HOW GEOGRAPHICAL CONCENTRATION AFFECTS INDUSTRIAL INFLUENCE: EVIDENCE FROM U.S. DATA

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All else equal, do more geographically concentrated, or more geographically dispersed, industries enjoy greater political "clout;" or is political influence maximized at some intermediate level of concentration? Cogent arguments can be (and have been: see the admirable literature summary in Busch and Reinhardt 1998, 3-6) advanced in favor of each hypothesis. More concentrated industries enjoy lower transaction costs in mobilization and communication and, at least in small-district systems, can expect servile obedience from those whom their strongholds elect.[1] More dispersed interests affect more voters and (again, thinking of small-district systems) can be pivotal in more constituencies. Finally, if one is considering only small-district systems, most notably single-member districts (SMD) like those used in France, the United Kingdom, and the United States, both highly concentrated and highly dispersed industries "waste" votes; rather, influence must logically be maximized at a moderate level of dispersion (Grier, Munger, and Roberts 1994, n. 10; Cameron, Epstein, and O'Halloran 1996; Rogowski 1997).

The question particularly occupies the endogenous tariff literature -- given equally protectionist sentiments in three industries, is the more concentrated, the more dispersed, or the moderately concentrated likelier to pressure government more effectively? -- but is by no means confined to trade issues.[2] Even less, we contend, should *empirical tests* of these hypotheses be confined to trade policy; or, worse yet, to any particular kind of trade policy (tariffs, quotas, non-tariff barriers). Doing so, we believe, runs at least three substantial risks, all of which plague the existing literature.

> (1) At a minimum, much valuable information is lost. Pressure directed toward ends other than trade restrictions -- subsidies, tax breaks -- goes unobserved.

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[1]Thus the late Henry M. "Scoop" Jackson was widely known as the "Senator from Boeing." The effects of such local dominance are obviously magnified where party discipline is weak and where seniority increases parliamentary influence.

[2]For important applications in quite different realms, see two papers cited immediately above: Grier, Munger, and Roberts 1994 and Cameron, Epstein, and O'Halloran 1996.

(2) Worse, it may tacitly be assumed that *all* industries seek trade restrictions; thus a geographically concentrated sector (e.g., software) that "fails" to win import restrictions (which, in fact, it strenuously opposes) may be counted as politically impotent.

(3) Even if pitfall (2) is avoided, virtually any specific measure of trade restrictions -- effective tariff rates, quotas, non-tariff barriers, any (weighted) combination of these -- will be a highly imperfect proxy for political success in the trade-policy arena. Industry representatives substitute freely along various policy dimensions, including not only overt barriers but structural and surreptitious ones; hence a sector's "failure" to achieve, e.g., a non-tariff barrier (assuming that it seeks protection in the first place) may be insignificant if, instead, it has won "safety" regulations that achieved the same effect.[3]

In short, we suggest that previous examinations of concentration's political effects have so often reached contradictory or inconsistent results chiefly because the *dependent variable* of political "clout" has proved extraordinarily difficult to operationalize. We offer here, at least for a representative sample of industries, a measure that:

(a) includes the effects of trade barriers, but also of other political interventions;

(b) makes no imputations of industries' trade preferences; and

(c) is continuous and uncensored, thus permitting (in principle) use of OLS, rather than probit or logit, analysis.[4]

The measure we suggest, while extraordinarily simple-minded in principle, is suggested by a profound observation first advanced (so far as we are aware) by Gene Grossman and Elhanan Helpman (1994). What, they ask, do pressure groups universally attempt to achieve in trade policy (or, equally, by any other political intervention)? The answer is breathtakingly simple: **a distortion of prices in their favor**. That is, let $\boldsymbol{P}$ be the vector of prices that would arise, for

[3]It is precisely this reasoning that long ago impelled the states of the European Union to subordinate such national regulations -- which could all too easily become covert barriers to trade -- to the ultimate authority of Brussels.

[4]We detract in no way from work that relies (often inevitably) on such "yes-no" indicators as whether the given sector does, or does not, have a non-tariff barrier (Busch and Reinhardt 1998); but there will likely be no disagreement that a continuous indicator is preferable.

every good or service in the economy, from the workings of a fully competitive market; then political action by any sector must aim -- whether by subsidies, tax concessions, regulation, import restriction, or whatever other means the invention of politicians may supply -- to raise the price of one's own product, or to lower that of crucial suppliers, so as to increase one's own net returns.

But the obverse, we maintain, holds equally well: that a sector receives a significantly above-market price shows, almost infallibly,[5] that it enjoys great political influence; that it receives a price considerably below market (e.g., landlords under strict rent control) proves the sector's political weakness.

The trick, of course, is to estimate what $\boldsymbol{P}$, the vector of "pure" market prices, would look like. For this purpose we invoke a modified version of the "Law of One Price."[6] We compare U.S. prices in various sectors with "world" prices, or more precisely with the population-weighted mean of prices[7] that prevail in the other advanced industrial countries (the member states of the Organization for Economic Co-operation and Development -- OECD), correcting for the manifestly non-political factors (chiefly geography, size, factor endowments, infrastructure, and institutional inheritance[8]) that account for country-specific price deviations. To give a specific example: it turns out that electronic components (SIC 367)[9] cost (in our

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[5]Regulation could conceivably push prices even above profit-maximizing levels; but, as standard Stigler-Peltzman analysis suggests, the affected industry would never seek such an outcome. More obviously, one wants to focus on prices *net of tax*, since in a few sectors -- alcohol and tobacco being the clearest examples -- "sin taxes" raise post-tax prices in ways adverse to the industry. Cf. United Nations 1997, 22.

