

The Economics of Generosity and Methodological Individualism

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Abstract

Development economists have superseded any necessity of using Arrow's methodological individualism (MI) in focusing on cross-cultural, cross-national, or developmental economics. This study examines whether analysis of cross-cultural economic models might include a concept of economic generosity as a type of economic structuration that deviates from MI principles and is closer to what economists study in developing economies. A cross-cultural variable for measuring economic generosity is developed here from the Murdock and White (1969: SCCS) dataset, rediscovered through online internet searches of ethnographic sources a consistent "economic generosity variable" that contrasts with Arrow's MI as a possible variable for comparative modeling of economies.

1. Introduction

A century ago British anthropologists started a tradition "Notes and Queries" to record their efforts in comparative ethnographic research. Due to the complexities of human evolution, which forced a number of divergences between anthropology and other sciences, the initial pace of comparative research initiated in the 1880's came to be seen as impossible in terms of developing anthropological theory. Closer relations with other sciences are now feasible.

In particular, some convergence between the fields of anthropology and economics re-emerged after decades during which the dictates of methodological individualism, as strikingly defined by Kenneth Arrow, had seriously limited effective scholarship in studies of economic and social development in developing countries. Arrow had insisted that:

It is a touchstone of accepted economics that all explanations must run in terms of the actions and reactions of individuals. Our behavior in judging economic research, in peer reviews of papers and research, and in promotions, includes the criterion that in principle the behavior we explain and the policies we propose are explicable in terms of individuals, not of other social categories. Kenneth J. Arrow. 1994. Methodological individualism and social knowledge. *American Economic Review* 84 (2):1-9.

A new generation of development economists represented by Spolaori and Wacziarg (2013) and (Spolaori 2016) reopened the possibility of fruitful cross-disciplinary study of social interaction, enabling economists and anthropologists to investigate those social structures wherein resources are jointly held and wherein social goals are the product of interests held by groups, rather than exclusively by pairs of individuals.

New software (Eff and Dow 2009 Eff 2016) facilitates the testing of economic and other theories in the evolutionary context of diffusion, historical language families and ecology. Together, the new software is essential to efforts to test theories of human evolutionary history and development, function and causality in human organization. Previously all such attempts were thwarted by the evident failures of Edward B. Tylor's (1889) attempt to study institutional process and imputed evolutionary processes with coded data for hundreds of ethnographies. As attested by polymath scientist Sir Francis Galton (1889), the problem recognized today is that of autocorrelation or "Galton's Problem." Large world samples constructed by Murdock (the 1167 society Ethnographic Atlas), and the SCCS

maximum diversity subsample of Murdock and White (1969) all failed to solve the Galton problem. So did Binford's (2001) thirty years of work on a new hunter-gatherer sample, with twice the number of societies than the SCCS. It provided archaeologists with a new strategy for associating standard archaeological artifacts with the cultural contexts that may have produced them. Gamble (2013), in contrast, provided a socially atomistic networks methodology for archaeology that eschewed cultural artifacts. Binford moves to a more exciting and challenging use of available data, still not a solution to autocorrelation, but beyond the oversimplifications associated with methodological individualism:

"We must seek to understand the relationships between the dynamics of a living system in the past and the material by-products that contribute to the formation of the archaeological record remaining today. In still more important ways we seek to understand how cultural systems differ and what conditions such differences as a first step toward meaningful explanation for patterns that may be chronologically preserved for us in the archaeological record." (Binford 1980: 5).

It would seem today that the massive datasets available for cross-cultural studies, including SCCS, those of Jorgensen (1980), and others, still do not solve the problems of autocorrelation in the deeply integrated interrelations among human cultures. Arrow's (1994) edict provides a panacea for an economics that ignores that culture is involved.

2. The Problems of Sociocultural Databases

Autocorrelation from databases with overly intermeshed variables poses a problem for a species with culture, speech and complex evolutionary histories. Evolutionist Mark Pagel (2011) studies evolutionary variables that are not individualistic: cultural variables comprised of socially shared concepts, such as the emergence or ecological context of generosity as an evolutionary element of culture. Roberts (2012) cites Pagel for behavior in which:

We seek out the best individuals with whom to form alliances and try to establish sound reputations so the best will seek us out. Thus we give up seats in trains, give to charity and even risk our lives to save animals – to enhance our reputations so others will cooperate with us.

