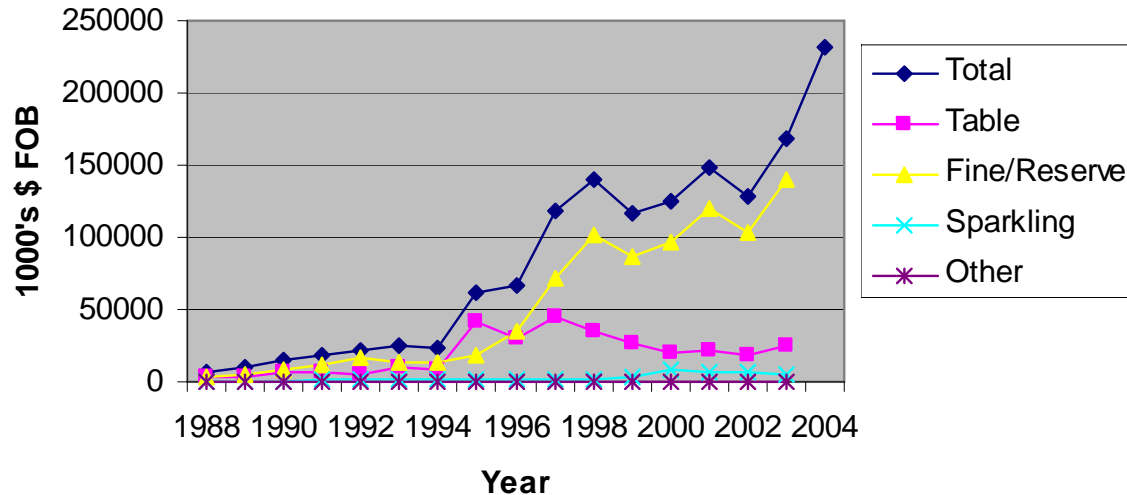
- Much literature on innovative capacities and clusters contributing to upgrading.
 - Upgrading: continuous improvements in processes, products, and functions for a shift to higher value-added economic activities.
- But little systematic specification about composition and emergence.
 - Quant network lit often downplays institutions and developing world.
 - Little systematic data collection and stat testing of networks, institutions, and firm level upgrading practices in emerging markets.

Contribution

1. “Natural” experiment – transformation of Argentine wine industry in 1990s. Why is Mza the pioneer and not S.Juan?
 - Two years of qualitative fieldwork using comparative method helped identify factors of emergence and change.
 - Informed survey design and hypotheses.
2. Big survey data base on a) firm level product and process upgrading capabilities, b) demographics, c) inter-firm networks, d) institutional networks.
3. We can distinguish impact of different nodes and networks on upgrading.
4. Firms are embedded in distinct public-private networks that shape upgrading.
5. Publicly supported institutions are important not only for the provision of collective resources, but in acting as social and knowledge bridges between communities.
6. This is informed by research on BOTH networks and institutions.