[6]For a sampling of recent empirical work on the LOP (Law of One Price), see Baffes 1991, Ceglowski 1994, and Parsley and Wei 1996.

[7]Following standard statistical practice of the United Nations and of the International Comparison Project (ICP), and of almost all empirical work on the LOP, we measure a given country's price for a class of products as the purchasing-power parity (PPP) for those products, divided by the actual exchange rate (ER). These and other methodological details are discussed more fully below: see p. 8ff.

[8]We admit that institutions are endogenous in the longer run, but we regard them as exogenous in the immediate term.

[9]Standard Industrial Codes, for the (sensibly) non-initiated, are categories developed and used consistently by the U.S. Census. Two-digit codes are quite broad, e.g. 20 = "food and kindred products"; four-digit ones are narrowest, e.g. 2047 = "dog and cat food." For a full

benchmark year of 1992) 27 per cent more in the U.S. than, on (population-weighted) average, in the other OECD countries.[10] Only part of this difference, so far as our analyses reveal, is accounted for by the non-political factors that serve us well in other sectors; so it seems to us reasonable to assume that this sector achieves substantial rents through some combination of protection, regulation, and government-tolerated collusion.

We go into much more detail below, but the (still preliminary) "bottom line" of our analysis can be quickly stated: when we plot these sectoral price differences against a standard measure of *political* concentration,[11] we find that U.S. prices most exceed "world" levels in sectors of moderately high concentration (Gini index about .60); American prices decline steadily as a sector becomes either more or less concentrated than that, with the sole peculiarity that some rather dispersed industries (e.g., "eating and drinking establishments": SIC 58, Gini=.22) exhibit relatively high prices. In short, this analysis suggests that political clout is greatest at intermediate levels of concentration.

I. Arguments and models

Essentially two mechanisms underlie the alleged political importance of geographic concentration, and it is crucial to distinguish them.

> (1) On the one hand **transaction costs** -- outlays for mobilization, communication, co-ordination, monitoring, and the like -- are presumably reduced by physical proximity. These effects should be (a) almost invariant under different electoral systems; (b) related far more to *geographic* than to *political* concentration; and (c) monotonic, such that further geographic concentration invariably increases political influence.

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listing, see U.S. Office of Management and Budget 1987.

[10]Perhaps predictably, Japanese prices of such goods were only about 40 per cent of U.S. levels; but Canadian prices were 56 per cent, German prices 62 per cent, of those in the U.S.

[11]We do not test here for the effects of what Busch and Reinhardt label pure "geographic" concentration. In their helpful lexicon, "political" concentration means that the industry is confined to few electoral districts (which may, however, be geographically separate); whereas "geographic" concentration means physical proximity. See Busch and Reinhardt 1998, 6-8, and below, p. 17.

(2) On the other hand **electoral impact** -- the number of representatives whose electoral chances a group of given size can affect, holding constant its level of mobilization -- must be (a) strongly and inversely related to district magnitude[12] (Lijphart 1984, chap. 9), so that it prevails most markedly under single-member district (SMD) methods of election, hardly at all under "pure" proportional representation (PR); (b) related strongly to *political*, hardly at all to *geographic*, concentration; and (c) as a matter of formal logic (Rogowski 1997 and forthcoming), first increasing, then decreasing, as political concentration rises, with highly dispersed sectors even weaker than highly concentrated ones.[13]

We consider here only the latter mechanism -- electoral impact -- and thus restrict our attention to *political* concentration and to small-district (chiefly: SMD) systems like that of the United States. Our maintained hypothesis is, in essence, that where PC denotes political concentration

influence = F(controls, PC),

such that, for some value of concentration PC_0 within the observed range, $PC < PC_0 \Rightarrow \partial F/\partial PC > 0$ and $PC > PC_0 \Rightarrow \partial F/\partial PC < 0$; and, for any plausible measure of PC normalized to the unit interval, $F(0) < F(1)$, i.e. extremely concentrated sectors are more influential than extremely dispersed ones.

We undertake a preliminary plausibility test of the hypothesis based on recent cross-sectional U.S. data. Our precise operationalizations and procedures we now describe.

[12] A country's mean number of representatives per constituency, i.e. the total number of representatives divided by the total number of constituencies.

[13] On the other hand, as Grier, Munger, and Roberts (1994, 915 and n. 10) speculate, campaign *contributions* by sectors will likely decrease, then increase, as political concentration rises, "since votes can substitute for contributions."

II. Variables and their operationalization

Independent variables

We measure the **political concentration** of any given U.S. economic sector as a simple Gini ratio[14] on the distribution of its employment across Congressional districts in 1992, the most recent year for which Census data are available.[15] The Gini index has a number of advantageous properties (cf. Dagum 1987) and bears a strong family resemblance to the more idiosyncratic measure developed, mostly for purposes of formal argument, in Rogowski 1997 (as we are grateful to Eric Reinhardt for pointing out).