Another problem is that of human coding decisions that derive from interpretation of ethnographies and what the judgments of coders mean in cross-cultural research, where the coder's notes and comments usually do not accompany the codes. A problem examined here is how can a researcher be sure that an interpretation of a coded category is correct? Are there ways to return to validate these codes from the primary ethnographic texts? Given the thousands of coded variables in SCCS, can the original ethnographic texts make the best sense of them? Given that many of the coded variables in these datasets are growing old, are they worth our while to study given that there are now methods to make valid inferences about evolutionary history and development, function and causality in human organization? And inferences about economics?

New evolutionary methods of analysis, and highly funded projects of historical analysis (e.g., "SESHAT") are now providing much more careful and specific databases for cross-linking, analyzing, and explicating alternative textual and quantitative materials in highly complex research and permanently accessible archives. Similarly, electronic access to HRAF is

extending all the original texts relating to the major cross-cultural databases (e.g. SCCS) along with all the primary textual sources and codes, and also extending those codes.

The next heading deals with new procedures to recover codes that were done in the early 1970s (SCCS) or later that have been supplemented by scores of subsequent coded variables contributed by different authors and coding projects now mounting into thousands but still not explicated by codebooks alone without detailed comments and page numbers from the ethnographic sources. My own codings of polygyny variables (White 1988) are nearly the only codes that have done so, carried out because Murdock (1967) had failed to adequately distinguish different types of polygyny and their different types of statistical distributions.

3. Generosity as a Cultural Variable and Element of Economics

Arrow's concept of methodological individualism in accepted economics – wherein explanations must run in terms of the actions and reactions of individuals and not of other social categories – is contrasted here with one of many examples of economies that do not operate on this basis. In these terms, examples of MI cannot accept the study of economic development, as outlined above. The question is not the validity of Arrow's employment of the concept of MI but its limited application. In the cross-cultural literature generosity is among the coded variables in the SCCS dataset (v334) but its definition was not sufficiently precise to distinguish what specific topics the coders encountered for “the presence or absence of generosity” in different ethnographic contexts and societies.

Barry, Josephson, Lauer and Marshall (1976:217) defined their variable for Generosity as “a specific rather than a general attitude, but a wide range of actions may exemplify generosity. These include giving and sharing of food, possessions, time, or services to other of the community or outsiders, e.g., sharing the product of a hunt among the community members whether or not they were active in its attainment, or sharing and giving of toys.”

Logically, generosity is attributed to the *extraordinary* provision of time and other resources to others at household, lineage, tribal, state or other levels of aggregation. In order for the provision or distribution of a resource to be extraordinary, there must be a socially defined minimal standard of adequacy, below which behavior is deemed to be inadequate and above which it may be considered to be generous. While the standard of adequacy is seldom well defined, it nevertheless constitutes at the conceptual level a *rightful claim* which governs the allocation of risk and reward within particular social groups (White and Bell 2015).

Consider the description of chiefly “generosity” among the Thonga:

[The King] received most of the cattle and women captured in war and fines for certain offences; he was easily the richest man in the nation. In return for this, he was *expected* to feed and help his people generously. He had to care for his regiments and give them their shields ; in famine he was *expected* to help all his people and also at all times those in difficulties. Thus *if the king ruled according to tradition*, he was generous to his subjects, using his wealth for them ; he gave them justice ; he protected their interests ; and through him they hoped to satisfy their ambitions on battlefield and in forum. (emphasis added)

In the paragraph above a particular chief is expected to be generous, meaning that in previous distributions he has provided more than might have been expected from other chiefs who define the “standard”. Generosity will be socially recognized by distributions above this standard, but distributions below it can be said to be miserly, even constituting a form of theft. Consequently, the standard is a rightful claim (Bell 1995, 2006), being the legitimate

property of the beneficiaries even prior to its distribution. However, under the yoke of MI, rightful claims, which are so foundational to social action in any society and at every level of aggregation, are not allowed to be elements of formal models. Indeed, Arrow suggests that economists should be punished for recognizing ethnographic social relations as elements in economic behavior.