Argentine Wine Exports-Value



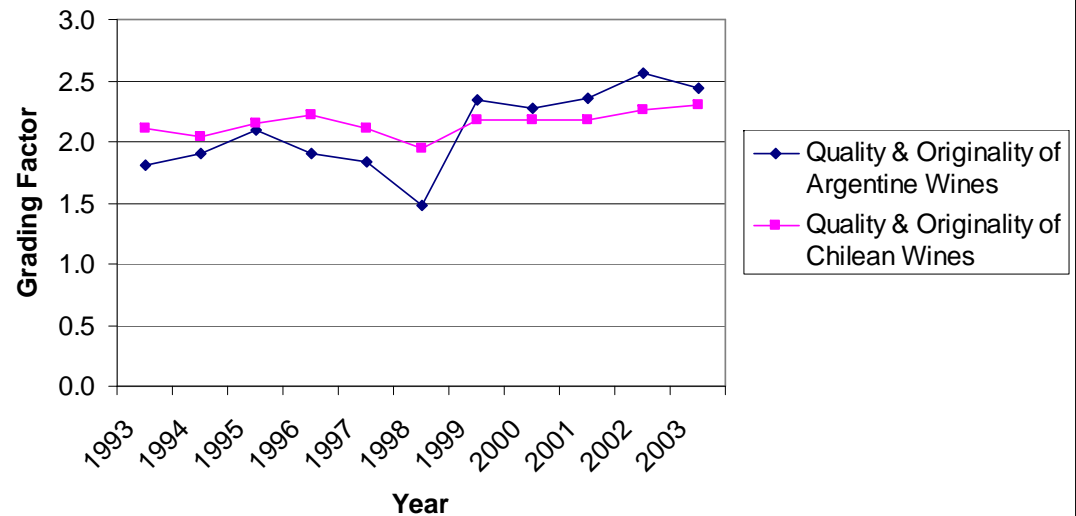
- History of bad wine, regulation, & fighting among stakeholder groups.

- In 10 yrs, from 0 to >2% of world market.

- Export growth based on quality improvements, innovation, and variety.

- 80% of X to US, EU, Japan.

Weighted Scores by Wine Spectator



Argentine Wine Industry Profile

(low concentration; high diversity)

- Upgrading not about hard tech., but often firms learning from one another & public knowledge resources.
 - Decentralized coordination; across diverse micro-climates.
 - Applied knowledge; FDI did not play a dominant role.
- Mza & S Juan account for 65% & 27% of wine and grape production.
- Wineries: about 650 in Mza, 170 in S. Juan; 10% coops; most are family firms.
 - 250 export, about 35 are foreign majority owned
 - 10-20 firms have majority of exports
- Vineyards: remain small, low concentration, but mid-size owners growing.
 - Over 50% of grape needs from outside suppliers
 - Typically no contracts, but building long-term relationships, with knowledge sharing, bonuses