We have calculated the Ginis, at this stage of our research, for only twenty two- to four-digit SICs,[16] selecting with an eye to maximizing variance on the independent variable. The sectors and their respective Gini ratios are listed in Table One. Since we hypothesize a curvilinear

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[14]More formally, we calculate $G = 1 + 1/n - \frac{2}{n\Sigma y_i} [y_1 + 2y_2 + 3y_3 + \ldots + ny_n]$, where $y_1, \ldots y_n$ represent employment in the given sector, in decreasing order of size, in the respective Congressional Districts, and n is the number of districts on which data are available (see, for example, Pearce 1992, 172). Under a totally equal distribution, each $y_i = \bar{y} = \Sigma y_i/n$; so the final (negative) term reduces to $(2/n^2)(1+2+3+ \ldots +n) = (2/n^2)(n^2/2 + n/2) = 1 + 1/n$; thus verifying that, in this case, G = 0. (Recall that, by a theorem developed -- according to legend, at least -- by Gauss at the age of eight, the sum of any series of consecutive numbers 1+2+3+ . . . + n may be taken by summing from the "outside," i.e. n+0 = n, (n-1) + 1 = n, etc., converging on n/2. Hence we have n(n/2) + n/2.)

[15]Data are from the U.S. *1992 Economic Census* (U.S. Department of Commerce 1994-). These are given only at the county level and, where exact data would reveal the employment of individual firms, are reported only as numerical "classes" (e.g., 1-19 employees, 20-49, etc.). The latter cases require an estimation procedure, whose details the authors will gladly supply on request. The data were consolidated by Kotin, in earlier work (Rogowski 1997, 14), to the Congressional District level using a key kindly provided by Professor Fiona McGillivray.

[16]Despite the obvious level-of-analysis and double-counting problems associated with combining two-, three- and four-digit SICs, particularly when some are subcategories of others (e.g. dairy products, grain mill products, and sugar products -- respectively, SICs 202, 204, 206 -- are all subcategories of food products, SIC 20), we feel constrained to do so by the limitations of the available price data (discussed more fully below). As a cross-check, however, we subsequently analyze the two-digit SICs separately from three- and four-digit ones: see below.

relationship, we include in the regressions reported below both the Gini index for the given sector (GINI) and the square of that index (GINI2). We expect, of course, that the coefficient on the unsquared term will be positive, that on the squared term negative; and that $\partial clout/\partial Gini = 0$ at some realistic value of Gini, i.e. GINI $\in (0,1)$.

We then control for two factors that, in addition to concentration, should also affect political influence: the sector's size, and the cross-national tradeability of its products. On the assumption that sectors that employ more people are likely to be more powerful politically, we include the total number of employees in 1992 (labeled SIZE, detailed also in Table One) as another independent variable. We expect the coefficient on this term to be unambiguously positive. Additionally, we conjecture that *non-tradable* sectors will find it easier to extract rents. A classic example, even at the local level, is taxi service. Because a traveler facing exorbitant fares in, e.g., New York, cannot readily substitute a taxi even from New Jersey or Connecticut, schemes to restrict service and fares abound in such a sector. Among the twenty sectors examined here, only two, in our judgment, are significantly non-tradable: eating and drinking places (SIC 58) and health services (SIC 80). We simply "dummy" this variable (NONTRADE=1 for those two sectors, =0 for all others); and we expect its coefficient to be positive.

[TABLE ONE ABOUT HERE]

Dependent variable

As indicated earlier, we take as an index of overall political influence of a sector systematic differences between U.S. and "world" prices for its products[17] that cannot be explained by such non-political factors as geography, factor endowments, and institutions. Our sources of basic price data are: (a) for broad categories of goods and services, 1992 figures from the United Nations Statistical Commission (United Nations 1997); and (b) the somewhat finer-grained 1990 numbers of the Penn ICP Benchmark (http://pwt.econ.upenn.edu/benchmark/benchmark.html). In both sources, the method is (1) to calculate purchasing-power parities (PPPs), by sector, for the various currencies (e.g., how many dollars, pounds sterling, marks, lira, etc., are actually required to buy a particular "basket" of goods -- dairy products, electronic instruments, etc.); and (2) to divide PPP by the formal exchange rate (ER) then prevailing.[18] To take a particularly simple example, suppose that restaurant meals in Canada cost exactly the same in Canadian dollars as do identical restaurant meals in the U.S. in U.S. dollars; but that two Canadian dollars can be exchanged for one U.S. dollar. Then in fact, restaurant meals in Canada cost only half as much as in the U.S., i.e. for this sector the PPP/ER will equal .5.