Every society possesses some form of domestic group in which basic resources are allocated to children and others in relation to rightful claims. However, societies vary in the number of levels above the household for which rightful claims are recognized. In hunting and gathering societies, gathered foods are commonly the possession of the households, alone; but the rewards of hunting are often distributed more widely. In many cases, the various parts of an animal are given clearly and unambiguous social destinations far beyond the domestic group, often effected by the wife of the principal hunter, so that neither miserliness nor generosity can be expected. On the other hand, hunters may consume much of their prey prior to returning to the village, or they may decide to focus on small animals which would lack broad distribution. Such men might be known as selfish relative to some standard, while men who operate differently might be said to be generous. Furthermore, many societies lack any form of chiefly distribution of the form mentioned for the Thonga. There are not fewer such distributions among agriculturalists. In fact, agricultural societies often have kings who expropriate large shares of the product of direct producers and redistribute it to small elites.

- Hypothesis A: From these considerations, it may be hypothesized that the *salience* within societies of the concept of generosity will be greater as the relative importance of hunting increases in hunter-gatherer societies and that generosity will have greater salience among hunter-gathers than among agriculturalists.
- Hypothesis B: Furthermore, if the household level distributions under the control of women are perceived to be only normal and standard, “evidence” of generosity will tend to be recognized only in relation to distributions controlled by men.

A DEf Wy study of generosity was suggested by economist Michael McCullough, who in praising fellow econometrician Anthon Eff for his work with Malcolm Dow on global and local causalities, explored a recent version of the SCCS in order to study the occurrence of generosity – a variable coded by Barry, Josephson, Lauer and Marshall (1976) in their SCCS codes v293-v336. A DEf Wy analysis of variables in the Standard Cross-Cultural Sample has the potential of discovering how perceived generosity may vary among the many social or economic contexts. Barry (personal comm. 2015) noted that the SCCS generosity variable was described as one of three ‘Sociability’ measures that were published in the form of a single score because there were very few differential ratings by the coders for the two genders and two stages of childhood.” Yet his coders were able to rate “generosity” for 104 of 186 societies on a scale from 0-10, as shown below. The other two variables, trust and honesty, were much less commonly given high ratings by the coders as salient. Generosity received significantly higher scores, with 85% at the median of the generosity scale or higher (15:89 or 85.6%). There was no coding of altruism, which is hard to gauge behaviorally.

0	1	2	3	4	5	6	7	8	9	10	Score by Coders
0	1	4	6	4	24	31	2	27	4	1	Generosity 85.6% > median
1	6	19	5	15	34	18	11	25	3	1	Trust 66.6% > median
1	5	18	15	13	28	15	5	8	1	1	Honesty 52.7% > median

It would have been useful to know whether Barry's coders had coded generosity of parents or a type of economic behavior where generosity can be imputed directly from resource distributions at various social levels¹ but this had to be ascertained anew by some other means for different societies in the original ethnographic sources. Fortunately, it was possible to find a simple means for locating relevant ethnographic texts under the names of specific societies where texts relevant to each society would differentiate familial from economic generosity.

4. Ethnographic Examples of Generosity

To verify what SCCS coders were reporting under the name of Generosity required consultation of observations on different societies in the SCCS ethnographies of different societies. A noncommercial search engine, Tor, was employed in these searches for the words generous or generosity plus an SCCS societal name. Two-word internet searches were used for each ethnographic group and for mention of Generosity, e.g. !Kung Generosity or Thonga Generosity, or for other societies. Only one group of societies from Africa and one from North America are included in this experimental study. Society numbers such as 2* are coded (e.g., !Kung) with numerals such as 8 that indicate high scores for Generosity (2*8). None of these particular findings mention generosity within households, since parental behavior is normally perceived as conventional. The society numbers followed below by a minus sign (e.g., Lozi) did not mention economic Generosity but others such as !Kung or Nyakyusa did mention economic generosity. It became evident that none of the coders were describing family-member generosity, and that when Generosity was mentioned it was economic generosity.

2*8 **!Kung**: generosity was important in a society that needed to share to survive.

3*8 **Thonga**: As described above (generous).

4-5- **Lozi**: (no mention of generosity).

8-5 **Nyakyusa** society from the 1890s—the period of first written records: commitment to generosity between age mates and generosity in urban kinship relations carry prestige in the same way.