Mendoza & San Juan Compared

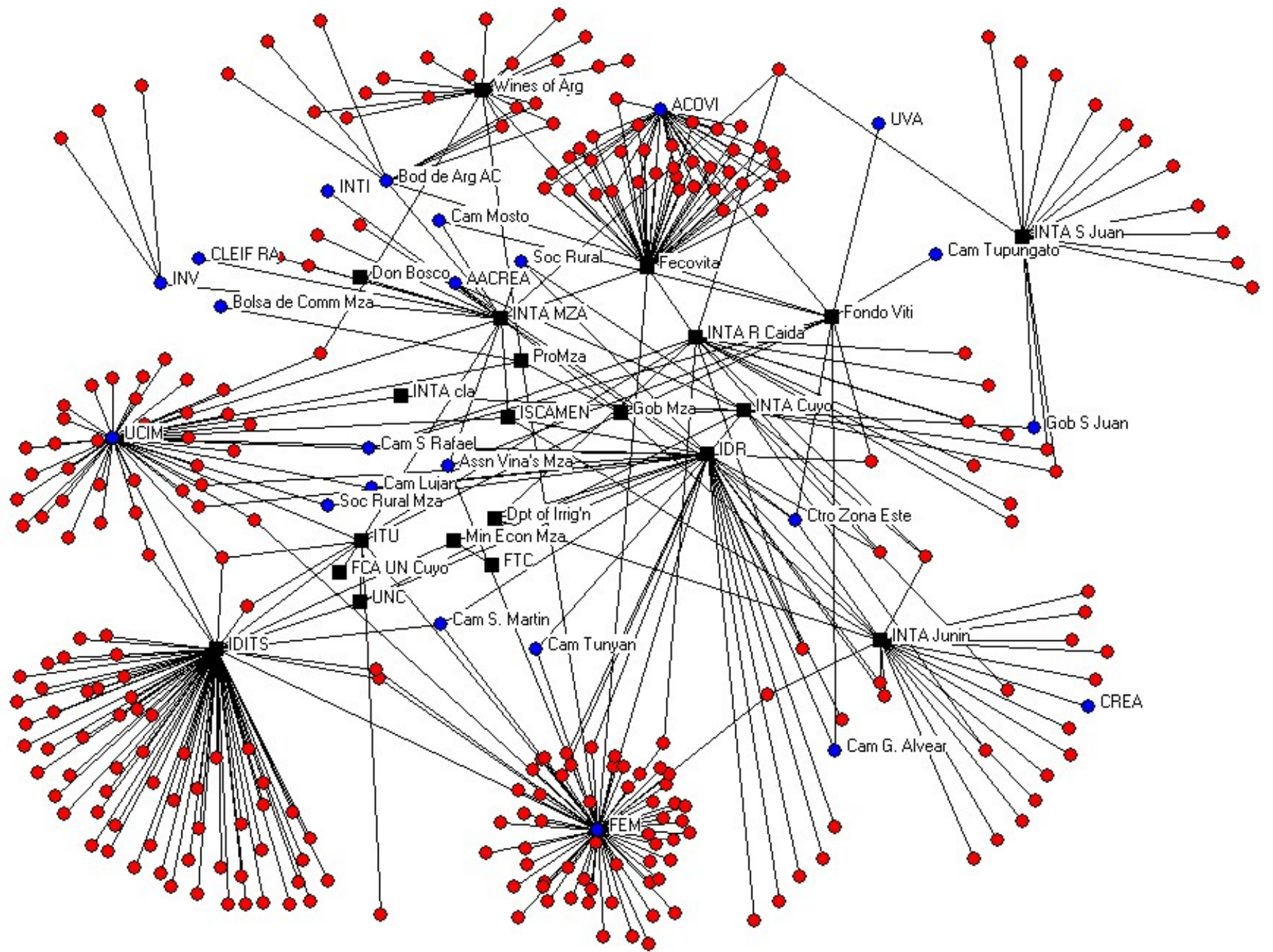
- Mza accounts for disproportionate share (90%) of Exports and Fine Wine; and increase in high value grapes; even “backward” Zones of Mza are catching up fast;
 - Why has this happened?
- Can not explain this simply by inherited similarities or differences per se :
 - Climate (similar plus backward regions of Mza, like Zona Este have changed more than S. Juan).
 - Economic size/growth/incentives (e.g., S. Juan had *promoción industrial* & wine was bigger share of its economy).
 - Political & Legal institutions: same property rights, regulations; indeed, S. Juan has more secure executive, electoral competition similar; both run by Peronists.
 - Inherited knowledge and HR
 - Have similar measures of Social Capital, similar structures/histories of biz-interests

IV. How do we explain this then?

- 2 notable differences:
 1. Mza sustained diversity in types of firms
 2. Mza developed in the 1990s a set of public-private support institutions.
- But not because of prior social relations/structure (“Catch-22”) or right incentives from the state.
- Role of political approaches and public-private institutions.
- Different political approaches to late 1980s crisis:
 - San Juan – Insulate state, use arm’s length incentives
 - Mza – empower stakeholders; include multiple groups in constructing new policies and institutions
 - This is fashioning old politics (i.e., with the associations) in new ways.

IV. Mendoza's Public-Private Institutions

- I.e. – INTA, Promendoza, IDR, IDITS, Fondo Vitivinicola, FTC
- 2 mechanisms:
 - Rule of inclusion - Govt convenes relevant sectoral associations to generate institutional solution to problem;
 - Reps of govt and associations govern institutions, add to resources, and engage in collective problem solving;
- These mechanisms help:
 1. Reshape relationships b/n govt, associations, firms – **NEW BRIDGES B/N COMMUNITIES.**
 2. The institutions improve knowledge and skills creation;
 3. The actors think strategically, collectively → target new areas for innovation.