Our starting-point is to consider the U.S. PPP/ER with regard to the population-weighted average of all of the other OECD countries in 1992, thus considering that average to constitute the "world" price among the highly industrialized countries.[19] These "raw" numbers,

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[17]Three possibly problematic aspects of these data sources are (a) that they cover only a limited set of goods and services, in the U.N. case rather broad categories, in the Penn ICP tables narrow but idiosyncratic ones (e.g., "mineral water"); (b) that the categories used do not correspond exactly to SIC codes; and (c) that the UN data are for 1992, the ICP data for 1990. We have taken pains to choose only categories in which the correspondence between SIC and UN/ICP descriptions seems quite close; but that has entailed using a mix of two-, three-, and even four-digit SICs. In the cross-country regressions described below, we have used, wherever possible, data for the particular year of the prices (e.g., GDP 1990 for the ICP data, GDP 1992 for the UN). The exact category descriptions, and the respective source of price data for each, are given in Table One.

[18]Exchange rates are from the IMF International Financial Series (IFS) data, Series rf.zf. IMF 1997.

[19]The comparison countries are: Germany, France, Italy, the Netherlands, Belgium, Luxembourg, the UK, Ireland, Denmark, Greece, Spain, Portugal, Austria, Switzerland, Sweden, Finland, Iceland, Norway, Turkey, Australia, New Zealand, Japan, and Canada.

which are the percentage deviations of U.S. from world prices,[20] are also given in Table One for each of the twenty sectors we consider. What strikes one at once about these figures -- an impression reinforced by perusal of the more complete UN and ICP tables -- is that *overall* U.S. prices are lower, i.e. there is a systematic tendency across most categories (and in the overarching category of "final consumption expenditure of the population") toward cheaper goods and services in the U.S. (and in some other countries: Australia, Canada, Ireland, New Zealand, and the UK; Greece, Portugal, Spain, and Turkey).

Attempting to control for such systematic biases and to isolate the sectors in which *political* influence occasions higher product prices, we first regressed country prices in each sector on five groups of variables:[21]

(a) <u>economies of scale</u>: a single variable, total gross domestic product (GDP), in U.S. dollars (converted by PPP), anticipated to have a negative coefficient (source: IMF 1997);

(b) <u>transportation infrastructure</u>, again proxied by a single variable, miles of paved road per square kilometer of territory, anticipated to yield cheaper prices (negative coefficient);[22]

(c) <u>geography</u>, more specifically land access from other countries, proxied as a dummy variable (whether the given country is, or is not, an island), anticipated to have a positive coefficient (lack of land access entails higher prices);

(d) <u>factor endowments</u>, captured by three variables, namely

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[20]I.e., where US and W represent, respectively, the U.S. and the world price, the figures given here are 100((US - W)/W).

[21]Collinearity and multicollinearity among the seven total variables were slight. The highest r between any two variables was -.49, between population per square kilometer and paved roads per square kilometer; and tolerances (=1/VIF) ranged from .63 (for paved roads per square kilometer) to .91 (for capital per worker).

[22]Source for miles of paved road is U.S. CIA 1998; for square kilometers of territory, Banks 1993.

(1) population per square kilometer, an indicator of relative scarcity of land as a factor of production;[23]

(2) capital per worker (source: Penn World Tables 5.6); and

(3) domestic energy production as a share of total energy consumption (source: OECD 1992, 1995).

Energy abundance is expected to raise prices across the board because of well-known "Dutch disease" effects on non-traded sectors (Frieden and Rogowski 1996, 41); abundant capital, to raise prices -- by its manifest effect on wages[24] -- except in the most capital-intensive sectors. Scarcity of land is expected to raise domestic food prices but to have little effect elsewhere in the economy. Finally we considered

(e) institutional legacy, in particular whether the given country had a single-member district (SMD) system of representation. Our working hypothesis here was that SMD, by threatening unpopular politicians with greater losses,[25] magnifies consumer power and likely forces prices down; i.e. the anticipated coefficient is negative.

Our expectations were largely borne out, with geography, institutional legacy, and capital per worker in particular having consistent effects in the anticipated directions. (The SMD dummy, for example, had a negative effect, significant at the .1 level or better, in fourteen of the twenty sectors examined; nowhere did it have a significantly positive effect.) But surprises emerged: economies of scale, proxied by GDP, had the anticipated significantly negative effect in motor vehicles (SIC 371), usually counted an increasing-returns sector; but in food generally (SIC 20), and also in dairy products (SIC 202), larger economies had significantly higher prices. In no other sector was the effect of size significant either way.

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[23]Population data are from Penn World Tables 5.6; km^2 of territory, from Banks 1993.

[24]In a competitive market, a worker's wage is equivalent to her marginal product, which is increasing in capital per worker. In a simple Cobb-Douglass model, for example, $Y = AK^{\alpha}L^{1-\alpha}$; hence $\partial Y/\partial L = A(1-\alpha)(K/L)^{\alpha}$. Again, we anticipate that higher wages entail higher prices.

[25]Losing one per cent of the popular vote under PR loses a party normally exactly one per cent of parliamentary seats. Losing one per cent under SMD, at least when two parties compete on roughly equal terms, occasions a loss of closer to 2.5 per cent of parliamentary seats. Taagepera and Shugart 1989.