9-4- **Hadza** impulse of pure generosity explains little (there is a Generosity Research Project there).

16*8 **Tiv** consider it rude and improper to discuss services in terms of “exchange” but insist rather that such matters be viewed as individual acts of generosity or as kinship or age-set obligations. They recognize the reciprocity, of course, but do not themselves cast it into terms which we would consider “economic.”

21*8 “The **Wolof** are famous for their hospitality ... and generosity ... which extends past every barrier of race or religion. Every visitor will readily find lodging and meals for as long as he wants to stay with nothing asked in return. Hospitality is one of the central values in their culture and something which every Westerner living among them needs to learn to emulate or risk having a reputation for being miserly, greedy or even a non-person. Their generosity extends as far as lavish gifts bestowed on certain occasions such as family festivals or on return from a prolonged voyage, and sharing with those in need who ask, especially relatives.”

- 133*9 **Klamath** “people are traditionally hospitable and generous in nature, and eager to educate non-tribal members about their culture.”

- 136*8 For the **Yokuts** “The components of character were values, truthfulness, modesty..., and, above all, generosity.”

- 140*9 **Gros Ventre** “The incorporation of the horse into Gros Ventre lifestyle undermined their principles of generosity and communal sharing.” “The Gros Ventre and Crow emphasized personal rivalry more than other tribes ... this wealth was channeled into demonstrations of competitive generosity.” “At the time of reservation settlement the

¹ Records from the coders' notes for the 600+ variables from the CCCC project were stored in University of Pittsburgh archives a few miles from the Oakland campus in Pittsburgh. The original SCCS coded data are available at <http://eclectic.ss.uci.edu/~drwhite/courses/SCCCodes.htm>

Gros Ventres were wealthy in horses, and men strived to be 'prominent' by generously distributing horses, cattle, and other property."

- 141*8 "While the Mandan(-**Hidatsa**) were farmers, raising corn, beans, and squash, they also sent out hunting parties to harvest buffalo on the Great Plains. The Okipa was a four-day Mandan ceremony to ensure that the buffalo would remain plentiful and that catastrophes could be averted; it reinforced the relationship between the supernatural and the people. The ceremony reenacted the creation of the earth and the history of the Mandan people. In this ceremony the Mandan recognized their responsibilities to maintain the covenant of generosity at the sacred center of creation. " "It was believed that a lavish display of goods expressed the generosity and solidarity of the clan. The sick person was happy in the belief that in the spirit world he could boast of the goods that had been given away when he died. The clan had no other role when death of a member occurred. Individuals of the father's clan were in charge of the last rites."

These internet queries support the hypothesis that the SCCS coders were reporting ethnographic statements about generosity in economic behavior rather than from generous parenting. From this perspective the kind of retroactive validation of the meaning of this particular code supported ethnographic statements that coders read in the context of coding variables of "generosity."

5. Reviewing Endogeneity from a Tutorial for Cross-Cultural Modeling

Particularly important in this new context of cross-cultural research, and as a complement of case studies, is the R software DEf Wy of Malcolm Dow and economist Anthon Eff in the context of the evolutionary complexities that are evident in cross-cultural research but not necessarily in other kinds of research. DEf allows cultural and evolutionary variables into the analysis. and the Wy element addresses the effects of deep evolutionary background variables. Pagel (2011), for example, an evolutionary biologist, shows that evolutionary variables are not individualistic; and cultural variables are present that are comprised of socially shared concepts. The emergence or ecological context of generosity as an evolutionary element of culture can be readily identified. Consequently, DEf Wy enables investigators to deal with variables that are either denied or problematic within the framework of methodological individualism.

Eff (2016) provides a tutorial that enables anthropologists, sociologists and economists to utilize a common framework of analysis within the evolutionary sciences, addressing key problems of endogeneity (i.e., where in regression, for example, error terms are correlated with independent variables, thereby invalidating the predictions of these independent variables.) Eff and Dow, in their DEf Wy R software, show how endogeneities can be broken down into components which allow various kinds of causality, including issues of exogeneity/endogeneity of independent variables: (Eff 2016:11) "in a regression model, causation must be unidirectional; independent variables must cause the dependent variable involved in a feedback relationship with the dependent variable – whereas in some cases changes in the dependent variable will cause changes in the endogenous variable." These are technical questions, but "in such a case, the estimated coefficient of the endogenous variable and its standard error will be biased (Kennedy 2003: 180-204; Green 2012: 219-256)." Yet, "From a materialist perspective, [our] model of religion would not be suspected of endogeneity, because the dependent variable is a feature of ideology, i.e., religious beliefs, and the independent variables are features of technology and the environment" (Eff 2016:12). Such are the complexities of datasets that cannot be extricated from evolutionary contexts.