Key Points

- The Mza participatory restructuring approach & especially the main 6 public-private institutional experiments had 3 big impacts by 2001:
 1. Multiplex, participatory governance led to broader strategic problem solving – renovated older, archaic institutions and public agencies.
 2. Led to creation of Ley PEVI and COVIAR – a national strategy that mimics Mza model; self-financing; COVIAR is **public-private and confederal**;
 3. Spill over effects in S. Juan: (a) Govt renounces old policies and wants to mimic Mza; (b) Big influx of Mza firms in S Juan since 2000; changes at INTA S Juan; c) Opportunities with COVIAR leads to new grape grower association and new S Juan policies.
- Political constructionism is the driver here – we need to show statistically also how the socio-political landscape still drives upgrading.

Empirical setting

- 194 firms-all zones/Mza-S Juan
 - Grape growing (wineries and vineyards)
- Dependent Variables: Process & Product Upgrading
- Independent Variables:
 - Ties to other firms, institutions, etc.
 - Ties to firms and institutions that “bridge” groups and zones (e.g., bridge proxies are geo/zonal-diversity herfindel indices for institutions; also affiliation network cluster measures)
- Controls for: Size, Knowledge, Age, FDI, Vertical Integration, and Location
- Limitations:
 - Data is 03-04 & S. Juan is catching up via links with Mendoza now;
 - Clearer bridging affects of institutions at society and meso-levels, but not for firms;
 - Public institutions will have a bias toward more backward firms.

Main Hypotheses

1. Firms with a **greater number of ties** to other firms, **publicly supported institutions**, associations, and cooperatives, respectively, are more likely to achieve higher levels of process and product upgrading.
2. Firms with a greater number of ties to firms and publicly supported institutions, respectively, with **relatively high geographic diversity** are more likely to achieve higher levels of process and product upgrading.
3. Firms with publicly supported institution and firm, respectively, **affiliation networks** that exhibit **greater cluster density** are more likely to achieve **lower levels** of process and product upgrading.

Control Variables

- Most consistently significant are:
 - Vertical Integration – but it's negative
 - Knowledge stock – Agronomist and Education

Abbreviated Regression Results

Results from models including all control variables.

VARIABLE	Product Upgrading		Process Upgrading	
Outdegree: Firms	0.23	***	0.51	***
Outdegree: Institutions	0.50	**	0.77 (w/o zone)	*
Outdegree: Associations			-	
Outdegree: Cooperatives			-	
Outdegree: Banks	-0.94	**	-2.20	*
Outdegree: Schools				
Ties to Top Geo Diversified Firms	0.40	**	1.03	**
Ties to Top Geo Diversified Institutions	0.62	*		
Type-diversified ties (herfindahl)	-3.35	*	-12.25	***
Cluster: Firms				
Cluster: Institutions	-5.66	p=.107		
Cluster: Associations				
Cluster: Banks				
Cluster: Cooperatives	11.84	*		
Cluster: Schools	-6.38	**	-18.35	**

Notes: *** = significant @ 0.01 level; ** = significant @ 0.05 level; * = significant @ 0.10 level

Abbreviated Regression Results

Results from models including all control variables.

VARIABLE	Product Upgrading		Process Upgrading	
Outdegree: Customers			0.18	**
Outdegree: Input Suppliers	-0.06	*	0.13	*
Outdegree: Tech Suppliers			0.17	**
Outdegree: Competitor	0.06	**	0.18	**
Outdegree: Others				
Outdegree: All			0.04	**

Notes: *** = significant @ 0.01 level; ** = significant @ 0.05 level; * = significant @ 0.10 level

Discussion

1. Inter-firm networks and institutions matter! And the key institutions are those mentioned earlier. Clearly, we need to integrate govt and institutions into network models. This means politics and policy can shape networks and knowledge diffusion.
2. Bridging/tertius iungens role of institutions (and alter firms) is key! Especially in product upgrading.
3. Why the different effects of institutions vs. firm nets and location, especially in process upgrading?
 - a) Institutions are few and big – there is a washout effect and they are good at graduating backward firms to more effective socio-economic networks for direct learning.
 - b) Local context matters. We know this, especially in process upgrading. But the evidence is that location = different public private networks. (1) Note change in R^2 ; (2) T-tests of network variation between locations.