Our more important aim, however, was to use these variables as controls; thus we take the *U.S. residual* of each of these cross-national sectoral regressions -- the difference between the U.S. price that was "predicted" by these deeper structural effects, and the U.S. price that we actually observed -- as driven by political influence, and hence as an indicator of relative political "clout." Just as our "raw" indicator was U.S. deviation from the average world price, so our corrected one represents U.S. deviation from the world regression line for the given sector. In the regressions that follow, this U.S. residual is simply labeled CLOUT.[26]

To illustrate again with a concrete example: in toys and sporting goods (SIC 394), U.S. prices are 36 per cent lower than "world" ones; yet structural factors would predict low U.S. prices (something more like 23 per cent below "world" levels), for in this sector a majoritarian electoral system and non-island status have particularly strong price-depressing effects; so the actual "clout" (or lack thereof) of this U.S. sector is gauged as more like -13 (i.e., -36 -(-23)) than -36.

Figures for that sector, and for all others examined, are again given in Table One, where the rightmost column, CLOUT, represents the U.S. residual from the cross-national price regression. Note that, by this measure, the politically *strongest* sectors examined are

	SIC	residual
electronic components	367	13.17
aircraft and parts	372	10.74
motor vehicles	371	- 0.49
transport equipment	37	- 4.07.

The politically *weakest* sectors include

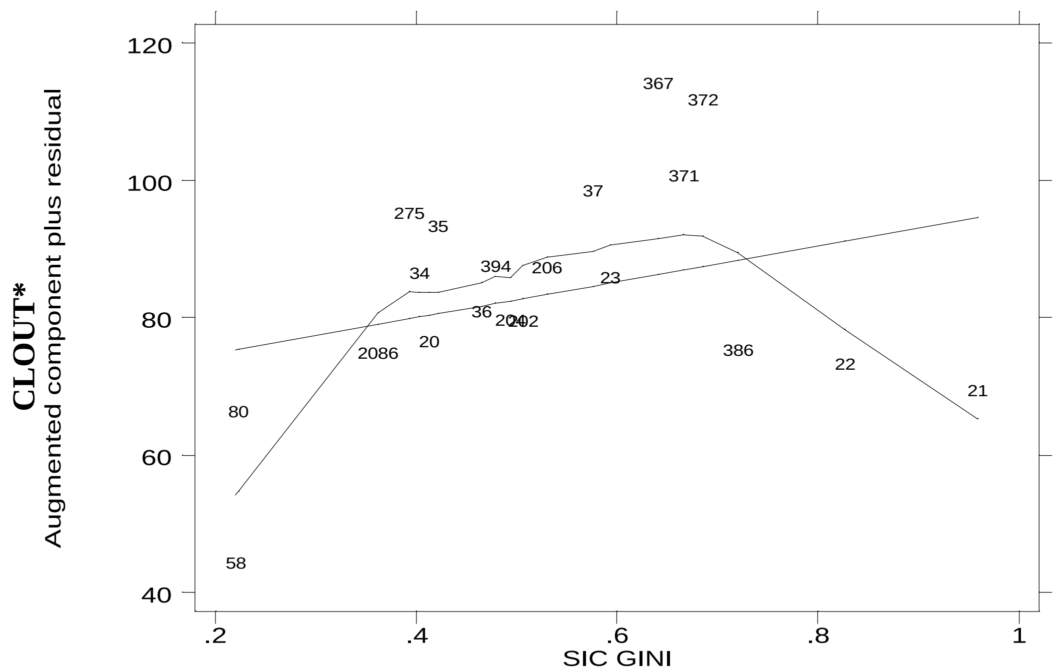
tobacco products	21	-30.75
textile mill products	22	-27.81
all food products	20	-25.78
bottled and canned soft drinks	2086	-25.42.

All of this, of course, is preliminary to the chief question: how is "clout" related to political concentration or dispersion?

[26]We are troubled that most U.S. residuals are still negative. We suspect that this indicates some specification bias in the cross-national regression and welcome suggestions for other possible controls.

FIGURE ONE

Non-structural Deviations from World Price, by Political Concentration, Controlling for Size and Tradeability: Nineteen U.S. Sectors



III. Results

A preliminary answer to our question is provided by Figure One, in which CLOUT* -- i.e., CLOUT, controlling for size and for tradeability of the sector's products -- is plotted against the Gini indices for the twenty sectors examined.[27] A pattern of rise and decline -- made evident by a lowess-smoothed curve fitted to the distribution -- begins clearly to emerge.

[27]Technically, Figure One is an "augmented" partial residual plot in the sense of Mallows (1986), i.e. ones that include an added quadratic term as a test for non-linearity. More precisely, the individual points $CLOUT_i = bGINI_i + qGINI_i^2 + r_i$, where b and q are coefficients, and the r_i are the residuals, from the full model. See Mallows 1986, 316.

This impression is confirmed by Table Two, which details the results of regressing CLOUT on the Gini index, the square of the Gini, the sector's number of employees (SIZE), and the dummy for non-tradeability, NONTRADE. It is clear that the coefficients on both Gini terms are significant at better than the .05 level and that for the non-tradeability dummy at almost this level; all are of the predicted sign. The coefficient on SIZE is (surprisingly, to us) insignificant, probably because SIZE is almost perfectly collinear with NONTRADE (r=.91) and highly collinear with GINI (r=-.61).[28] As is perhaps to be anticipated where degrees of freedom are so few (15), the regression as a whole is significant at only the .11 level.