6. Def Wy Results for the 104 Societies in the SCCS coded for Generosity

The SCCS is an enormous repository of data, including over 2000 variables and over 10,000 specific factors among the sets of ordinal categories. Moderately strong displays of generosity are widely distributed across different continents and were found in 86% of the 104 coded SCCS societies. Coders, as noted, actually found little evidence about generosity of parents, probably because such generosity would be expected by children as normal, not exceptional. A search for warmth and affection of caretakers showed that this variable was marginally significant for fathers (v486 but not significant for mothers) as partial predictors of (economic) generosity (Table 1). Barry et al (1976) failed to sustain the hypothesis that ethnographers would code varying degrees of generosity of parents toward their children, differentiated by age and gender.² However, other forms of (economic) generosity, as anticipated by Hypothesis A, were found to be more significant in hunter-gatherer societies than in agricultural societies, as manifested by (v2137), a dichotomous variable (planting =1, otherwise = 0). Generosity was less salient in agricultural societies (v151, p=.05) and in societies where there was less fixity of settlement (v150, p=.08), and approaching a near universal for technologically simple societies. These results may reflect the fact that men have the potential of sharing generously the product of hunting and fishing. The data also indicate that there are significant opportunities for the display or denial of generosity when valuable food sources are secured from external trade (v1, Food Source from Intercommunity Trade).

Considering ecology, coastal residence – hence a focus on marine resources (“meanalt” – near sea level –) is negatively associated with generosity, but on the other hand a compound variable of Trust*Mean High Altitude (v486*v335) is significant and positively related, suggesting that hunting of big game requires cooperation and trust among a group of hunters of large game, leading to occasions for expression of generosity. Generosity was weakly correlated (p=.02) in Table 1 with warmth and affection of fathers (v486), but the same variable was not significant for mothers. The automated data dredging for Generosity using Tor searches showed that the telling of creation stories was weakly correlated (p=.06) for fathers but not significant for mothers. These variables possess no a priori social significance, but may be useful in posing new hypotheses.

Table 1 displays the range of results of a cross-cultural model of correlates of (economic) generosity as a dependent variable based on Dow-Eff Wy analysis (Eff and Dow 2009). Many of these contexts are male-oriented, where male contributions are posited at “generous,” while those of women are not, as expected for reasons given in Hypothesis B.

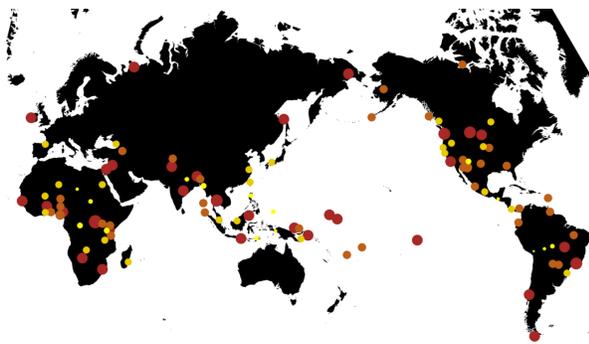
² Rohner and Rohner’s (1982) study of “bad parenting” found only four cases of “ungenerous” parental dyads in the SCCS 186 society sample.