Top 11 Institutions Mentioned by Surveyed Firms

Alters – Organizations and Institutions	Type	Degree Centrality
INTA (MZA)	I-INSTITUTION	85
INV (MZA)	I-INSTITUTION	57
PROMENDOZA	I-INSTITUTION	56
FONDO PARA LA TRANSFORMACION Y EL CRECIMIENTO (MZA)	I-INSTITUTION	35
IDR (MZA)	I-INSTITUTION	30
FECOVITA COOP. LTDA. (MZA)	C-COOP	27
MINISTERIO DE ECONOMIA DE MENDOZA	I-INSTITUTION	26
CFI (MZA)	I-INSTITUTION	25
INTA EEA SAN JUAN	I-INSTITUTION	18
FONDO VITIVINICOLA MENDOZA (MZA)	I-INSTITUTION	15
SEPYME (National)	I-INSTITUTION	10

Avg. Degree Centrality per Firm for Alter Type by Zone & Province

Alter Type/Location	East (E)	Grand MZA (GM)	South (S)	Valle Uco (V)	Mendoza (M)	San Juan (SJ)
All	2.84 (V)	5.48	5.7	9.00 (E)	5.2	5.60
Firms	9.87 (SJ)	11.65 (SJ)	7.85	9.93 (SJ)	9.89 (SJ)	5.20 (M) (E GM V)
Institutions	1.35 (V)	2.04 (V)	1.95 (V)	5.80 (E GM S SJ)	2.61 (SJ)	1.13 (M) (V)
Associations	0.47 (V)	0.91	0.95	1.50 (E)	0.87	0.93
Banks	0.42 (V)	0.39 (V)	0.90	1.40 (E GM SJ)	0.72	0.63 (V)
Cooperatives	0.35 (V)	0.09 (V)	0.45 (V)	1.13 (E GM S SJ)	0.5 (SJ)	0.00 (M) (V)
Schools (e.g. Univ's)	0.35 (V N)	1.00 (E S)	0.30 (GM)	0.90 (E)	0.59	0.60

NB: The letters following each mean indicate the zone or province from which the mean is different at the 10% level; those in **bold** at the 5% level.

IV. Mendoza's Public-Private Institutions

- Structure needs content: deliberative governance for sustained collective problem solving:
 - Institutions are pooling information and resources, providing new public goods;
 - Feedback to improve services and expand content and delivery to reach constituents;
 - New standards being diffused;
- Institutions and their governing councils become forums identifying new needs and potential new institutional solutions.
 - E.g., Creating IDR; Changing Federal regulations/institutions;
 - Creation of PEVI and COVIAR: A new national initiative!

Conclusions

- Institutions matter – and they are constructed!!!!
- Institutional creation and politics can reshape the old social resources in new ways.
- ***Bridging*** roles and **multiplex** character of institutions and organizations are very important, especially in product upgrading
- Location is important...b/c of the different socio-political networks firms live in!
- How do networks and institutions evolve? How can we detect the ability of institutions helping inter-firm network creation.

Conclusions

- Building public-private institutions via principles of inclusion and collective problem solving can:
 - Bridge existing structural holes and strengthen new horizontal ties among groups and firms.
 - Improve experiments and knowledge flow for government and firms.
 - Limit problems of powerful gate keepers (knowledge, resources), monocropping, short-term exploitation.
 - Improve institutional governance (e.g., all of the above, including government, have had changes in directors/governors, but continue to grow and adapt).