TABLE TWO

Non-structural Deviations from World Price Regressed on Gini, Gini-squared, Size, and Non-tradeability

Source	SS	df	MS
Model	1307.28078	4	326.820195
Residual	2173.72618	15	144.915079
Total	3481.00696	19	183.210893

Number of obs	20
F(4, 15)	2.26
Prob > F	0.1117
R-squared	0.3755
Adj R-squared	0.2090
Root MSE	12.038

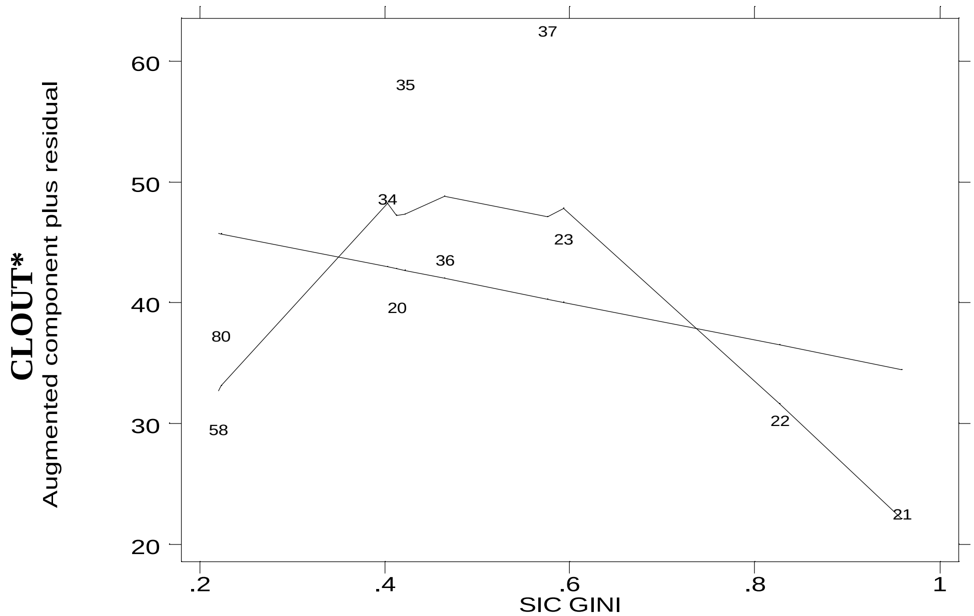
clout	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
gini	300.5134	126.4078	2.377	0.031	31.08144	569.9453
gini2	-241.7939	98.97229	-2.443	0.027	-452.7483	-30.83947
size	-1.41e-06	4.29e-06	-0.329	0.746	-.0000106	7.73e-06
nontrade	54.1017	26.26722	2.060	0.057	-1.885561	110.089
_cons	-99.49927	38.35664	-2.594	0.020	-181.2545	-17.74403

If, however, this specification can be taken as correct, we have $\partial clout/\partial Gini = 301 - 2(242)Gini > 0$ iff $301/484 > Gini \Rightarrow Gini < .62$; i.e., "clout" increases with rising concentration until we reach a Gini index of about .62, then declines. Further, and daring greatly, we note that a Gini of zero (complete dispersion) would imply (obviously) a net contribution of 0 from the Gini variable; while a Gini of 1 would yield a net contribution of 301 - 242 = + 59, i.e. total dispersion makes an industry less influential than total concentration.

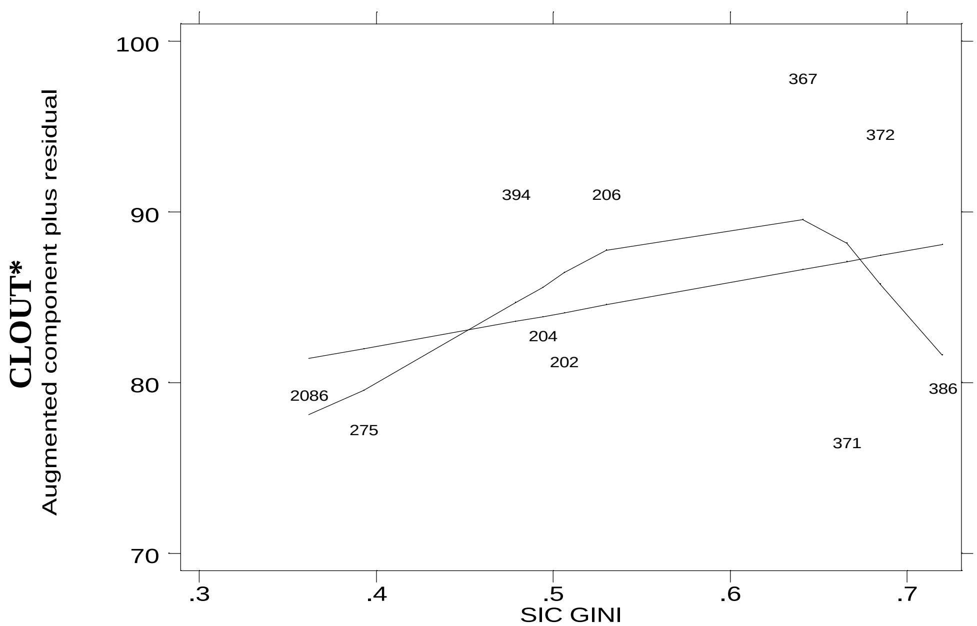
[28] However eliminating NONTRADE from the regression and including only SIZE, GINI, and GINI2 yields insignificant results.