Rmodel	coef	stdcoef	VIF	relimp	pval	hcvpval	bootpva	star	Dependent variable='v334': Generosity	
(Intercept)	2.8605	NA	NA	NA	0.7205	0.7056	0.7129		NA	
meanalt	-1.4760	-0.8468	2.8904	0.1513	0.0000	0.0000	0.0000	***	(Low) Mean altitude within 20 km radius (m) (Fishing)	
v1	0.2790	0.1881	1.0871	0.0180	0.0303	0.0102	0.0118	**	Intercommunity Trade as Food Source	
v2137	-0.9110	-0.2219	1.0694	0.0618	0.0087	0.0033	0.0064	***	Food Production: Planting (task present==1, absent==0)	
v335mean	0.0003	0.7763	2.9643	0.0985	0.0000	0.0000	0.0000	***	Trust*(Higher) Mean altitude within 20 km radius (Hunting)	
v486	0.1431	0.1658	1.0957	0.0201	0.0584	0.0190	0.0232	**	Warmth and Affection of Caretakers - Father: Aver	
v676	0.3676	0.1547	1.1207	0.0168	0.0806	0.0591	0.0635	*	(Male) Creation Stories (not sufficiently significant)	
Wy	0.0474	0.0031	1.1358	0.0019	0.9711	0.9694	0.9703		Network lag term	
To Try = no Wy autocorrelation affecting correlated										
	Fstat	df	pvalue	star	Diagnostics					
	-0.0054	12395	1.0000		RESET test. H0: model has correct functional form					
	0.5930	659	0.4415		Wald test. H0: appropriate variables dropped					
	0.2675	7757	0.6051		Breusch-Pagan test. H0: residuals homoskedastic					
	0.3265	653	0.5679		Shapiro-Wilkes test. H0: residuals normal					
	45.989	23	0.0000	***	Hausman test. H0: Wy is Irrelevant given no significant Wy					
	0.0892	428745	0.7652		Sargan test. H0: residuals uncorrelated with instruments					
OtherStat:	distance	language	ecology	Weak.Id	R2.final	R2.UR.model		nimp	nobs	BClambda
1	0	0.64	0.36	19.564	0.365	0.375		5	104	none

Table 1: Correlates of Generosity (v334) in the SCCS

7. Maps of the Generosity Dependent Variable and Independent Variables for Sealevel (Fishing and Marine Mammals), Lowland Agriculture (a proxy for Hunting), Fathers' Warmth and Affection, and Male Oriented Creation Stories (told by men)

The maps show how each variable in Table 1 occurs in geographic clusters that are frequently replicated by each of the independent variables. The large red nodes in each map are agricultural, with low generosity, while high generosity is found in societies more oriented to hunting and fishing. What is surprising is that while three of the scores of coders vary – 0-10 for Generosity (Map 1A v2137), 0-1 Hunting versus Agriculture (Map 1B v334), and 2-8 for Father's Affection (Map C v486) – these variables are highly correlated with each other. Map 1B and 1C scores are also highly correlated. Each of these correlations is significant at $p < 0.01$. Other correlations between independent variables are not significant.



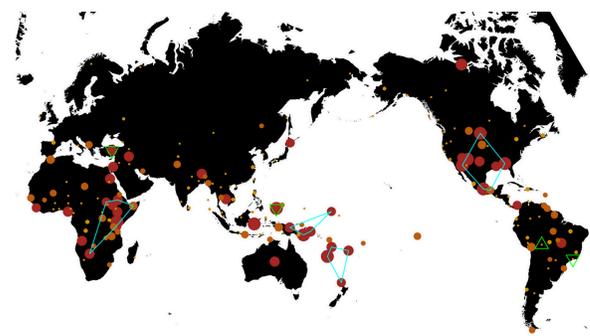
Map 1A: Codes for Generosity (v334)
Moderate-Strong

0 1 2 3 4 5 6 7 8 9 10 Score by Coders

0 1 4 6 4 24 31 2 27 4 1 Generosity

0 0 0 0 1 6 7 1 10 2 1 No Agriculture = More generosity

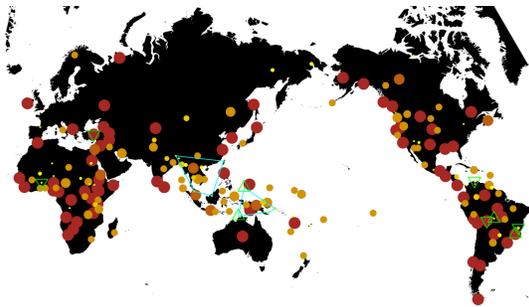
1 1 4 6 3 18 24 1 17 2 0 Agriculture = Less generosity