FIGURE TWO
Comparing Two-Digit with
Three- and Four-Digit SICs

(a) Two-Digit



(b) Three- and Four-Digit



One cause for hesitation on this result is, as already indicated, our mixture of two-, three-, and four-digit SIC codes. A simple cross-check is at least to scatterplot the two-digit SICs separately from the more detailed ones; this we do in Figure Two, again controlling for size and non-tradeability by the method of augmented partial residuals. The predicted shape -- an inverted U -- is still observed clearly in both cases.

IV. Summary and implications

The principal accomplishment of this paper, we believe, is its development of a new and more serviceable measure of sectors' political influence, namely deviations of domestic from world prices, corrected for such structural price-influencing factors as factor endowments and infrastructure. While we readily concede problems with this indicator -- it does not, for example, fully capture the effects of some kinds of subsidies -- we submit that they argue more for fine-tuning than for any alternate operationalization of which we are aware.

When that measure of "clout" is regressed, in a representative sample of sectors for which data are available, on the three likeliest determinants of sectoral influence in SMD systems, namely number and political concentration (across districts) of employees, and tradeability of good produced, a clear pattern emerges: little effect of size, a strong effect of tradeability, and an inverted U with respect to concentration. Sectoral influence appears to be maximized by a Gini coefficient (of cross-district concentration) of about .62; and highly concentrated sectors appear to be somewhat more influential than highly dispersed ones.

Obviously, in the eternal refrain of researchers, more work remains to be done; we regard these results as quite preliminary. But if further work sustains these findings, what are some of the implications?

(1) If, as Paul Krugman (1991, 80-81) and Sukkoo Kim (1992, 1995) have argued, regional concentration of U.S. industry peaked around 1920 and continues to decline -- think only of what has happened to steel and automobiles since the 1960s -- then influence will have shifted (and will continue to shift) among industries over time, and very likely the total number of really influential sectors will have diminished. Given that the automobile industry, for example, was in 1992 at almost exactly the point of maximal influence (SIC 371, Gini .666), it appears that the deconcentration of this sector -- once centered entirely in Detroit -- must actually have *increased* its political influence; and the same is likely true (although we do not examine it here) of the formerly Pittsburgh-centric steel industry. In contrast, further deconcentration in such sectors as

commercial printing (SIC 275, Gini .393), which seems highly likely,[29] can only further erode these industries' political influence.

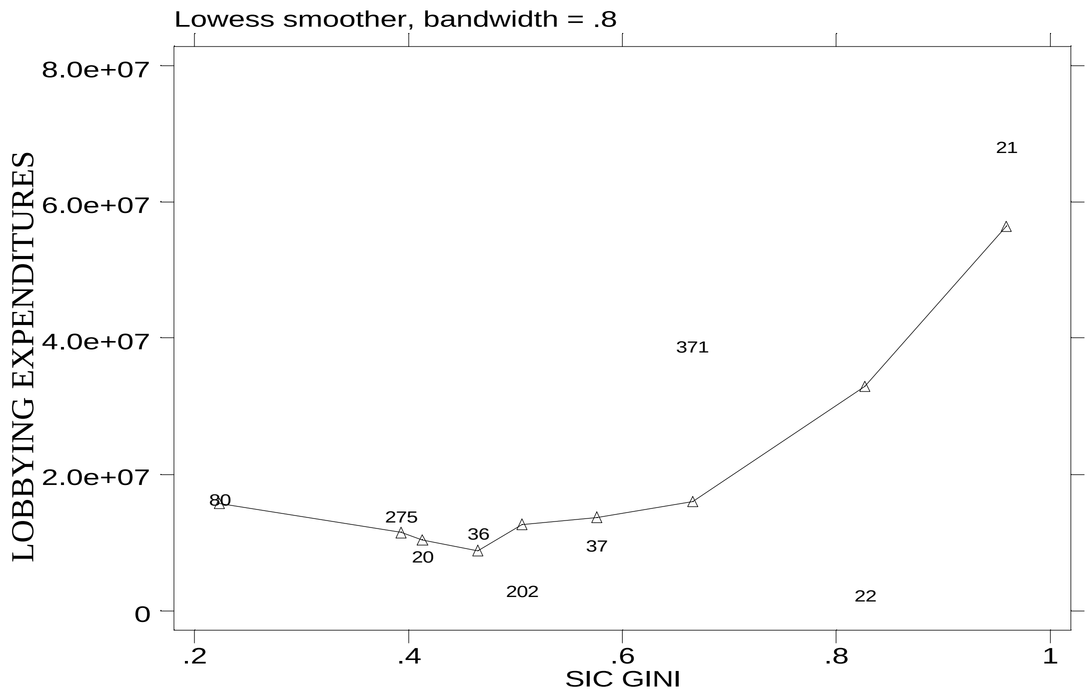
But further deconcentration, it seems to us, will probably leave few industries with significant clout. Two-thirds of the industries sampled here are in the region (Gini < .62) in which further dispersion implies loss of political influence. To take an even more drastic perspective: in the tentative specification that emerges from the regression of Table Two, a Gini of less than .42 (or of over .82) places a tradeable-good industry below the median level of influence (CLOUT = -14) of the sectors sampled here. But six of the twenty sectors sampled are already below that threshold, and five more are within .10 of it.