Map 1B: Codes for Agriculture (v2137)
Weak-0-Hunting proxy vs. 1-Agriculture

0 1

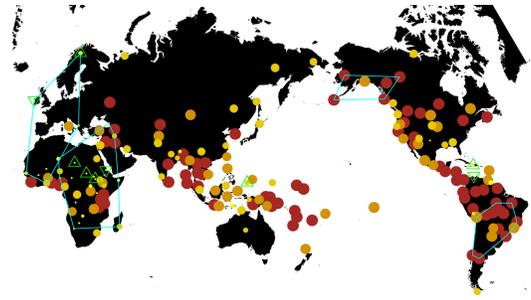
28 76



v676

Map 1C: Gender Creation Stories (v676)

1 Fem. 2 Couple 3 Masc. Score by Coders
20 36 56 Creation Stories
2 5 31 Non-Agricultural
18 21 35 Agricultural



v486

Map 1D: Fathers' Affection (v486), similar the distribution of Map 1B

2 4 5 6 7 8 Score by Coders
8 3 2 5 5 37 Codes

The model predominant in the maps 1A, 1B and 1C follow a general evolutionary trend toward more complex subsistence regimes. The distribution of Generosity is far more persistent than might be expected from such a trend with the development of complex societies at the level of kingdoms and states. The father's warmth variable is also more persistent in this respect. Contrastively, the regions of Christianity and Islam at the Western edge of Map 1D are regions of sparse displays of Generosity. Is there a tendency for generosity as more common elements of economics in areas of non-Abrahamic religions?

Six regions tend to occur in Maps 1A-1B-1C-1D, one each in West and East Africa, and others in Continental Southeast Asia, the neighborhood of New Guinea, West Coast North America, and Central America-Adjacent South America (note that West African market women might also be likely to be perceived as Generous). These represent parts of common language and similar ecological autocorrelation shown in Table 1 although autocorrelation (Wy) overall is not significant. The Generosity variable in Map 1A and the independent variables in Maps 1B-1C-1D show the worldwide breadth of distribution of Generosity as an important principle in economics.

8. Conclusion

The general conclusion here is that economic generosity is common in the societies of the SCCS ethnographic dataset and is not characterized in a manner that would accord in general with Arrow's concept that economic analysis must be analyzed in terms of methodological individualism.

Opportunities for the expression of (economic) Generosity are variable among societies but tend to follow three patterns. In terms of the ethnographic data of this study, an initial hypotheses of ethnographic data supports the greater prevalence of loci for the expression of generosity among hunters and fishers relative to agriculturalists. Generosity is most commonly attached to hunting, fishing or marine hunters, and trading societies. Generosity approaches a near universal for technologically simple societies. Second, these Generosities tend to persist in time into higher political structures such as chiefdoms, states, cities, and empires. These prototypes of generosity tend to provide leverage for power. While the domestic household might be a universal locus for potential manifestations of Generosity,

its appearance at other levels is variable among social structures. The generosity and self-sacrifice by women in domestic resource allocation is often underappreciated whereas similar behavior by men is more likely to be noted ethnographically. It might seem that the economics of generosity is also present in contemporary developing economies and that methodological individualism is not the best way for contemporary economists to study these economies. Strong gender biases are also evident in a wide variety of social contexts involving economic generosity. This applies to studies in economic development and a host of related issues that MI simply avoids.

Within the limited perspectives of methodological individualism, observations of variations of behavior as a function of social structure are excluded by definition. Indeed, methodological individualism abandons social structure in favor of the positing idealized independent, utility maximizers. In this study, however, unexpected social variables have come into prominence, prompting the need for additional study of social organization, social process, and economic generosities as principles beyond methodological individualism.

9. Postscript

Study of ethnographic examples of Generosity was not on the original approach taken here to understanding contexts discussed in ethnographies concerning Generosity. It began as a simple expedient for finding out how our coders were dealing with the topic. A perusal of ethnographies showed that it had very little to do with parents' behavior in relation to their children. Barry confirmed that his SCCS coders took a different approach. Searches for topics of Generosity in SCCS ethnographies showed they were not found in chapter headings or indexes. A novel approach was simply to extract using a non-commercial search engine a sample of societal names and the noun "Generosity" where it occurs in the relevant body of text. This allowed pairing of co-occurring nouns so as to select multiple examples of what ethnographers state about Generosity in the SCCS sample societies. This approach could easily be expanded into a full fledged coding project for the majority of SCCS societies. The results could provide a whole new database for a reanalysis of ideas in this chapter and other aspects that were not explored.³

10. Acknowledgements

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³ In the context of studies in economic development, development anthropologists (e.g., illustrated by the Institute for Development Anthropology, established 1976 but closed in 1977 by the IRS due to tax considerations) were displaced by government development contracts to economists. One way out of this kind of dilemma may be to expand the construction of cross-cultural datasets to apply to contemporary developing societies to provide independent means of hypothesis testing, something currently being explored by the HRAF.