(2) We see value in pursuing the speculation of Grier, Munger, and Roberts (above, n. 13), that a decline in *voting* impact of sectors may well be accompanied by an increase in *financial* contributions. As a very preliminary step in this direction, in Figure Three we plot 1998 total lobbying expenditures of the eight of our sectors for which data are available (Center for Responsive Politics: http://www.opensecrets.org/pubs/lobby98/topind.htm) against the Gini indices of political concentration. There is some indication of a U-shaped curve that is the inverse of the ∩-shaped ones that connect "clout" with concentration. If, indeed, more and more sectors must substitute cash contributions for the voting clout that their employees once exercised, we may have a partial explanation for the recent explosion of campaign money in American politics.

(3) In contrast to the U.S. situation, it has been widely speculated that closer integration of the European Union, and in particular European monetary unification (EMU), will induce greater regional concentration of European industry (e.g. Krugman 1991, esp. chap. 3). If, as most studies suggest, almost all European sectors have hitherto been considerably less concentrated than its U.S. counterparts, then in the member states of the EU that use SMD or other small-district methods of election (notably France, Ireland, Italy, and the United Kingdom), sectoral influence should if anything increase. More broadly, these contrasting U.S. and European developments may imply a medium-term *convergence* in the extent of pressure-group influence on the two continents.

[29]The technology of printing is now such that books are literally printed on demand at some chain bookstores (notably Borders'); and, indeed, at home computers.

FIGURE THREE
1998 Sectoral Lobbying Expenditures
by Political Concentration of Sector



(4) Regional concentration, and changes in concentration, will have only weak and aleatory effects in the large-district PR systems that characterize the majority of the industrial democracies. An obvious test of our arguments is to construct Gini indices for such countries, at a level comparable to U.S. Congressional districts, and to see whether concentration affects domestic political influence -- again, gauged by non-structural deviations from world prices -- in any consistent way.

(5) Obviously, a necessary further step is to combine our approach with that of Busch and Reinhardt and, using the kind of price data we employ here to proxy clout, to tease out with greater precision the respective importance of *political* and *geographic* concentration.

(6) Finally, all of this work raises an issue that is important but likely extraordinarily difficult to research: to what extent, particularly in monopolistic sectors, is location itself to some degree a political decision? That is, do some firms locate production, not just with an eye to

maximizing profits, but in hopes of increasing their political influence? Anecdotal evidence suggests that they do, but concrete evidence is hard to come by.

As recent work on political and economic geography suggests, few large-scale trends are so inexorable or mysterious as the concentration and deconcentration of productive activity. Knowing how concentration affects influence, we believe, will be crucial to understanding future politics.

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TABLE ONE

SIC	SIC Category	Clout Equivalent	Source	GINI	SIZE	price diff (%)	CLOUT
20	food and kindred products	food	UN ECP	0.413	1502700	-23.05	-25.78
202	dairy products	milk, cheese, eggs	UN ECP	0.506	135400	-18.81	-20.90
204	grain mill products	flour and other cereal	Penn ICP	0.494	107200	-20.07	-20.62
206	sugar and confectionary products	raw and refined sugar	Penn ICP	0.530	91300	-7.13	-13.03
2086	bottled and canned softdrinks	non-alcoholic beverages	UN ECP	0.362	77100	-27.96	-25.42
21	tobacco products	tobacco	UN ECP	0.959	38000	-7.22	-30.75
22	textile mill products	household textiles	UN ECP	0.827	616400	-27.98	-27.81
23	apparel and other textile products	clothing	UN ECP	0.593	985300	-24.28	-15.78
275	commercial printing	books, newspapers, magazines	UN ECP	0.393	567200	-30.41	-5.74
34	fabricated metal products	tools and finished metal goods	Penn ICP	0.403	1362300	-21.90	-15.64
35	industrial machinery and eqpmt	non-electrical machinery	UN ECP	0.422	1738900	-16.09	-9.27
36	electronic and other electrical eqpmt	electric machinery	UN ECP	0.465	1438800	-29.17	-21.33
367	electronic components	electronic equipment	Penn ICP	0.641	529800	27.28	13.17
37	transportation equipment	transport equipments	UN ECP	0.576	1646900	-19.40	-4.07
371	motor vehicles and equipment	motor vehicles and engines	Penn ICP	0.666	702800	-31.90	-0.49
372	aircraft and parts	aircraft and other aeronautical equip	Penn ICP	0.685	548100	-22.45	10.74
386	photo equipment & supplies	cameras and photo equip	Penn ICP	0.720	77300	-22.80	-25.03
394	toys and sporting goods	equipment for recreation	UN ECP	0.479	97500	-36.44	-12.75
58	eating and drinking places	restaurants, cafes, hotels	UN ECP	0.220	6547908	-36.74	-11.00
80	health services	medical care	UN ECP	0.223	4452539	44.59	14.06