Duran Bell substantially contributed an earlier draft (2015) and a theoretical perspective that can be found in earlier work (1995, 2006).

11. References

- Barry, Herbert III, Lili Josephson, Edith Lauer, and Catherine Marshall. 1976. Traits Inculcated in Childhood. *Ethnology*, 15: 83-114. Reprinted in *Cross-Cultural Codes*, Barry and Schlegel 1980, Editors, University of Pittsburgh. Chapter 7. STDS13.DAT Variables: 293-336.
- Bell, Duran. 1995. Beyond the range of methodological individualism: On the nature of sharing, *Current Anthropology*, 36 (5): 826-830.
- Bell, Duran. 2006. Bands, fertility and the social organization of early humans, *Journal of Social Evolution and History* 5 (2): 3-23.
- Bell, Duran. 2015. *The Last 73,400 Years: Social Relations in Prehistory*, Outskirts Press.
- Binford, Lewis R. 1980, Willow smoke and dogs' tails: Hunter-Gatherer settlement systems and archaeological site formation, *American Antiquity*, 45 (1).
- Binford, Lewis R. 2001. *Constructing frames of reference: An analytical method for archaeological theory building using hunter-gatherer and environmental data sets*, University of California Press.
- Dow, Malcolm M. 2007. Galton's Problem as multiple network autocorrelation effects. *Cross-Cultural Research*, 41: 336-363.
- Eff, E. Anthon. 2004. Does Mr. Galton Still Have a Problem? Autocorrelation in the Standard Cross-Cultural Sample. *World Cultures* 15(2):153-170.
- Eff, E. Anthon. 2016. In Press. Estimating Cross-Cultural Research Models: A Tutorial.
- Eff, E. Anthon and Malcolm M. Dow. 2009. How to Deal with Missing Data and Galton's Problem in Cross-Cultural Survey Research: A Primer for R. *Structure and Dynamics: eJournal of Anthropological and Related Sciences* 3(3), Article 1.
- Eff, E. Anthon. (In process) 2016. Estimating Cross-Cultural Research Models: A Tutorial. *Wiley Companion to Cross-Cultural Research*.
- Jorgensen, Jorgensen G. 1980. *Western Indians: Comparative Environments, Languages and Cultures*. University of Nebraska Press.
- Murdock, George P. 1967, *Ethnographic Atlas*. Pittsburgh: Pittsburgh University Press.
- Murdock, George P., Douglas R. White. 1969. Standard Cross-Cultural Sample. *Ethnology* 8(4):329-369. <http://escholarship.org/uc/item/62c5c02n> On-line edition 2008.
- Pagel, Mark. 2011. *Wired for Culture: Origins of the Human-Social Mind*. New York. Norton & Company.
- Roberts, Callum. 2012. *Ocean of Life*. Allen Lane.
- Rohner, Ronald P., and Evelyn C. Rohner. 1982. *Parental-Acceptance-Rejection* and Control. *Ethnology*. 20:245-260.
- Spolaore, Enrico. 2016. *Culture and Economic Growth*. Harvard, Harvard University Press.
- Spolaore, Enrico, and Romain Wacziarg. 2013. How Deep are the Roots of Economic Development? *Journal of Economic Literature* 51(2):1-45.
- Tylor, Edward B. 1889. On a Method of Investigating the Development of Institutions; applied to Laws of Marriage and Descent. *Journal of Royal Anthropological Institute*. Vol. 18: 245-272.
- White, Douglas R. White. 1988. Rethinking Polygyny: Co-Wives, Codes, and Cultural Systems. *Current Anthropology* 29(4):529-558, 568-572.

White, Douglas R., and Duran Bell. 2015, Methodological Individualism and Generosity. *World Cultures* 20(1).